

**US Army Corps  
of Engineers®**

Portland District

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# **Columbia River Channel Improvement Project**

Final Supplemental Integrated Feasibility Report  
and Environmental Impact Statement

## **Volume 4**

Comment Letters on the Draft  
SEIS and Corps Responses

January 2003

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**COMMENT LETTERS ON THE  
DRAFT SUPPLEMENTAL INTEGRATED FEASIBILITY REPORT AND  
ENVIRONMENTAL IMPACT STATEMENT  
COLUMBIA RIVER CHANNEL IMPROVEMENT PROJECT**

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# **LETTERS FROM FEDERAL AGENCIES**

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
1200 Sixth Avenue  
Seattle, Washington 98101

Corps of Engineers Response

Reply To  
Attn Of: ECO-088

Ref: 98-057-COE

September 16, 2002

U.S. Army Corps of Engineers, Portland District  
CENWP-PM-E  
Attn: Robert Willis  
PO Box 2946  
Portland, OR 97208-2946

Dear Mr. Willis:

F-1 We have reviewed the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (DSEIS) for the proposed **Columbia River Channel Improvement Project** pursuant to the National Environmental Policy Act (NEPA), under section 309 of the Clean Air Act and section 102(2)(C) of the National Environmental Policy Act. Section 309, independent of NEPA, directs the Environmental Protection Agency (EPA) to review and comment in writing on the environmental impacts associated with all major federal actions. In addition, as a recognized cooperating federal agency for this proposed federal project, we will address additional information needed to further the success of federal activities within the proposed project area.

F-2 The DSEIS addresses proposed channel improvement activities located along the lower segments of the Columbia and Willamette Rivers. Specifically, the proposed project area extends from river mile (RM) 3.0 to RM 106.5 along the Columbia River and RM 0.0 to RM 11.6 along the Willamette River. While the action on Willamette River segments of the proposed project is deferred, the proposals on the Columbia River segments will proceed. The DSEIS proposes an action plan to dredge and dispose of riverine sediments in order to improve navigational opportunities on the two rivers. Also, the proposed federal project includes ecosystem restoration activities to improve habitat conditions within the project area.

F-3 EPA's recommendations for the Final Supplemental EIS are that the Corps do a cumulative effects analysis related to the project area, should explain how this project will either advance or delay the goals and objectives of the Comprehensive Conservation and Management Plan (CCMP) for the lower Columbia River estuary, and improve its discussion on project monitoring. Additional comments are also supplied. Based on our review, we have assigned the Draft Supplement EIS a rating of EC-2 (Environmental Concerns - Insufficient Information). This rating and a summary of our

F-1. Comment noted.

F-2. The Final SEIS supplements the *Final Integrated Feasibility Report and Environmental Impact Statement* (Final IFR/EIS, August 1999). The scope of the 1999 Final IFR/EIS included the following agency actions: 1) improvements to the navigation channel for the Columbia and Willamette Rivers, 2) ecosystem restoration features, and 3) the long-term disposal needs for continued maintenance of the Mouth of Columbia River (MCR) project, maintenance of the existing 40-foot channel, and the disposal requirements for construction and maintenance of the proposed channel improvements alternatives. The Corps is the agency with primary responsibility for navigation improvements and ecosystem restoration actions. The USEPA is the federal agency responsible for designating ocean disposal sites necessary to address long-term disposal needs. The USEPA expects to initiate formal rulemaking on the Shallow Water and Deep Water Sites in February 2003, with the designations becoming effective by summer 2003.

A SEIS typically focuses on project changes and/or new information. To understand the scope of the SEIS, it may be helpful to explain how the SEIS is intended to address changes in the proposed action and new information for each of the three types of actions that were the subject of the 1999 Final IFR/EIS.

Navigation channel improvements. The Final SEIS reflects the decision to defer action on deepening the Willamette River until after USEPA decisions have been made regarding the clean up of the parts of the river listed as a Superfund site. The Final SEIS, therefore, focuses on the Columbia River; impacts regarding the Willamette River are discussed to a lesser extent in Section 6.12. With regards to new information, much of the new information presented in the Final SEIS, is information that pertains to impacts of deepening the Columbia River, hereafter referred to as the channel improvement project.

## Corps of Engineers Response

F-2 (con't).

Restoration projects. The Final SEIS reflects the incorporation of five new restoration features and analyzes the environmental impacts associated with implementing these features. The new restoration features result in a minor change to long-term disposal needs.

Long-term disposal needs for MCR and channel improvements projects. The Final SEIS discusses revisions to upland disposal sites for the channel improvement project that resulted from the consultation process with NOAA Fisheries. In addition, implementation of the proposed restoration features at the Lois Mott embayment and Millar Pillar are anticipated to significantly reduce the need for ocean disposal of river channel material. The Final SEIS addresses this change in the disposal plan. Because the channel improvement project amounted to only a small fraction of sediments proposed for ocean disposal as analyzed in the 1999 Final IFR/EIS, the use of this material for ecosystem restoration, while significant in the context of the Corps' decision regarding the channel improvement project, does not fundamentally change the need for or sizing of the ocean disposal sites selected in the 1999 Final IFR/EIS. The SEIS also presents new baseline information collected for the ocean disposal sites selected in the 1999 Final IFR/EIS; however, the SEIS has less new information regarding this action than the other two actions discussed above.

F-3. The Final SEIS has been revised to include a more detailed cumulative effects discussion. Also, see our response to the specific comments following.

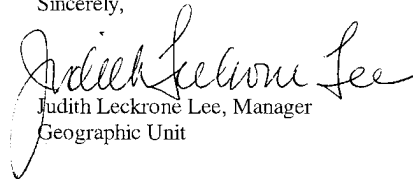
comments will be published in the *Federal Register*. A summary of the rating system we used in our evaluation of this DSEIS is enclosed for your reference.

F-3

Enclosed please find our detailed comments, which elaborate further on these issues. We are interested in working with the Corps in the resolution of these issues. I encourage you to contact John Malek (206-553-1286) or Tom Connor (206-553-4423) at your earliest convenience to discuss our comments and how they might best be addressed.

Thank you for the opportunity to review this Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the proposed Columbia River Channel Improvement Project.

Sincerely,



Judith Leckrone Lee, Manager  
Geographic Unit

Enclosures

- **To adequately address indirect and cumulative effects related to the project area, the FSEIS should (1) describe possible potential development more fully and (2) disclose the environmental impacts of that development.**

The FSEIS should explain more fully and in one place in the document how proposed dredging of flowlanes within the lower Columbia River might affect and encourage further developments of coastal ports and industrialization within the project area. As identified in the DSEIS (Needs and Opportunities, page 3-1 and 3-2), the proposed project of deepening the existing shipping channel will improve waterborne transportation and reduce vessel delay costs. Even at the present time, many coastal ports within the project area are planning expansion of existing facilities to remain economically competitive and viable (Section 3.4). Future development of port marine and industrial facilities in the project area "is reasonably foreseeable in response to regional and national economic trends" (page 6-55).

F-4. The Final SEIS includes a more detailed cumulative effects discussion. "Flowlane" is defined as the area in and adjacent to the navigation channel to be used for in-water disposal. Dredging for the channel improvement project is limited to the Columbia River navigation channel, except for selected reaches where dredging will extend 100 feet outside the channel boundary. As documented in the amendment to the Biological Assessment, letters from the sponsor ports for the channel improvement project provide additional information regarding the Biological Assessment's discussion of potential future port development. Specifically, the letters support the conclusion that, with the exception of berth deepening at several locations, potential future port development is not interdependent or interrelated with the channel improvement project, nor is such potential development an indirect or cumulative effect of the project for ESA purposes. The Corps coordinated with the USEPA Sediment Management Program and believes the cumulative effects analysis prepared for this Project and ocean disposal element follows CEQ guidelines.

F-4

The Council on Environmental Quality (CEQ) guidance (*Considering Cumulative Effects Under the National Environmental Policy Act, 1997*) provides a framework for analyzing cumulative effects. It is not practical to analyze the cumulative effects of an action on the universe; yet, the list of environmental effects related to the project area must focus on those that are truly meaningful. Water quality, biodiversity, and near-shore and estuarine habitats are the resources most likely to be candidates for cumulative effects analysis under a dredging project.

In short, the guidance states that in order to address cumulative effects, five things should be done:

- 1.) Identify resources that are being cumulatively impacted (If there are none, then state this.);
- 2.) Determine the appropriate geographic (within natural ecological boundaries) area and the time period over which the effects have occurred and will occur;
- 3.) look at A past, present, and reasonably foreseeable future actions that have affected, are affecting, or would affect resources of concern;
- 4.) Describe a benchmark or baseline; and
- 5.) Include scientifically defensible threshold levels.

- **To advance collaborative efforts for positive net habitat restoration gains within the project area, the Corps should explain how this project will either advance or delay the goals and objectives of the Comprehensive Conservation and Management Plan (CCMP) for the lower Columbia River estuary**

As a member of the Lower Columbia River Estuary Partnership, the Corps should evaluate in the FSEIS the potential impacts of this channel deepening project against the goals and objectives outlined in the Comprehensive Conservation and Management Plan (CCMP) for the lower Columbia River estuary since the action items in the CCMP are necessary to improve environmental conditions on the lower Columbia River. The Partnership includes various interest groups, representatives from the two Governors' offices; Oregon and Washington state natural resource agencies, local and tribal governments, and federal agencies, including the National Marine Fisheries Service, EPA, and the US Army Corps of Engineers.

In 1995, the environs of the Lower Columbia River estuary became part of EPA's National Estuary Program (NEP). The Lower Columbia River Estuary Partnership completed their initial obligations to the National Estuary Program (NEP) and EPA with completion of their CCMP in June 1999. This NEP study area, comprising over 230,000 square miles, includes the lower 146 river miles from Bonneville Dam to the mouth. This area was selected because many of the environmental impacts within the lower 146 miles were caused by human activities and inadequate attention was being paid to the environmental health and conditions of the lower river and estuary in the Columbia River system.

The overall task of the Estuary Partnership is to implement the CCMP. On October 1999, the Governors of Washington and Oregon, and EPA signed the Columbia River Estuary Program Implementation Agreement. For the first time, both Oregon and Washington were committed to implementing a bi-state plan that focused on the 146 mile stretch of the Columbia River between Bonneville Dam and the Pacific Ocean.

The CCMP identified seven priority problems in the lower river and selected forty-three specific actions to address those problems. The Lower Columbia River Estuary CCMP calls for no further loss of existing habitat and for restoring existing habitats to achieve a net habitat gain. Additionally, the CCMP calls not only for dealing with existing pollution problems, but eliminating future ones as well. Successful implementation of the CCMP depends on effective coordination and cooperation of the Partnership members. The Lower Columbia River Estuary CCMP represents a framework of collaborative community efforts whose goal is to facilitate coordinated environmental restoration and economic development in a sustainable manner. Acknowledgment of the goals and objectives of the Lower Columbia Estuary CCMP or an improved evaluation of the proposed project's environmental restoration features should be considered toward supporting the goals and objectives of the CCMP.

#### Corps of Engineers Response

F-5. The omission of reference to the CCMP for the lower Columbia River estuary was inadvertent, as both the USEPA and the Corps are participants in that planning effort. The estuary partnership's scientific workgroup did evaluate the ecosystem restoration features proposed for this project against the CCMP criteria and provided their comments. See stakeholder comments SS-90 through SS-102. The Corps has considered these comments as part of the Final SEIS. The Corps modified the Lois Island Embayment and Miller-Pillar ecosystem restoration features in the Final SEIS to address LCREP and comments from others. The Corps believes that these features, as well as proposed monitoring, advance the LCREP CCMP goals. The CCMP calls for an ecosystem based approach to protecting and enhancing the lower Columbia River and estuary. It has six actions that specifically address habitat conservation and restoration and are thus relevant to the EIS. They identify the need to: inventory and prioritize important habitats to be protected and conserved; establish a systematic approach to protect and restore key habitats; adopt consistent habitat protection standards; preserve and restore tributary buffer areas; restore 3,000 acres of tidal wetlands; and monitor the effectiveness of habitat projects.

F-5



## Corps of Engineers Response

- **The FSEIS should disclose more explicitly what types of monitoring will be employed (e.g., baseline, effectiveness, and compliance) and how monitoring will be phased throughout the life of the proposed project to support adaptive management.**

F-6

On wetland mitigation, the FSEIS should provide further disclosure of any proposed monitoring plans. Also, in the DSEIS, Table 1 (Appendix B, page 25) is referenced as a summarization of performance standards which will be used in mitigation. Yet, Table 1 is omitted.

F-6. Monitoring of wetland mitigation is addressed in the 1999 Final IFR/EIS, Appendix G.

- **The FSEIS should disclose how adaptive management will actualize monitoring findings into adaptive field implementation efforts.**

F-7

While the DSEIS does state that adaptive management will be applied to monitoring (page 4-7) and does address monitoring actions (page 6-39), accompanying monitoring and implementation elements were not clearly discussed nor referenced in the DSEIS. The DSEIS states that “monitoring actions proposed are for indicators where the levels of uncertainty and risk from project effects warrant gathering additional information” (page 6-39). Yet, the document does not adequately address how “new information would warrant change” in (see Table S6-5) management and/or implementation directions. The proposed dredging, disposal, and habitat restoration actions should be viewed more as potentially beneficial and experimental rather than as a approach that has demonstrative results. Thus, the proposed monitoring plan should contain a comprehensive monitoring strategy to evaluate the overall success of the plan in meeting its defined goals and objectives.

F-7. Comment noted. As part of the terms and conditions by NOAA Fisheries and USFWS, the Corps has submitted an implementation draft plan, which included information on monitoring methodology for: the ecosystem restoration features, research activities, project impacts and adaptive management. Once approved, the document will be placed on the Corps’ web site.

- **If the Columbia white-tailed deer is not delisted, we recommend that the FSEIS should disclose contingency plans for proposed salmon habitat restoration activities.**

F-8

Previously, levees on Tenasillahe Island were created to improve habitat for the Columbia white-tailed deer, a listed ESA species (page 4-27). In the DSEIS, the proposed action is to remove the levees contingent on the de-listing of the deer. The intent of levee removal is to promote salmonid access to viable habitat within the interior of the island. If the deer is not de-listed within the time horizon of the project, what n-litigation efforts will be implemented so that no further harm, such as lack of habitat access, will occur to listed salmonid species?

This discussion will not only improve disclosure on how restoration activities on Tenasillahe Island would move restoration towards “its historical habitat mix”(Section 4.8.6), but also how restored sites should be supportive of its historical mix of species.

F-8. If Columbian white-tailed deer are not de-listed, the long-term actions at Tenasillahe would not be implemented as noted in the BA and Draft SEIS. Ecosystem restoration features are voluntary actions by the Corps utilizing existing authorities to implement actions for the betterment of listed species as provided under Section 7(a)(1) of the ESA; there will be no replacement actions if a feature is not implemented.

Corps of Engineers Response

- **The FSEIS should disclose how proposed disposal actions within the Gateway 3 disposal site might impact the Sandhill crane.**

F-9 The DSEIS lacks adequate discussion on how proposed disposal activities at Gateway Site 3 might impact this state listed species. In addition, the DSEIS is not clear if proposed habitat preservation activities at other locations in the project area will be sufficient for the species if the habitat at Gateway properties becomes impaired due to disposal actions. This clarifying information is needed within the FSEIS.

F-9. Comment noted. The Final SEIS is revised.

- **The FSEIS should disclose what are the contingency plans, if any, of the proposed restoration sites are determined to be inadequate.**

F-10 The DSEIS states (page 4-21) that Bachelor Slough “restoration feature is contingent on sediment testing and approval by WDNR [Washington Department of Natural Resources]” (Table S4-6, page 4-21). If approval is not granted by WDNR, the FSEIS should explain what are the alternatives within the proposed plan to mitigate for dredging activities and promote ecosystem restoration within the Columbia estuary.

F-10. If the Bachelor Slough Ecosystem Restoration Feature is not implemented, no alternatives are proposed to replace this action. These restoration features are not mitigation proposed to offset an impact caused from the federal project. Ecosystem restoration features are voluntary actions by the Corps utilizing existing authorities to implement actions for the betterment of listed species as provided under Section 7(a)(1) of the ESA; there will be no replacement actions if a feature is not implemented.

- **The FSEIS should improve cartographic information absent in DSEIS figures.**

F-11 Figures S4-2, S4-4, and S4-4 lack information in the legend describing what the green areas represent. Figure S4-2 needs to define what the red dash lines represent (National Wildlife Refuge Boundary?).

F-11. Comments noted.

Regarding Figures on Columbia River Channel improvement Study (Proposed - Reach 1, Reach 2, Reach 5, and Reach 6), the red fonts identifying the wildlife refuges are hard to read and understand since it lies underneath the black hatching.



## United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
500 NE Multnomah Street, Suite 356  
Portland, Oregon 97232-2036

## Corps of Engineers Response

IN REPLY REFER TO:

September 17, 2002

Colonel Richard W. Hobernicht, District Engineer  
Portland District, Corps of Engineers  
CENWP-EM-E ATTN: Robert Willis  
P.O. Box 2946  
Portland, Oregon 97208-2946

Dear Colonel Hobernicht:

The Department of the Interior (Department), has reviewed the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (Supplemental IFR/EIS) on the Columbia River Channel Improvement Project, as prepared by the Corps of Engineers (Corps), Portland District. We offer the following comments with regard to your agency's proposed project.

### General Comments

For over a year the Fish and Wildlife Service (Service) has worked with numerous entities to assist in the development of a new biological assessment and biological opinion on the Channel Improvement Project. These entities included the Corps, NOAA Fisheries, the States of Oregon and Washington, the Columbia River Ports, an independent scientific review panel, several consultant companies, and a variety of public groups.

F-12. Comments noted.

F-12

Simultaneously, the Corps was working to produce the Supplemental IFR/EIS, which incorporated the information from the new biological assessment and biological opinion. According to the Corps, the Supplemental IFR/EIS was developed to: 1) "document additional information, environmental analyses, and project modifications resulting from consultation" on the project under the Endangered Species Act (ESA); 2) provide additional information on an updated disposal plan as well as updated data on project economics; and 3) comply with the National Environmental Policy Act and Washington State Environmental Policy Act requirements. With regard to listed species, the focus of the Service was on bull trout, bald eagle, and Columbian white-tailed deer and, in addition, coastal cutthroat trout, a species proposed for listing.

The Department appreciates the opportunity given the Service to be involved in the development of the Supplemental IFR/EIS from an early stage. We believe this early involvement contributed to the majority of our concerns being addressed in the Supplemental IFR/EIS through the ESA consultation process. We still have some concerns regarding the overall benefit of some of the restoration sites, however, and the lack of focus on restoring endemic habitats which have been most impacted by development in the estuary and river. Tidal forest swamps (sitka spruce and hemlock/cedar swamps) and tidal emergent wetlands with tidal channels, for example, are the

## Corps of Engineers Response

F-12 | habitats that have been most severely diminished in the lower Columbia River over the last century. These habitats supported juvenile salmon, benthic invertebrate populations, bald eagles, Columbian white-tailed deer, neo-tropical migrants, waterfowl populations, a variety of small and large mammals, aquatic furbearers, reptiles and amphibians, and, possibly, spotted owls and marbled murrelets. While the Supplemental IFR/EIS acknowledges the importance of these habitats, it appears that only one of the proposed restoration sites (Tenasillahe Island) attempts to restore historically important tidal marsh/swamp habitat by breaching dikes and allowing tidal inundation of the areas behind the dikes. Tenasillahe Island may not be available for restoration work for some time, however, as restoration of the island is contingent on establishment of secure Columbian white-tailed deer populations at other locations on the Columbia River. Several of the other restoration sites (Miller-Pillar, Lois Island Embayment, Bachelor Slough) also involve restoration methods which have not been tested or will require long-term efforts to achieve success. We recommend that careful monitoring and evaluation be given the highest priority at these sites and that alternative sites be pursued under an adaptive management agreement if these sites fail to provide viable habitats over time.

In addition, the Department understands that the Service is currently working on a memorandum of understanding to address many of the specific logistics entailed in the ecosystem restoration features which will be conducted on Service-managed lands. We believe this approach is the best way to ensure the restoration work proposed for Service lands is clearly defined, completed, and monitored, so as to achieve the greatest benefit to fish and wildlife resources.

### Specific Comments

F-13 | Page 4-11, 3<sup>rd</sup> paragraph: It would be clearer to state the ESA determination for Miller-Pillar and the Lois Island Embayment as *likely to adversely affect*.

F-14 | Page 4-19, 2<sup>nd</sup> paragraph: Originally, the restoration project at Shillapoo Lake was to provide for off-channel rearing habitat for juvenile salmonids. It would be useful to the reviewer to know why this seemingly beneficial feature of the restoration project was rejected. We recommend providing this explanation in the EIS.

F-15 | Page 4-24, 2<sup>nd</sup> paragraph: The Department encourages the Corps to conduct additional benthic monitoring prior to completing the Lois Island restoration features. This will allow for better evaluation of the success or failure of the restoration project.

F-16 | Page 6-17, 1<sup>st</sup> paragraph: This paragraph states that chemicals and organics are not present in the channel sediments. It should be made clear whether this statement truly means “not present” or “not present above threshold levels.”

F-17 | Page 6-26, 1<sup>st</sup> and 2<sup>nd</sup> paragraphs: The last two sentences of the first paragraph and the first two sentences of the second paragraph are redundant. These two paragraphs should be combined to make a clearer statement about crab distribution and abundance at the Deep Water Ocean Disposal Site.

F-13. The Corps prefers to use the exact language from the Biological Assessment.

F-14. The original (WDFW) restoration proposal at Shillapoo Lake was for waterfowl habitat enhancement. The Corps was prepared to conduct a feasibility evaluation of the Shillapoo Lake restoration feature for fisheries (salmonid) habitat development. The fisheries habitat concept was coordinated with WDFW and NOAA Fisheries twice and the final determination twice presented to the Corps by these agencies was to proceed ahead with WDFW’s original proposal for waterfowl habitat enhancement.

F-15. As included in USFWS’s Biological Opinion dated May 20, 2002, Section 8.5, Terms and Conditions, 5f., the Corps is required to coordinate with the Service on the development and implementation of pre- and post-construction monitoring protocols for the ecosystem restoration actions to gauge their effectiveness in restoring the type, function and value of habitats identified in the aquatic species BA. The Corps will be working with the Service on this Term and Condition.

F-16. Concur. The Final SEIS has been revised as suggested by the addition of the phrase, “not present above threshold levels.”

F-17. Concur. The Final SEIS has been revised.

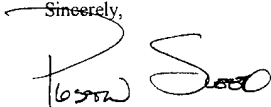
**Corps of Engineers Response**

F-18 | Page 6-51, 1<sup>st</sup> paragraph: The Department appreciates the efforts made by the Corps to fund research projects in the lower Columbia River which will add to the knowledge base on how the Columbia River ecosystem functions. We support the ecosystem restoration efforts that will increase river and estuarine habitats that have been drastically reduced over the past decades but also encourage careful monitoring of these sites to ensure their success as restoration sites.

F-19 | Page 6-52, 1<sup>st</sup> paragraph: It is not clear why brown pelicans are mentioned in this paragraph. If brown pelicans were also the focus of the biological opinion, there should be additional discussion of the project's impacts on this species.

F-20 | Appendix B, Wetland Mitigation Plan, Page 31, 1<sup>st</sup> paragraph: We request that the Service be added to the list of agencies receiving copies of the monitoring reports on the mitigation sites.

We appreciate the opportunity to comment. If you have any questions, please feel free to call me at 503-231-6157.

Sincerely,  


Preston A. Sleeper  
Regional Environmental Officer

F-18. Noted.

F-19. The potential for impacts to brown pelicans and other listed species relative to ecosystem research, monitoring and restoration features were fully addressed in the 2001 consultation BA. The sentence referenced in the comment was providing the reviewer of the Draft SEIS a specific reference point (Chapter 8) from which they could review pertinent information on listed species affected by ecosystem research, monitoring and restoration features.

As discussed in the 1999 Final IFR/EIS and the Corps' 1999 Biological Assessment for the channel improvement project, dredging and disposal activities are expected to have no effect on brown pelicans. However, some of the ecosystem research activities developed through the ESA consultation process may affect brown pelicans. Therefore, the 2001 BA addresses these new activities. The BA concludes that they may affect but are not likely to adversely affect brown pelicans (BA at Section 8.4.2.4).

F-20. The USFWS will be furnished monitoring reports on the mitigation sites.

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# **LETTERS FROM STATE AGENCIES**

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**JOHN A. KITZHABER, M.D.**  
GOVERNOR



**Corps of Engineers Response**

September 12, 2002

Colonel Richard W. Hobernicht  
U.S. Army Corps of Engineers, Portland District  
CENWP-EM-E Attn: Robert Willis  
P.O. Box 2946  
Portland OR 97208-2946

Dear Colonel Hobernicht:

Thank you for the opportunity to comment on the *U.S. Army Corps of Engineers' Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (SDEIS)* for the Lower Columbia River Channel Improvement Project. I continue to support the proposed channel deepening project provided that environmental issues raised by the state and others are sufficiently addressed by the Corps in the Final Supplemental Environmental Impact Statement (FSEIS).

The Columbia River navigation channel is important to the state's economic health, serving as a significant conduit for international trade. Deepening the channel to accommodate fully loaded new-generation deep-draft vessels would continue the Port of Portland's role as a vibrant regional port that makes the world market accessible to the goods grown and manufactured throughout this region. We have more than a thousand growers and manufacturers in this region who rely on the Columbia River channel as an affordable means to reach global markets. In rural areas, the project will help keep transportation costs down for growers of agricultural products and makers of export goods.

However, in considering the deepening project, we must maintain our important environmental standards to protect fish, wildlife and water quality. Given Endangered Species Act listings and Clean Water Act concerns, it is imperative to ensure the project minimizes and mitigates potential impacts to native salmonids and water quality.

Attached you will find comments from several state agencies. There are several key concerns that need to be addressed in the FSEIS.

First, the project must be implemented in a manner that is consistent with local, state and federal requirements. This includes federal requirements that are implemented by state agencies.

S-1. Comments noted.

S-1

Second, the Corps must maximize opportunities for the beneficial use of dredged sand, and avoid disposal that adversely impacts offshore and estuarine habitat. In addition, the Corps must carefully consider the project's potential impacts on sediment transport within the Columbia River estuary to ensure the littoral system is managed in an effective and sustainable manner.

Third, the adaptive management process for the project must be open and transparent. At a minimum, state agencies having interest and expertise in the estuary should be included in the adaptive management framework. Any decisions to change the project through this process should be considered publicly, and include input from interested stakeholders.

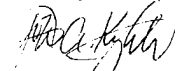
Lastly, support from the state is dependent on the Corps appropriately addressing agency concerns specified in the attachment to this letter. Oregon's state agencies are prepared to work with the Corps to resolve issues identified in the comments.

S-1

Not all state agencies with an interest in the project are commenting on the DSEIS. The Department of Environmental Quality (DEQ) and Department of Land Conservation and Development (DLCDC) will not comment due to their upcoming reviews of the proposed deepening project under the Clean Water Act and Coastal Zone Management Act. As you know, DEQ and DLCDC are working with the Corps and sponsoring ports toward commencement of the state's public review processes for the project. The review processes for both agencies will include public hearings and comment opportunities. In addition, other state agencies, some of which are submitting comments as part of this document, will participate in and comment on the state review processes conducted by DEQ and DLCDC.

Thank you again for the opportunity to comment on the SDEIS. I look forward to working with the Corps to make this project one that provides economic benefits and maintains the environmental health of the Lower Columbia River.

Sincerely,



John A. Kitzhaber, M.D.

JAK/NR/sm

Attachment



**Oregon Department of Fish and Wildlife (ODFW)**

**Corps of Engineers Response**

SUMMARY OF COMMENTS

The Oregon Department of Fish and Wildlife's (ODFW) Intejurisdictional Fisheries staff, Habitat Division, and Marine Resources Program have reviewed the US Army Corps of Engineers' (Corps) Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the Columbia River Channel Improvement Project (DSEIS). This letter serves as ODFW's response to the DSEIS concerning both river dredging and disposal options and ocean disposal issues. ODFW reserves the right to provide additional comments as part of the state's review of coastal zone management certification and water quality certification.

The Department provided comments on the Draft Environmental Impact Statement (DEIS) through the State of Oregon's DEIS response in February 1999. ODFW also commented on the Final Environmental Impact Statement (FEIS) through the State of Oregon's FEIS response in November 1999. We continue to have comments and concerns relative to the project. ODFW's major points of concern with the project continue to be offshore disposal site issues, threatened and endangered species effects, timing, mitigation for offshore and estuarine impacts, and additional information needs. In addition, the Department has serious concerns with two of the restoration/DMD sites proposed for the first time in the DSEIS. Finally, ODFW believes that it is critical for state agencies to be involved with the adaptive management framework proposed by the Corps.

S-2

The project area is situated within federally designated critical habitat for Snake River sockeye and chinook salmon. Dredging will occur in the Lower Columbia River where steelhead, chum, and chinook are also listed as threatened under the federal Endangered Species Act. Willamette River chinook and steelhead are also listed as threatened. In addition there are a number of state-listed endangered, threatened, and sensitive species in the project area including Lower Columbia River coho which are not currently federally listed.

While the Corps has addressed a number of issues raised in our prior comments, such as removal of all wetland dredged material disposal sites in Oregon and smelt sampling studies, ODFW continues to have a number of serious concerns with the proposal. We continue to be concerned that impacts to several of the important resources in the river have not been adequately addressed. While we support the work that has been done so far on sturgeon, ODFW believes there are still unanswered questions regarding the entrainment impacts on sturgeon mortality and disposal impacts on sturgeon rearing habitat. If the current telemetry study indicates that dredging and/or disposal would have adverse effects on these resources, ODFW requests that appropriate mitigation actions be developed including avoidance, minimization and compensation.

In addition, we continue to have serious concerns with the proposed offshore management of dredged material disposal (DMD). We summarize the ocean disposal

S-2. Comments noted.

S-3. After further consultation with ODFW, the Final SEIS is revised to specifically address Lower Columbia River coho salmon. The Corps has added a discussion of Lower Columbia River coho to the revised Coastal Zone Management Consistency Determination (Volume 2, Exhibit F).

In addition to the species listed under the Endangered Species Act that were the subject of consultation with USFWS and NOAA Fisheries, the State of Oregon has requested that the Corps include Lower Columbia River native coho salmon listed as endangered under the State's ESA. Coho spawn in small, relatively low gradient tributaries in the lower Columbia River. Juveniles rear in these tributaries for two years before migrating to the ocean. Adult coho return to spawn as three year olds. Lower Columbia River coho are predominately of hatchery origin, with only the Clackamas and Sandy Rivers still having wild runs. Most of the coho juveniles in the channel improvement project area are of hatchery origin and are released from mainstream and tributary hatcheries as smolts. Coho juveniles are considered stream type since most of their rearing occurs in the tributary areas. Consequently, the analysis of the impacts to federally listed stocks with stream type juveniles by the channel improvement project consultation would apply for coho as well. In addition, all the monitoring and restoration actions proposed for the federally listed stocks would be beneficial for juvenile coho as well. Adult coho return in the same time frame as federally listed stocks of adult fall chinook and would use the same habitat. Consequently, the assessment done for adult fall chinook would be applicable for coho. As a result, the Biological Assessment and Biological Opinion prepared for the channel improvement project for the federally listed stocks in the Columbia River is considered adequate for the assessment of impacts to Lower Columbia River coho.

issues below. Specific comments on the offshore portions of the DSEIS are addressed in Attachment A.

#### State Endangered Species Act

In our prior comments on the FEIS, the Department addressed the issue that the Oregon Fish and Wildlife Commission had listed Lower Columbia River coho as an endangered species under the State Endangered Species Act (ESA) (July, 1999 Commission meeting). This was the first time the Commission had listed a species since the State ESA was significantly amended in 1995. The statute now requires that the state adopt survival guidelines when a species is listed. In addition, the statute has a new requirement for state incidental take permits for state-listed threatened and endangered species (ORS 496.172(4)). State incidental take permits are not needed for species covered by a federal consultation. The only state-listed species that is not also federally listed is the Lower Columbia River coho which was not addressed in the Biological Opinion by the National Marine Fisheries Service. The state definition of take is different than the federal definition. The state definition is "*Take* " means to kill or obtain possession or control of any wildlife. The USACE needs to address the standards for an incidental take permit for Lower Columbia River coho potentially affected by the channel deepening and disposal actions. The standard for issuance of an incidental take permit is that the take will not adversely impact the long-term conservation of the species or its habitat. (ORS 635-100-0170(l)).

S-3

As we mentioned in our previous correspondence, survival guidelines are defined as quantifiable and measurable guidelines that the commission considers necessary to ensure the survival of individual members of the species. State Land Owning or Managing Agencies such as the Division of State Lands (DSL) need to determine whether an action proposed on state land is consistent with the survival guidelines. If the agency determines that the proposed action has the potential to violate the survival guidelines, it must notify ODFW. ODFW then has 90 days to recommend reasonable and prudent alternatives, if any, to the proposed action which are consistent with the guidelines. The submerged and submersible lands in the Columbia River, as well as many of the islands in the Columbia River, are state lands managed by DSL.

The most relevant standard in the survival guidelines for Lower Columbia River coho is that actions shall be avoided that cause a violation of water quality standards established by the Oregon Department of Environmental Quality. To be consistent with the survival guidelines for Lower Columbia River coho then, the project must meet state water quality standards. We will not know if the project meets state water quality standards until the Department of Environmental Quality completes its 401 Water Quality Certification process later this year.

#### Timing Issues

The Oregon Department of Fish and Wildlife has "Timing of In-Water Work to Protect Fish and Wildlife Resources" that permit applicants are typically required to adhere to by the regulatory agencies. Activities within the designated Columbia River navigation channel have usually not been required to meet the Department's timing guidelines. The Corps however, is proposing a number of activities outside of the navigation channel including flow-lane disposal. Any

S-4

#### **Corps of Engineers Response**

S-3 (con't). In that assessment the Corps and Services developed a conceptual model of the Lower Columbia River ecosystem relationships that are significant for salmonids. This model also applies to Lower Columbia River coho. Because the habitat requirements of adult salmonids are limited in the lower Columbia River, the model focuses on juvenile salmonids. The conceptual model incorporates the best available science for adult and juvenile salmonids. The basic habitat-forming processes-physical forces of the ocean and river-create the conditions that define habitats. The habitat types, in turn, provide an opportunity for the primary plant production that gives rise to complicated food webs. All of these pathways combine to influence the growth and survival and, ultimately, the production and ocean entry of juvenile salmonids moving through the lower Columbia River.

The conceptual model also demonstrates that the project complies with the Survival Guidelines in ORC 635-100-135. Specifically, the analysis demonstrates that the project should not degrade water quality, reduce stream flows, affect gravel in spawning areas, adversely affect riparian habitat, or impair fish migration. The ESA analysis, including the conceptual model, also demonstrates that the project and any incidental take associated with it will not adversely impact the long term conservation of Lower Columbia River coho or its habitat, or significantly decrease the likelihood that the fish will recover. The ESA analysis also demonstrates that the Project complies with the Survival Guidelines in ORC 635-100-135.

Although none of the changes identified in the conceptual model from the channel improvement project are believed to have a measurable effect on existing habitat types, the Corps is proposing to implement compliance measures to ensure effects will be minimized and will also monitor to confirm this conclusion. In addition, proposed ecosystem restoration and research actions will benefit Lower Columbia River coho. Based on the above, the project will not have a significant effect on native Lower Columbia River coho.

Specifically, through the Section 401 water quality certification process, which is currently underway, the state will obtain reasonable assurance that the project will not violate state water quality standards.

S-4. As indicated and coordinated through the ESA consultation process the following in-water timing restriction have been agreed to by both the NOAA Fisheries and USFWS as protective of aquatic species. These restrictions, in conjunction with the best management practices (as described in the Biological Assessment and Opinions) for dredging and disposal, minimize impacts to species of concern including state species of concern.

**Corps of Engineers Response**

S-4 (con't).

**Dredging Timing**

<b>Construction Features</b>	<b>Type of Dredging</b>	<b>Timing</b>
Navigation channel, including overdepth and overwidth dredging at depths greater than 20 feet	Hopper Pipeline Mechanical excavation	No timing windows No timing windows No timing windows
Turning basins at depths greater than 20 feet	Hopper Pipeline	No timing windows No timing windows
Rock removal with blasting	Mechanical excavation	November 1 to February 28
Rock removal at depths greater than 20 feet	Mechanical excavation	No timing windows
Berths	Mechanical excavation	November 1 to February 28
<b>Ecosystem Restoration Features</b>		
Lois Island Embayment Habitat Restoration	Mechanical excavation Pipeline Hopper	No timing window for material placed in the temp. construction sump at CRM 18-20. Pipeline dredging of material from the temp. construction sump will occur in the November to February in-water work window.
Purple Loosetrife Control Program		July 1 – Oct 31 (no dredging required; represents application timeframe)
Miller/Pillar Habitat Restoration	Pipeline	No timing windows
Tenasillahe Island Interim Restoration <sup>1</sup> (Tidegate/Inlet Improvements)	Mechanical excavation	July 1 – September 15
Tidegate Retrofits for Salmonid Passage	Mechanical excavation	July 1 – September 15
Walker/Lord and Hump/Fisher Islands Improved Embayment Circulation	Mechanical excavation	July 1 – September 15
Cottonwood/Howard Island Proposal <sup>2</sup> Columbian White-Tailed Deer Introduction	Not Applicable	No timing window (no dredging required)
Tenasillahe Island Long-Term Restorations <sup>3</sup> (Dike Breach)	Mechanical excavation	July 1 – September 15
Bachelor Slough Restoration <sup>4</sup>	Pipeline	July 1 – September 15
Shillapoo Lake Restoration <sup>5</sup>	Mechanical excavation	July 1 – Sept 15 (in-water work only); balance of work behind flood control levees and thus no timing window
<b>Mitigation Action</b>		
Martin Island Embayment	Pipeline	No timing window

All flowlane disposal, as mentioned in your comment, is typically done in the channel or channel margins in water depths of 50-65 feet. No timing restrictions are used for maintenance dredging. The reason for the ongoing exclusion from the in-water work period for the channel work is that it occurs at a depth below 20 feet, which is the depth that salmon commonly migrate.

## Corps of Engineers Response

S-4 activities outside of the navigation channel should be conducted within the Department's timing guidelines. The in-water work timing for the Columbia River is November 1 - February 28. The Department understands that the Corps will be continuing studies on sturgeon and crab in order to minimize the effects of dredging on these species. The results of these studies will need to result in timing of dredging operations that minimize impacts to these resources.

### Off-Shore Disposal Issues

S-5 The Department continues to have significant concerns with the proposed offshore disposal site management. The main issues with marine disposal are the task force, the size of the site, the lack of adequate biological characterization of site, and the lack of mitigation. These concerns are outlined in more detail in Attachment A.

### Proposed Restoration/DMD Sites

S-6 The DSEIS contains a proposal for 2 significant new restoration/dredged material disposal actions in the Columbia River estuary. The Department has serious concerns with the Lois-Mott Island proposal and the Miller-Pillar Rock pile dike proposal. ODFW understands that the Corps, NMFS and USFWS developed these restoration actions. The state of Oregon however, was not consulted in the development of these options and we have serious questions as to their actual restoration value in addition to their impacts on existing natural resources.

S-7 The proposed fill at Lois-Mott Island is for 357 acres. It is proposed in an area adjacent to the Tongue Point site for a net pen and select area fishery for coho and chinook salmon that has received substantial funding from the Department since 1995. The site of the proposed fill is the main area used by fishers in the terminal fishery. We are concerned that the proposal would destroy the fishery all together. The Tongue Point fishery is part of a joint Oregon-Washington strategy to maintain adequate fishing opportunities for the commercial fishing industry in the Columbia River. The proposed restoration site is also a rearing area for sturgeon and a popular sport fishing location for sturgeon.

S-8 The second proposal at Millar-Pillar would essentially unite Miller Sands and Rice Island and would consist of 234 acres of fill. The Department is concerned with this proposal for a number of reasons. First, the state, Corps and other federal agencies are already trying to deal with a significant bird predation issue created by the existing dredge material islands at Rice Island and other locations. We do not believe that it is appropriate to add dredged material to these artificially created islands, further exacerbating the bird predation problem. In addition, the proposal would basically split the river flow in two. There is a biological value in the current water exchange between Jim Crow Sands and Miller Sands. There are two tongues of water that go around Jim Crow Sands. The proposed dredged material disposal would substantially reduce this flow. If the water flow is eliminated between Miller Sands and Jim Crow Sands, ODFW is concerned that the Oregon side of the channel will fill in. This is an important commercial fishing area as well.

S-4 (con't). As long as the dredge discharge is kept below 20 feet, impacts are expected to be minimal. Flow lane disposal in off channel areas that are as deep or deeper than the main channel should also have a minimal effect on salmon. Studies conducted to date have been used to develop the restrictions in the above table. Additional research on sturgeon will be used to manage disposal operations to minimize impact to sturgeon and their habitat, including potential scheduling of disposal operations. Additional information regarding entrainment of crab during dredging operations has been incorporated into Exhibit K-4. This information confirms that the impacts to crab should be small.

S-5. General comment noted; specific comments are addressed under S-12 through S-30.

S-6. Lois Island embayment and Miller-Pillar ecosystem restoration features were initially discussed and conceptually developed in 1997 with a multiple agency team, which included ODFW representatives during the course of the Lower Columbia River Restoration meetings. All of the ecosystem restoration features described in the 1999 Final IFR/EIS, as well as Lois Island embayment and Miller-Pillar, were a direct outcome of these interagency meetings. The Miller-Pillar ecosystem restoration feature was circulated and comments addressed in our October 1998 Draft IFR/EIS. Miller-Pillar was not included in the 1999 Final IFR/EIS due to NOAA Fisheries concerns regarding avian predators utilizing the pile dikes associated with the feature. NOAA Fisheries concluded that with resolution of the avian predation problems (cormorants perching on pile dikes and foraging on juvenile salmonids), their concern over implementation of Miller-Pillar feature would be negated (Ben Meyer, personal communication NOAA Fisheries). The Corps, through use of avian excluders placed on pilings and spreaders, which are pile dike features used by perching cormorants, has resolved this issue to the satisfaction of NOAA Fisheries.

The Oregon Department of Land Conservation and Development' December 1, 1999 review of our 1999 CZMA determination specifically requested estuarine restoration actions be included in the proposed project. The State of Oregon was contacted as it related to the zoning for the sites and the Corps had conversations with DLCD prior to including these restoration sites as part of the ESA consultation. Further, the Corps and the sponsor ports held a briefing for the State of Oregon on these actions after the release of the Biological Assessment on January 28, 2002. Specific State of Oregon concerns related to the Lois Island embayment and Miller/Pillar ecosystem restoration features are addressed in subsequent responses.

S-7. The Federal Government disagrees that the proposed restoration would destroy the fishery. The proposed ecosystem restoration feature, as revised, is separated from the Tongue Point net-pen site by greater than approximately 3,000 feet at the nearest point. The restoration feature will impact part of the area established for the select area fishery (terminal) for coho and Chinook salmon. We will first address area extent of the ecosystem restoration feature relative to the select area fishery at Tongue Point and potential impact to the net rearing pens where the juvenile salmonids are raised. The total acreage base for the select area fishery (SAF) is approximately 1,032 acres. As initially proposed, the 357-acre restoration feature would impact 35 percent of the acreage base for the select area fishery (SAF) at Tongue Point. The Corps' revised proposal to develop tidal marsh habitat in Lois Island embayment would utilize 191 acres or 19% of the Tongue Point SAF acreage base (3% of the 6 lower Columbia River SAF sites). Tidal marsh habitat development (fill) would start along the northern edge of the embayment and proceed southward in a relatively uniform manner.

### Corps of Engineers Response

S-7 (con't). A large, open embayment comprising a substantial portion (81%) of the SAF acreage base would remain post-restoration for terminal fishers. The remaining acreage base (841 acres) would still be substantially larger than four of the 6 SAFs established in the lower Columbia River. The South Channel (432 acres), Blind Slough/Knappa Slough (700 acres), Steamboat Slough (73 acres) and Deep River (190 acres) SAFs are all narrow, linear fishing zones. Thus, the remaining acreage in the Tongue Point SAF is more than adequate to support a terminal fishery.

The net pens are currently located at the dock at South Tongue Point. We estimated that the distance from the net pens to the southernmost extent of our original restoration proposal was 1,250 feet. The revised proposal would result in a separation distance of approximately 3,000 feet. Dredged material to be placed at Lois Island embayment is medium sand with some fine and coarse-grained sand that is suitable for unconfined in-water disposal (1999 Final IFR/EIS; Section 2.5.1). There are no contaminant issues associated with the material to be placed. The sandy dredged material will settle rapidly in place and turbid water associated with placement will be localized around the discharge point. Thus, the Federal Government anticipates no affect to juvenile salmonids raised in pens at the South Tongue Point dock.

The most popular location for the sturgeon sport fishery in the general project area lies north of Mott Island and east of Tongue Point, outside our proposed restoration site. The temporary sump location alongside the navigation channel, from which material would be pumped to the embayment, lies immediately north of the most popular sturgeon fishing area. Occasional use of the embayment for sturgeon fishing does occur but the "popular sport fishing location for sturgeon" lies outside the restoration area. We concur that juvenile sturgeon rearing occurs in the embayment. Restoration of tidal marsh habitat would ultimately increase detrital export to the estuary providing more food for benthic invertebrates and in turn benefiting white sturgeon. Any habitat restoration action will result in benefits to some species and detriments to others. While the Lois Island restoration feature may have impacts to other species, including white sturgeon, the results are expected to be beneficial to endangered juvenile salmonids as well as other fish and wildlife resources over the long-term.

S-8. The comment that the Miller/Pillar ecosystem restoration feature "... would essentially unite Miller Sands and Rice Island ..." is incorrect. The Miller/Pillar feature would physically begin approximately 600 feet upstream of Miller Sands Spit, channel-ward of the marsh at the upstream tip of Miller Sands Island. The feature would extend upstream to a point approximately 1,750 feet downstream of Pillar Rock Island. The location of the Miller/Pillar feature, south of the navigation channel at CRM 25-26.5 is approximately 4 miles upstream of Rice Island at CRM 21-22.5 that lies north of the navigation channel. The state's comment that it is inappropriate to add dredged material to Rice, Miller Sands Spit and Pillar Rock given the significant bird predation issue created by the existing dredged material islands in the estuary is based on a misunderstanding of the proposal. As revised to respond to comments on the Draft SEIS (Section 4.8.6.3), the Miller/Pillar ecosystem restoration feature will restore tidal marsh and intertidal flats habitat in a naturally erosive area. The restored tidal marsh and intertidal flats habitat would be inundated daily by tidal action. Thus, the ecosystem restoration feature, in addition to not being connected to Miller Sands, Rice or Pillar Rock Islands, would represent a tidal marsh and intertidal flats habitat.

**Corps of Engineers Response**

S-9 The Department is also concerned that the proposed restoration actions are not truly restoring habitat types that have been the most severely impacted in the estuary. According to the excellent 1983 CREST document, *Changes in Columbia River Estuary Habitat Types Over the Past Century* by Duncan Thomas, tidal marshes (- 43.1%) and spruce swamps (- 76.8%) are the habitats that have been the most adversely affected over the past 100 years. Shallow water and flats have actually increased by over 10%. In fact every estuarine habitat type has experienced a loss except shallow water and flats.

S-10 In addition, ODFW is concerned that the Lois-Mott Island proposal does not restore the historic nature of the estuary. The historic nature of Lois and Mott Islands was that they were not islands at all. They are dredge spoil islands. True restoration for these sites would be to remove the existing dredge material, not to add additional dredge material. While we are not proposing that the Corps remove Lois and Mott Islands, we do not believe it is appropriate to call filling of the existing embayment restoration.

S-11 The Department is also very concerned with the magnitude of the restoration projects being proposed by the Corps. We do not believe it is prudent to proceed with projects of this size without significant pre and post monitoring to ensure that the project is truly providing a biological benefit. We believe it would be more prudent to create pilot projects first to determine if the proposals are appropriate.

S-8 (con't). The restoration feature would not provide nesting habitat for Caspian terns or other bird species and would not exacerbate the bird predation problem. Piling and spreaders comprising the pile dikes would be fitted with bird excluders that the Corps has placed on most estuary pile dikes since 2000. These excluders have been effective in keeping cormorants off the pile dikes.

Third, the state contends that the feature would basically split the river flow in two and eliminate the river flow between Miller Sands and Jim Crow Sands. This remark is inaccurate. The major source of river flow into Cathlamet Bay in this vicinity is Woody Island Channel immediately upstream of Pillar Rock Island. The Corps' field data collected in the proposed Miller/Pillar pile dike field indicates that flows in the vicinity are primarily directed downstream (west) rather than south between the islands.

The Corps' two-dimensional current model from the navigation channel to south of the restoration feature also supports the flow direction and indicates only slight changes would occur post-construction of the pile dike field. No infill of the Oregon side of the channel would occur due to implementation of this feature. The proposed feature would render about 14% of the 1,629-acre Miller Sands Drift unsuitable for future commercial gill net fishery use, while the remaining 86% would remain suitable for commercial fishing purposes.

S-9. The Federal Government agrees that tidal swamp and tidal marsh habitat have been the most severely impacted in the estuary. Tidal swamp and tidal marsh habitats, however, were primarily lost via establishment of diking districts and the subsequent construction of dikes to allow conversion of former tidal lands for agricultural, industrial and/or urban purposes. These lands are virtually unavailable for restoration to tidal marsh and swamp as they are held in multiple-party private ownerships. Thus, our restoration course of action was predicated upon availability of lands for restoration purposes targeting lands already in public ownership. The Tenasillahe Island long-term restoration feature would restore about 1,778 of tidal marsh habitat and represents the best potential action for tidal marsh restoration in the Columbia River estuary. While this proposal is constrained for implementation by USFWS management objectives for Columbian white-tailed deer, it is a significant contribution to the Columbia River estuary.

To address the state's and other similar comments about types of habitats to be restored, the Corps will modify the Lois Island embayment and Miller-Pillar ecosystem restoration features. Rather than attempt to mimic the historic bathymetry of these locations, the Corps will place fill material to an elevation of approximately +6.6 feet MLLW in order to develop tidal marsh habitat. This will reduce the acreage targeted for restoration purposes to approximately 191 acres of tidal marsh habitat at Lois Island embayment. These features would provide for restoration of tidal marsh habitat, a focal point for restoration efforts by the multiple parties addressing estuarine habitat restoration.

Attainment of tidal marsh habitat on dredged material at Lois Island embayment is achievable as evidenced by existing tidal marsh habitat that has developed on the interior borders of Lois and Mott Islands and at South Tongue Point, lands formed by deposition of sandy dredged material. Tidal marsh formation around Miller Sands Island, the interior shores of Miller Sands Spit (in part) and the south shoreline of Pillar Rock Island are additional examples of tidal marsh development associated with dredged material islands.

### Corps of Engineers Response

S-10. The goal of restoration is to restore historic habitat functions and values, not to restore predevelopment features at the entire Lois Island embayment location. The consultation determined that these restoration features would return lost functions and values that would benefit listed salmon species. The historical habitat loss at the present Lois Island embayment not only involved the formation of Lois and Mott Island and South Tongue Point from dredged material but the dredging of that material from the intertidal marsh, mudflat and shallow subtidal habitats that formerly comprised the Lois Island embayment area. The Corps' initial restoration proposal was to restore the historical bathymetry of the Lois Island embayment, for which we have records. Our modified restoration proposal, in response to S-9 and other similar comments, is to restore tidal marsh habitat at Lois Island embayment. The Corps recognizes that this represents only partial restoration of the total area impacted at this specific location. Removal of Lois and Mott Island, and even South Tongue Point does indeed represent another restoration option at this location. However, the extensive intertidal marsh and riparian forest associated with these islands represents important habitat for listed Columbia River salmonid ESUs plus important habitat for other fish and wildlife resources, including bald eagles, another listed species. Thus, the Corps did not consider removal of these islands and the Corps does not concur that such an action would be beneficial in the estuary.

S-11. As discussed in response to S-9, the Corps has revised the proposed action at Lois Embayment and at Miller/Pillar to focus on restoration of tidal marsh habitat. There are numerous examples of successful tidal marsh establishment on dredged material in the Columbia River estuary (response S-9). In addition, the proposed action at Lois Embayment has been significantly reduced in size and the Miller/Pillar action will be conducted one cell at a time to assess results before proceeding further. These projects are proposed as part of a restoration and research actions from the Endangered Species consultation with NOAA Fisheries and USFWS, and therefore include a range of monitoring actions to be conducted in concert with restoration. Given the proposed revisions to the restoration actions, the successes with similar actions elsewhere in the estuary, and the proposed monitoring, the Corps believes it is prudent to implement these restoration features in conjunction with the channel improvement project. By doing so, it allows the Corps to take advantage of its authorities, willing sponsors, available cost-sharing dollars, and materials and equipment required to construct these features which otherwise would be difficult to obtain.

**Supplemental EIS 7/2002  
Ocean Disposal and Marine Resource Concerns**

The Oregon Department of Fish and Wildlife (ODFW), Marine Resources Program has reviewed the *draft Supplemental Integrated Feasibility Report and Environmental Impact Statement* (DSEIS) (Corps, July 2002). ODFW has provided comments to the Corps on ocean disposal and marine resource concerns at MCR on several occasions over the past 5 years. We provided written comments on the DEIS, FEIS, MCR Ocean Disposal Site Management and Monitoring Plan, Batelle's Dungeness Crab/Flatfish Burial Study, and Crab Entrainment Technical Memorandum. Additionally, ODFW has given direct input on all marine issues of concern through the Ocean Disposal Task Force process. Despite these efforts, our concerns receive little or no response from the Corps and appear to not receive consideration in Corps decisions on ocean disposal and related issues. Our comments in this letter reflect this issue. The lack of consideration from the Corps perpetuates the ongoing skepticism in the EIS process and the Ocean Disposal Task Force.

This section provides ODFW's comments on the Draft Supplemental EIS (DSEIS) as it relates to marine resources and issues. We also take this opportunity to reiterate our concerns on issues that have yet to be addressed to the satisfaction of this agency.

Deep Water Ocean Disposal Site:

The overall size of the proposed Deep Water Ocean Disposal Site continues to be of concern to ODFW. The size becomes more excessive with the addition of other disposal options. The Deep Water Site is now twice as large as needed for the volume of material that will actually be disposed there. The Corps' original areal calculation of the Deep Water site was based on a disposal volume of 225mcy, but the actual disposal volume is less than half because most of the material will go to other disposal sites. ODFW has repeatedly requested that the size of the proposed site be adjusted (reduced) to account for other disposal options. However, the Corps contends that the site must be large enough to accommodate the full 225 mcy in the event that all other disposal options are eliminated. ODFW strongly disagrees with this rationale. It is highly unlikely that *all other* sites would be eliminated. The Deep Water Site should be the minimal size necessary to accommodate the amount of material *actually* going to the site, and not be sized for its potential as a sink hole for the Channel Deepening and other dredging projects.

Furthermore, the site must be "manageable" in terms of being able to detect and respond to adverse impacts caused by disposal. MPRSA, Section 102/Sec. 228.5(d) states: "*The size of ocean disposal sites will be limited in order to localize for identification and control any immediate adverse impacts and permit the implementation of effective monitoring and surveillance programs to prevent adverse long-range impacts.*" The Corps has often stated they lack the funds to do detailed baseline studies and can only do limited studies to address specific concerns. This further supports scaling back the site to a more manageable size.

S-12. Specific comments are addressed in S-13 through S-30, and we request that the reviewer also see the response to F-2. The Federal Government disagrees with ODFW characterization of the coordination on the Ocean Disposal element to date. The Corps and USEPA have jointly and separately coordinated with ODFW throughout the IFR/EIS study process leading to identification of the Shallow Water and Deep Water Sites as candidates for formal designation by USEPA in the 1999 Final IFR/EIS. The USEPA is the responsible agency for designation and administration of Ocean Dumping sites under the Marine Protection, Research, and Sanctuaries Act of 1972, as amended (also referred to as the Ocean Dumping Act). The Corps is the primary user of those sites, here off the Columbia River, and elsewhere throughout the Nation. The Corps coordinates its project-level efforts (e.g., MCR and Columbia River which involve use of *designated* (a USEPA 102 action) or *selected* (a Corps 103 action) ocean sites with ODFW. Previous ODFW comments have been given serious consideration by the two agencies.

This is to clarify the role of the Final SEIS with regard to site designation. The Final SEIS serves to supplement the *Final Integrated Feasibility Report and Environmental Impact Statement* (1999 Final IFR/EIS) by documenting additional information, environmental analysis, and project modifications resulting from consultation under Section 7 of the ESA; to update the disposal plan; to update the project economics; and to comply with NEPA requirements and with the Washington State Environmental Policy Act (SEPA) without changing the elements of the 1999 Final IFR/EIS related to the Ocean Dredged Material Disposal Sites designation which will be completed by USEPA. With regard to ocean site designation, additional environmental information (e.g., baseline characterizations) has been generated, which the Final SEIS discloses (see Exhibit N). The Final SEIS discussed new project alternatives, which include identification and evaluation of restoration elements as the preferred disposal alternative for river material that had been identified in the 1999 Final IFR/EIS for ocean disposal. Under the revised plan discussed in this Final SEIS, construction of the restoration sites would preclude ocean disposal of any of the river channel dredged material from the initial construction as well as the first 20 years of maintenance (O&M). If these restoration features are not fully implemented, the channel project material would be disposed at USEPA-designated ocean sites. The need for ocean dredged material disposal site designations remains fundamentally unchanged by the Final SEIS and will proceed as discussed in the 1999 Final IFR/EIS to formal rulemaking by USEPA. The primary need for new ocean sites is driven by maintenance of a separate Corps project, the Mouth of the Columbia River navigation channel.

S-13. The Federal Government disagrees that it did not consider ODFW's concerns regarding ocean disposal. The ocean dredged material disposal site selection process and resulting configuration on the Deep Water Site and Shallow Water Site is documented in Appendix H, Volumes I, II, and III. The ODFW was an active participant in the site selection process and contributed much to the final site design. We disagree with ODFW's interpretation of federal regulation. The rationale for sizing of the Deep Water Site is documented in the 1999 Final IFR/EIS, and anticipates that the Shallow Water Site and North Jetty (a 404) Site will continue to exist and be used (see also response to S-14). The Deep Water Site was planned primarily for material from the MCR project as the channel improvement project was expected to only generate a relatively small volume to be disposed in the ocean and that mainly generated during the two years of initial construction. The determination of "need" and appropriate "size" to meet that need is the responsibility of the USEPA, the agency with statutory authority for designation and administration of ocean sites.



## Corps of Engineers Response

S-13 (con't). The planning scenario and volume calculations that ODFW refers to were developed jointly by the Corps and USEPA. The Federal Government has repeatedly expressed the fact that the existence of an ocean site does not mandate its use. Used to the maximum (essentially the scenario described), site capacity would be exhausted in approximately 20 years. Used less, the life of the site is expected to be more, perhaps much more, than the 20-year estimate. From a Federal perspective, a continuing need for ocean disposal capacity exists at mouth of the Columbia River. Both the Corps and USEPA believe that the site is manageable.

As described elsewhere, beneficial use of dredged material to create habitat for endangered salmonids has become the Corps' preferred alternative for channel improvements in the lower 29 miles of the Columbia River. The USEPA concurs with that preferred alternative use of channel improvements material. Construction of the Millar-Pillar and Lois Island embayment ecosystem restoration features would use dredged materials from initial construction and 20 years of maintenance that otherwise would have been taken to the ocean for the channel improvement project only. Changes to the project do not reduce the necessity for conservatively sized ocean disposal sites as described in the preceding paragraph. In the event dredge material from the channel project did go to the ocean, the material would be discharged into a site designated under Section 102 (if USEPA's action is complete) or selected under Section 103 of the Ocean Dumping Act. Such discharge would be in accordance with the then-current Site Management and Monitoring Plan (SMMP). At this point in time, we fully anticipate that ocean disposal sites will have been designated under Section 102.

S-14. The Federal Government agrees with these general observations. Continued use of the Shallow Water Site was considered in the evaluation of need and size of the Deep Water Site as described in our response to the previous comment (S-13). With regard to the new preferred alternative to use the channel improvements material for the restoration projects that volume amounts to approximately 6% of the site capacity. This would increase the potential life of the Deep Water Site by several years for the MCR project. It does not, however, significantly alter either the need for the site or the size.

S-15. See responses to S-13 and S-14. The Deep Water Site has been sized for 50 years of planned use. The capacities in both the North Jetty Site and the Shallow Water Site are based on dynamic characteristics of the ocean, scouring material from the sites annually, to restore capacity for the next dredging season. Considering the uncertainty surrounding the exact capacity that would be available in any given year, the Deep Water Site has been conservatively sized to receive all material dredged from the MCR if necessary. The Corps and USEPA possess the necessary expertise to determine the maximum depth accumulation. Verification by an outside expert is not warranted. If the North Jetty Site as well as the Shallow Water Site are used to their fullest capacity, then the amount of material being placed in the Deep Water Site would be reduced and the overall mound within the Deep Water Site would also be reduced over the 50-year time period. From USEPA's perspective, there is no time limit associated with the volume placed. The total site capacity remains as stated in the 1999 Final IFR/EIS, Appendix H.

S-14 For several years, expanded Site E (proposed as the "Shallow Water Site") has accommodated and will continue to accommodate, a substantial amount of the annual maintenance dredging volume (2.1 - 3.7 mc y). There is no justification to assume that this capacity would decrease to zero. Additionally, the Corps proposes two new restoration projects, Miller-Pillar and Lois-Mott Island Embayment, which will reduce ocean disposal by another 14 mc y. Though these projects are of concern to ODFW and may result in their elimination, we also recognize that the Corps may use these sites. If this is the case, there will be 14 mc y *less* material dumped in the Deep Water Site. The decision on the restoration projects will likely be decided prior to final designation of the Deep Water Site, thus allowing time to adjust the size of the site prior to designation. Is there any reason the Corps and EPA would not use this information in the final size determination of the site?

S-15 The North Jetty Site is another disposal option with an annual capacity of 100,000 -500,000 cy. In total, the volume of material destined for ocean sites other than the Deep Water Site is between 2.6 and 4.2 mc y per year (130 - 210 mc y over 50 years), or between 58 and 93 percent of all ocean-going dredge material. That percentage will further with the two restoration projects. We can think of no justification for maintaining the Deep Water Site at 9,000 acres (4,000 acres internal). The correct response is to reevaluate the total area needed for the Deep Water Site with actual disposal volumes. Another lingering uncertainty is the depth to which dredge material can safely be mounded in 200-300 feet water without causing unsafe wave activity. The Corps determined 40 feet to be the maximum depth accumulation, but verification is warranted. ODFW respectfully requests that the Corps' seek verification of the minimum size requirement of the Deep Water Site by an independent source with engineering expertise, such as an engineering firm or academic institution.

S-16 The DSEIS needs correcting on its reference to the selection of the Deep Water Site. The current proposed configuration of the site was not selected by the taskforce. On the contrary, the area chosen by the taskforce as the Deep Water Site was magnitudes smaller than the current site. The Corps enlarged the site several times following the taskforce site selection process. The Corps should phrase their statements to reflect the actual process that took place. The DSEIS also states that the site was selected for minimal impacts to the resources. This was somewhat the case when the site was the smaller site proposed by the taskforce, though impacts were still expected. The current size could very likely have greater impacts, based simply on its overall size. For the Corps to state that this massive site will have minimal impact without the data to support this is speculative at best.

### Section 4.4.3.10 Management and Monitoring Plan:

S-17 The DSEIS states that it will follow an "adaptive management approach" to monitoring and use of the Deep Water Site by coordinating management plans with state agencies. The DSEIS is vague and brief about what this actually entails and ODFW seeks further explanation. ODFW is not confident the Corps will seek and incorporate input from state agencies and stakeholders on actual management and monitoring plans. Our concern is based on the fact that ODFW's written comments on the draft and final MCR Ocean Disposal Site Management and Monitoring Plan (MMP) had little if any bearing on the final document.

### Corps of Engineers Response

S-16. Selection of the Shallow Water and Deep Water Sites as candidate sites to be proposed for designation was a governmental decision made by the USEPA and Corps, the responsible agency and primary user. The involvement of the designation Working Group (particularly the intense negotiations following the Draft IFR/EIS that is thoroughly documented in Appendix H of the 1999 Final IFR/EIS) was a critical component in the Federal Government's selection of alternatives. The Deep Water Site represents a significant reduction in the size and location from the originally proposed North and South disposal sites. The conservative assumptions used to size the Deep Water Site during this process remain unchanged (see responses to S-13, S-14, and S-15). Sections of the Deep Water Site are expected to never be directly disposed upon and therefore not impacted, i.e., the identified buffer zone. The present design allows dredged material management flexibility within the site, where a site too small limits management to the point of non-management as was our experience with Sites A and B. As described in Appendix H, the internal 4,293 acres (disposal zone) is designed to contain the disposed dredged material on the bottom. To achieve this level of placement accuracy, a more restricted "drop zone" in the Deep Water Site will be defined for each use, thereby minimizing the disposal footprint to as small an area as possible. The result of such a small footprint is that the direct impact on that small footprint is maximized for that individual disposal event. This was explained to the taskforce (which included ODFW). Point-location placement within the site on any given year would be monitored. As the site is used over time, a mound of sediment would build over the inner disposal zone, but also over an extended period of time, thereby ameliorating any immediate, annual disposal effects. The extensive work done to evaluate alternatives with resource agencies and stakeholder groups through the site selection process led to the Government's decision selecting the Deep Water and Shallow Water Sites for proposed designation and refinement of the SMMP. Subsequent to the 1999 Final IFR/EIS, physical and biological baseline studies have been conducted at both the Shallow Water and Deep Water sites. This work is included in this Final SEIS and has generally confirmed the Government's assumptions from the 1999 Final IFR/EIS and provides additional basis for designation, future use and management of the sites.

S-17. Both the Shallow Water and Deep Water Sites were originally selected for proposed designation and if designated will be managed by the USEPA to minimize impacts to the maximum extent practicable. The USEPA, as part of the site designation process, will provide the opportunity for further review of the SMMP for the two sites and will make revisions as required. The SMMP will specify a review schedule for revisiting and potential revision of the SMMP. Presently, the frequency is not less than 10 years after adoption of the initial plan, and then at least every 10 years thereafter. A SMMP works in concert with annual monitoring, data review, and expert recommendations, and public participation as is required by law. We anticipate the ODFW would be a participant in these reviews as well as annual site-use reviews. Annual site-specific use is determined by the Corps and USEPA based upon actual site conditions and disposal needs. The Corps already hosts annual dredging workshops as part of their O&M Program.

## Corps of Engineers Response

S-17 If the “adaptive management approach” is to be based on the MMP, it will not succeed. The MMP has two major problems: 1) The MMP is not an actual site management plan. It is not site specific. It is a generic outline for a plan. Federal law requires the management plan to be site-specific, 2) The MMP is designed to not detect impacts until they are highly magnified. The “triggers” for detecting impacts in the model require a large change in bathymetry before the Corps will do any monitoring. In addition, “monitoring” as defined in the MMP refers only to physical changes, not biological. This is a very critical and deleterious distinction. Without ongoing biological monitoring, environmental impacts would be profound before ever being detected. The current MMP has no biological basis and will not help the Corps avoid impacts. To be effective, the “adaptive management approach” should include a site-specific management and monitoring plan for each MCR ocean disposal site with focus on the key biological resources. We encourage the Corps to take a *sincere* “partnership approach” to this process by giving equal weight to state and other stakeholders in all decisions on management and monitoring. Additional ODFW comments on the MMP are in our written comments to the DEIS, the FEIS and the MMP.

### Monitoring and Baseline Information:

S-18 For any monitoring plan to be effective, it must have sufficient baseline information of the biological resources. This includes distribution and relative abundance of important species that inhabit the sites. Because of the natural variation in marine populations and the marine environment, baseline sampling must occur with enough frequency to minimize the variability and yield results with statistical validity. In other words, sampling must occur multiple times within a season, during all seasons, and for multiple years. We have stressed this in all previous comments to the Corps, yet the baseline studies designed for the new ocean disposal sites include only one week of sampling in July 2002 and one week in spring 2003. This level of sampling is not adequate to determine abundance. It will not allow managers to predict or avoid resource impacts. The sampling design lacks the statistical rigor needed to produce appropriate confidence in these data. Additional sampling days should be added throughout 2002 and 2003. We request that the Corps solicit further discussion on sampling design with ODFW and other interested taskforce participants.

### Section 6.6.1.2 / Dungeness Crab Sampling:

S-19 The DSEIS states that impacts to Dungeness crab at the Deep Water Site will be minimal because channel maintenance material would not be placed there for 10 years. The statement implies that no impacts will occur there for 10 years. The DSEIS fails to mention that the Corps intends to use the Deep Water Site for MCR maintenance material in 2003 and, if the habitat restoration projects are not used then that material will also go to the Deep Water Site. The DSEIS also states that prior to using the Deep Water Site, the Corps will conduct thorough studies to quantify crab. We question how the Corps defines “thorough” (see previous section). One week of biological sampling over two seasons is not adequate for measuring seasonal distribution and abundance of a highly sporadic species in a dynamic environment. What is required is sampling over multiple seasons (years) to see the range in the population. Years of crab landings have shown the population to be sporadic, but over time, the range in the population becomes more apparent. If 2002 is a low abundance year for crab, it will

S-17 (con’t). There are different statutory directives for our respective levels of government that govern the approach to evaluating resource impacts at ocean dredged material disposal sites. The Federal Government understands that ODFW is working to manage all marine resources within their jurisdiction and is concerned about individual localized impacts. Under the Ocean Dumping Act, the USEPA and Corps assess impacts at the population level of particular species. Traditionally, the Federal Government assumes that most of the non-mobile benthic organisms living in the specific area of the immediate disposal placement will be destroyed. Because of this, biological monitoring is not conducted immediately following disposal. Based on numerous studies at in-water disposal sites around the nation, many organisms, and particularly mobile organisms like crabs and lobsters, survive the disposal event. Even for non-mobile organisms, recolonization of the disposal footprint is relatively rapid. To that end, we believe that the predicted biological effects of ocean disposal at the two sites have been adequately characterized and disclosed and that those effects are minimal and acceptable. The Federal Government has taken a sincere approach in seeking, receiving and fully considering the concerns and opinions of state agencies, stakeholders, and other members of the public.

S-18. The biological information presently being gathered, along with the previous biological information collected off the mouth of the Columbia River by the USEPA and Corps, as well as other federal agencies and academic institutions, is expected to establish an adequate baseline for monitoring and management of the ocean disposal sites selected to be proposed for designation. It is not generally the purpose of designation surveys by themselves to provide the basis (baseline) for any future site monitoring, but rather to provide a picture of existing conditions at the time of the survey to meet the statutory requirements of the MPRSA and its implementing regulations for site designation. Designation surveys are conducted for the primary purpose of identifying and minimizing conflicts with other uses of the ocean to select and designate a disposal site, and should not be confused with trend assessment surveys or monitoring surveys used to assess the extent and trends of environmental effects which assist in the management of a site. Timing, duration, and number of samples for the biological surveys used in the 1999 Final IFR/EIS are consistent with federal site designation guidance. Additional baseline information has been collected since 1999 and presented to interested agencies, stakeholders, and disclosed through this Final SEIS, Exhibit N.

S-19. The statement refers to marine impacts resulting from the channel improvement project, which is the substantial focus of the Final SEIS, not the MCR project or ocean site designation (see response to F-2). If the two estuary restoration features are fully implemented ocean disposal will not be used for any material from construction of the channel improvement project and for the first 20 years of maintenance dredging. The Final SEIS fully discloses that in the event these restoration features are not fully implemented, then ocean disposal as described in the 1999 Final IFR/EIS will be used. The Federal Government did not intend to imply that under the channel improvement project’s preferred option, the MCR project would not use ocean disposal sites; however, the 1999 Final IFR/EIS analyzed those impacts. In addition, the actual statement in the Draft SEIS is, “The Corps is further investigating the distribution and abundance of crabs and benthic organisms at the Deep Water Ocean Disposal Site.” The sentence should have noted that USEPA is participating in this effort.

underestimate the population, likewise, if it is a high abundance year, it will overestimate the population. Additionally, if the objective is to quantify crab density at the Disposal Site, the population must be compared to the larger MCR area to determine its relative importance. One season of sampling at the Deep Water Site will tell us nothing about crab population levels, contrary to what the DSEIS claims.

Section 6.6.1.2 / Reference to Batelle Crab Burial Study

ODFW must once again address the Batelle pilot crab burial study entitled, “*Effects of Sand Accumulation on Juvenile Flatfish and Soft-Shelled Dungeness Crab*”, because it continues to be misrepresented by the Corps and others who reference Corps documents. ODFW provided comments on the study at the time the report was released and in responses to the DEIS and FEIS, though these comments seem to have no bearing on the Corps’ continued reference to the study. First off, this was indeed a pilot study and as such, results of any pilot study are to be used only for refining sampling methods and developing a more complete study. Pilot studies are not used for drawing final conclusions or the basis of decisions. Secondly, ODFW and others echoed the author’s warnings that the study had several shortcomings and was inconclusive. In spite of several opinions, the Corps continues to present the results of the study as definitive and bases its decisions about impacts on the pilot study. Not only does the Corps overstate the study’s reliability, they also misinterpret the information. The authors also warned that the study could *not* be applied to a larger population of crabs, yet the Corps does exactly that in the DSEIS. The Corps conclusions on the study are invalid without the data to support them and should be removed from the DSEIS and other related Corps documents, as we have advised in every written response.

Also in error is the statement in the DSEIS that “*direct and indirect mechanisms*” were “*...thoroughly evaluated relative to the potential for impacts at the Deep water Ocean Disposal Site...*”. This statement is blatantly false. The Corps’ misuse of the pilot study not only weakens the Corps’ credibility, but also is an insult to the scientists and authors involved. Once again, ODFW requests that the Corps retract erroneous and exaggerated references to the Crab Study in the *final* Supplemental EIS.

Exhibit K: Dungeness Crab Entrainment Study and Technical Memorandum:

ODFW was surprised to learn that the Corps and the ports had initiated the Crab Focus group with the state of Washington to examine dredging impacts to Dungeness crabs. According to the Corps and the ports, Oregon was not included in the group because the purpose was to address Washington’s SEPA requirements. While this may be the case, Oregon’s concerns for Dungeness crab are no less significant and must also be addressed. Moreover, most of the dredging impact issues occur on Oregon’s side of the river. It is the Corps’ responsibility to see that all affected parties are adequately involved. The fact that the technical memorandum produced from the Crab Focus group elaborates so extensively on ocean disposal issues is more reason to include Oregon in the process. We appreciate the Corps’ and the ports’ willingness to now include Oregon. Due to our late inclusion, however we are not as familiar with the work in progress, so our comments are somewhat limited in breadth and depth.

**Corps of Engineers Response**

S-19 (con’t). In the instance of Dungeness crab, the Federal Government determined that the impact to the relevant crab population from ocean disposal is likely minimal. The Corps and USEPA based this conclusion on the fact that crabs are widely distributed throughout the coastal area, and that neither the Deep Water nor the Shallow Water Sites appear to provide any unique habitat for crabs. Dungeness crab populations do not appear to be declining based on landing data. Individual crabs could be killed during disposal. This loss of individuals should not significantly impact population structure or dynamics. See the Final SEIS, Exhibit K-4.

The Deep Water Site was originally selected because it did not contain unique habit for Dungeness crab and its location resulted in the least conflict with the commercial crab fishery in the Washington and Oregon region around the Columbia River. Although there is likely to be a minimal impact to crabs, a more detailed research study of crab population and density in and around the site is not necessary for designation. A baseline assessment is required under MPRSA and the second of two seasons of data collection were completed this year. The information developed will be used in revising the SMMP.

S-20. Nowhere in the 1999 Final IFR/EIS or SEIS did the USEPA or Corps use the information from the crab burial study as definitive. In fact, on page 6-23 of the Final IFR/EIS it specifically states that the study is “preliminary” and also that, “The tests were limited, and additional tests would be necessary to fully define this impact.” This paragraph goes on to state that, “Disposal at the ocean disposal site would result in the mortality of the benthic organisms and some of the crabs and fish that are in the disposal location,” a statement that is supported by the available information. Though the burial study is not directly referenced in the SEIS (your comment indicated that it was), the SEIS does describe the potential impact to the Dungeness crab populations and other organisms by disposal in the Deep Water Site. The SEIS states, “Disposal of dredged material at the Deep Water Site has the potential to impact Dungeness crab and other biological resources by direct or indirect mechanisms. These include burial, turbidity, dissolved oxygen reduction and habitat alteration.” The mechanisms are then thoroughly evaluated using existing information. Consequently, the Federal Government takes strong exception to your use of the words “blatantly false” to express your point. Nowhere in any of the documents for this project has the Federal Government ever tried to dismiss the impacts to Dungeness crabs by either dredging or disposal. The Federal Government repeatedly stated that Dungeness crab populations will be impacted by dredging and disposal operations. The crab burial study information has only been used as an indication that some crabs may be able to dig out and survive, particularly in the thinner layer material as would occur at the Deep Water Site. Based on the Federal Government’s national experience with other bottom feeding species (e.g. lobster, blue crab) and the available information for the Pacific Ocean off of the Columbia River, the Federal Government has concluded that using the ocean disposal sites will not significantly impact crab populations in the Washington and Oregon region around the Columbia River.

S-21. The ODFW neglected to include in their comment that the Corps and the ports fully intended to discuss and get input from the State of Oregon and had communicated with the designated Oregon point of contact on numerous occasions. As the Corps has stated on numerous occasions, the Corps recognizes and acknowledges this issue as having regional importance. ODFW’s comment also should note that it has been involved in all meetings of the workgroup since June 10, 2002. This has included meetings on June 26, July 19, October 17, October 28, October 29, November 13, November 21, and November 26, 2002. Finally, ODFW’s comment in S-29 indicates that it supports the direction the workgroup is going.

Corps of Engineers Response

S-21 ODFW provided written comments to the Corps on the June 9, 2002 Technical Memorandum. The memorandum in the DSEIS, dated June 10, 2002, does not reflect these comments. However, we were assured by the Corps and Pacific International Engineering (PIE) at the Crab Focus meeting on September 5, 2002, that ours and others comments would be incorporated in the updated Technical Memorandum for the final SEIS. The comments provided below respond to the written technical memo of June 9, 2002.

ODFW Comments to June 9 Technical Memorandum:

- S-22 1) The Technical Memorandum: “*Impacts of the Columbia River Channel Improvement Project Dredging on Dungeness Crabs (Cancer magister)*” is a draft document and should be so stated on the title page and wherever it is referenced in the DSEIS. The memorandum should also include the name of the consultant and authors who wrote the report, for future reference of the report.
- S-23 2) The entrainment study summarized in the report is a pilot study, with the primary purpose of examining methods to estimate crab entrainment and gathering data needed to design a more complete study. The results of any pilot study are to be used only for refining sampling methods and developing a more complete study. The title of the memorandum is misleading. Until the study is complete, the title and introduction need to emphasize that it is an examination of modeling techniques to determine entrainment and that it includes a pilot study. It would be inappropriate to use any entrainment estimates reported in the pilot study for developing avoidance measures or mitigation plans. Only the more complete study planned for the future can provide the necessary information. The title also needs to indicate that the study’s scope is on entrainment due to dredging in the Columbia River estuary and river and *not* a study on ocean disposal.
- S-24 3) Examination of impacts to crabs should include the full spectrum of dredging and disposal actions from both maintenance and channel deepening. Although this impact study is a good start, the Corps needs to conduct entrainment studies at MCR and crab burial studies at the Shallow Water Site and the Deep Water Site.
- S-25 4) Section 3.3: The DIM model applied with Grays Harbor entrainment rates was used to conclude that no further entrainment work would be needed upriver of Flavel Bar. The same section states that entrainment rates measured in Grays Harbor are much lower than those in the Columbia and are “... not appropriate for the Columbia River...”. Table 10 shows that the entrainment rate for 1+ crabs can be two orders of magnitude higher in the Columbia than Grays Harbor. It is premature to draw conclusions on the upriver limit of crab impacts until more data are gathered on Columbia River entrainment rates.
- S-26 5) Section 4.3: Pearson and Williams (2002) extrapolated the pilot study data to determine the loss of crab to the crab fishery, albeit, as an example. Nevertheless, this is an inappropriate and dangerous application of the data. Dangerous because other pilot studies, such as the crab burial study, have been routinely misused throughout the EIS process.

S-22 to S-28. Comments noted. Material initially presented in the Technical Memorandum has been revised based on the development of a statistical methodology and the 2002 crab entrainment research, and this information is presented in Exhibit K-4 to the Final SEIS.

Corps of Engineers Response

S-27 | 6) Section 5: There are statements that conclude dredging impacts would be minimal based on the habitat and DIM models. As pointed out in comments 3, through 5 above, it is not appropriate to base conclusive statements about impacts on these models.

7) Section 6: This section mentions disposal options at various sites, but focuses primarily on the Deep Water Site. This section is merely a reiteration of the 1999 FEIS and provides no new information regarding resource information or disposal impacts. We do not see the value in presenting this section or its relevance to the entrainment study, which is the sole objective of the Crab Focus Group. This section reiterates the Corps' claim that disposal impact mechanisms have been "*thoroughly evaluated*" at the Deep Water Site. Not only is the Technical Memorandum at fault for not referencing the original source of the information (i.e., the Batelle Crab study), but for stating false information.

S-28 | The Technical Memorandum makes other speculative and unsubstantiated statements that are lifted directly out of the FEIS. At the very least, PIE should eliminate discussions for which they have no direct experience. This would include all references to disposal impacts on marine organisms at the Deep Water Site and elsewhere at MCR, discussions about the abundance of crabs at the Deep Water site, and reference to the site selection process. This section lacks credibility by mimicking speculations of the FEIS. PIE should review its sources of information more thoroughly to avoid supporting and making unsubstantiated claims.

The final sentences in this section are beyond the scope of this technical memorandum and the work being conducted by PIE: "*The results [summer 2002 field sampling] would be used to verify the conclusions of this technical memorandum with regard to the potential for impacts to crab due to disposal of dredged material at the DWS.*" The implication that PIE can develop conclusions about disposal impacts to crabs at the Deep Water Site based on no *actual* work of their own, but on a summary of speculations and pilot study data is inappropriate. The statement should be deleted from the technical memorandum.

S-29 | ODFW Comments on Crab Entrainment information provided at the Sept. 5 meeting:  
ODFW is pleased to learn that the entrainment model will apply actual entrainment data collected during dredging and at several areas to be dredged. The study seems to apply sound, statistical approaches to study design and analysis. This will provide a good estimate of entrainment rates for determining potential impacts to Dungeness crab at the different sites, and will help set a dredging schedule that should minimize impacts. If it is determined that entrainment is significant and unavoidable, mitigation measures will be necessary to offset the loss to the resource.

S-29. Comments noted.

Ocean Disposal Taskforce:

S-30 | At the June Taskforce meeting, the Corps proposed that the Ocean Taskforce expand its coverage of issues to include estuarine and riverine portions of the River. ODFW does not support this proposal. Expanding the taskforce's coverage into the river will dilute attention to

ocean issues. The Corps has devoted little time to the taskforce these past two years and progress on marine issues has been very slow to non-existent. Furthermore, adding freshwater or estuarine issues to the process will be asking participants with marine interests and expertise to address issues that may be out of their realm. For example, the Corps asked the taskforce to consider the decision of whether to use the Deep Water Site or the two newly proposed in-river restoration projects. This is clearly beyond the scope of the ocean taskforce since the taskforce has had no involvement with the restoration projects and has never addressed riverine issues. It would be irresponsible to assume that the taskforce is the appropriate forum for such a decision. ODFW is of the opinion that the ocean disposal taskforce should stay focused on its original intent of dealing with marine issues. That is not to say that the Corps should not consider a separate forum to deal with riverine issues.

As the taskforce attempts to redefine its purpose and usefulness, it is important to recall its original purpose. The following comments were provided by ODFW in response to the FEIS and are still applicable:

*"ODFW agreed to the Deep Water Site under the condition that an inter-agency task force would be formed and would be instrumental in the management of the site. The main objective of the taskforce is to minimize impacts to resources within the site through assisting in the management and monitoring decisions regarding disposal operations and to help determine special studies that better educate us about impacts and ways to reduce them..... the FEIS lacks a clear commitment of long-term support for the taskforce, and lacks information about the taskforce's level of participation in the decision making process. ODFW expects the taskforce to be fairly integrated into the decision making process with respect to disposal locations, techniques, volumes, baseline studies, and monitoring studies. The M&M Plan needs to describe how the taskforce will participate in these decisions, and how much weight will be given to taskforce recommendations on management and monitoring. There also needs to be a clear commitment from the Corps to retain and fund the taskforce over the long-term.*

*"The M&M plan states that the EPA and Corps will coordinate management decisions and make determinations about impacts between themselves and then inform the taskforce of those decisions. In our acceptance of the Deep Water Site, we understood that the taskforce would be involved in these decisions from the beginning. According to the FEIS, some decisions about site use have already been made. Of greatest concern to ODFW is the decision to use the southwest corner of the site during the first year of site authorization. ODFW was not involved in this decision, nor is it on record in the Working Group meeting minutes. The site will need to be adequately characterized for habitat and species composition prior to making decisions about disposal locations, seasonal restrictions, and other management decisions. The taskforce will need to be an integral part of such decisions."*

As a final comment, it cannot be overstressed that the success of the ocean taskforce and the resolution of marine resource issues depends on the Corps' willingness to take on a partnership approach by incorporating state agency and stakeholder opinion in decisions related to ocean

## Corps of Engineers Response

S-30. The management and monitoring of ocean dredged material disposal sites are a federal responsibility shared between the USEPA and the Corps. Delegation of that responsibility as suggested is not possible. The Ocean Task Force is not a decision making body and was never proposed as such. In the Management and Monitoring Plan (MMP) included as Exhibit H, in Appendix H of the 1999 Final IFR/EIS, the Corps and USEPA noted that they would "seek input from a taskforce consisting of regulatory agencies and other stakeholders, for the **management and monitoring** of the MCR disposal sites" (page H-4). The emphasized words set out the scope of the task force. The Federal Government held the first meeting of the Ocean Dredged Material Taskforce on April 13, 2000 and presented the charge and scope to the task force at that time. The Federal Government has been able to use some of the input from the task force to design and scope baseline studies; however, the task force has spent much of its meeting time attempting to reopen selection of the disposal sites. That issue is beyond the scope of the task force.

The Federal Government recognizes that issues associated with dredging and dredged material/sediment management are important to the states and a variety of stakeholders. A number of initiatives reflect this, including the CCMP for the lower Columbia River estuary, the Lower Columbia River Estuary Program, the Corps' Regional Sand Management initiative, and the USEPA and Corps formation of the Northwest Regional Dredging Team (RDT) earlier this year. The Federal Government recognizes that a forum is needed to address the many issues of dredging and dredged material/sediment management, but has concluded that the Ocean Dredged Material Taskforce is not the proper forum for that discussion.

The current task force will be disbanded and discussions are underway to consider a new forum. It is hoped that the State of Oregon will be an active, valued participant in this new forum. The membership, purpose, goal, and geographic extent of the new forum is being examined and configured. As stated by ODFW, there are issues "clearly beyond the scope of the ocean taskforce."

S-30

**Corps of Engineers Response**

S-30 disposal. Decisions should be by consensus, and not solely by the Corps. The Corps should solidify their commitment to the taskforce through an MOU that includes a mechanism for accountability on all issues brought forth in the process. Any deviation the Corps takes from taskforce decisions should be fully explained with an opportunity for review and discussion prior to any final decision.

Thank you for the opportunity to comment and we look forward to the Corps’ response on the issues raised in this letter.

**Division of State Lands**

The Division of State Lands (Division) offers the following comments on the Corps of Engineers (Corps) DEIS for the Channel Deepening project.

S-31 1. The Division is concerned about cumulative effects of channel deepening not addressed in the DEIS: the number of non-Corps dredging projects that will occur to make side channels as deep as the main navigation channel. The Division has already had several inquiries about the permit requirements for such projects.

S-32 2. No dredged material should be disposed of in wetlands, in riparian inclusions, or early successional habitat. Wetlands provide important ecosystem functions beyond wildlife habitat, including stormwater filtration and flood control. Historically, most of the riparian wetlands in the Lower Columbia River have been filled, or diked and drained. Current emphasis should be on reversing this trend. We recommend that full wetland delineations be conducted on all sites with potential wetland impacts.

S-33 3. The bed and banks of the Lower Columbia River are state owned. The sale of any dredged material or other use of that material as an “article of commerce” is subject to royalty payments to the Division. The Corps has worked with the Division to notify adjacent landowners of the royalty requirements. However, the Division is willing to consider alternative royalty approaches such as credit back against the State of Oregon cost share for the channel deepening project to encourage economic use of dredged the materials.

S-34 4. As shown on map of Reach 7, river mile 3 through 29, most of Rice Island is within and owned by the State of Oregon and its designation should reflect that fact. CREST has approved conceptive idea to remove the existing material from Rice Island to address the existing Caspian Tern problem on the island.

To be consistent with those efforts, further intergovernmental effort to address the long term use and management of this site as a dredge spoil site must occur.

S-35 The Division has sold 80 acres of the Rainier Industrial site (0 through 64.8) for industrial development. However, the Division has surveyed a new site for disposal of material adjacent to this site.

S-31. The Corps and USEPA are not sure what side channels are being referred to in the comment. The areas that are required to accommodate the ships forecasted to call on the Columbia River have been identified in the 1999 Final IFR/EIS, the Draft and Final SEIS, and the ESA consultation. Information available to the Corps indicates that only certain berths along the Columbia River will require deepening to benefit from the channel improvement project (Final IFR/EIS and SEIS at Section 4.6.3). The potential effects of deepening these berths, and deepening the side channels that provide access to these berths, are addressed in the Final IFR/EIS and SEIS at Section 6.9. The Corps is not aware of other channels that are planned for deepening at this time. However, should additional side channel deepening occur in the future, its effects would likely be similar to the effects discussed in Section 6.9 of the Final IFR/EIS and Final SEIS. Further, any such deepening would be subject to independent review under NEPA, the Clean Water Act, and the ESA with either specific authorization or specific Army Corps of Engineers’ permits.

S-32. Selection of dredged material disposal sites was an intensive multi-year process that relied upon numerous evaluation criteria, including identification of wetland habitats and avoidance of wetland impacts, where possible. It entailed interagency coordination and development of an associated wildlife mitigation plan to address and compensate for wildlife habitat losses, including wetland habitat. This detailed analysis of disposal sites minimized the losses of wetland, riparian, and agricultural lands habitat. Not all habitats could be avoided, thus the development of a wildlife mitigation plan. We are well aware of wetland functions and historical habitat losses in the lower Columbia River. Our proposed disposal plan took these factors and information into account. Further, our wildlife mitigation plan emphasized wetland and riparian forest development although these habitats incurred minimal acreage (wetland fill associated with the preferred option is only approximately 16 acres, all of which is in Washington). The ecosystem restoration features developed during the ESA reconsultation process will lead to additional wetland habitat (tidal marsh) restoration. No wetland habitat delineation will occur for this project. The USFWS’s Habitat Evaluation Procedures, which analyses habitat quantity and quality through use of representative target species, was used to evaluate losses in habitat value, including wetland habitats.

S-33. Comment noted.

S-34. The designation of W-21.0 for Rice Island has long standing and simply reflects that the disposal site lies to the Washington side of the navigation channel. A change in designation at this point in time would likely only result in confusion. The Federal Government is working with the Caspian Tern Working Group in an effort to address Caspian tern management in the estuary and elsewhere in the western United States. Should a viable plan be developed for export of sand from Rice Island, the Corps will lend assistance to attain that objective. We have met with entities seeking to use sand from Rice Island and will lend comparable assistance in the future.

S-35. It appears that the comment refers to the gypsum plant developed just downstream of the Lewis and Clark Bridge. The gypsum plant was built on an old disposal site designated O-65.7, not on the currently proposed site O-64.8. Please inform us if this assumption is incorrect. Our designated disposal site, O-64.8, occurs near the downstream end of Dibblee Point. We understand that a DSL-licensed operator borrows sand from the location for commercial sale. Our intent is to work cooperatively with DSL to use the disposal site for navigation channel materials and to allow sand borrow operations, dependent upon periodic replenishment by dredged material disposal, to continue operations.



**Department of Geology and Minerals (DOGAMI)**

**Corps of Engineers Response**

Thank you for the opportunity to comment on the U.S. Army Corps of Engineers “Columbia River Channel Improvement Project, Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement.” The comments provided below refer specifically to a technical memorandum entitled “Columbia River 43-ft Navigation Channel Deepening Sedimentation Impact Analysis” contained in the Supplemental Integrated Feasibility Report. Furthermore, the material presented in this letter represents the view held by the Oregon Department of Geology and Mineral Industries, and does not necessarily reflect the view held by the State of Oregon.

We would first like to commend your agencies efforts in compiling the information provided in the document, particularly the holistic approach used to integrate the changes that have occurred in the river, lower estuary region, the MCR, and the adjacent coastal beaches.

The Columbia River Estuary is an extremely complex littoral system that historically has contributed significant quantities of sediment to the PNW coasts of Washington and Oregon. The supply of sediment to the coast however, has been dramatically altered as a result of a variety of anthropogenic effects, including:

- The construction of jetties at the estuary mouth has essentially controlled the natural migration of the bay mouth, resulted in deeper channels, and has caused a broader, shallower intertidal region to form within the estuary;
- The construction of pile dikes along upriver channels have been used to control flow velocities and sedimentation patterns;
- The construction of 11 major and over 200 smaller dams in the Columbia and Willamette River watersheds have effectively reduced the supply of sand to coastal beaches. The U.S. Army Corps of Engineers (USACE) has indicated that the effects of dam construction effectively eliminated the supply of sand to the coast;
- A reduction in the peak Columbia River flow statistics over the past 60 years, which is likely to have reduced the river’s ability to transport sediment, particularly out of the lower estuary. These effects have been greatest following the construction of several of the largest reservoirs in the 1960s; and,
- Dredging and disposal practices.

To this we should include:

- Climate effects such as those associated with the El Nino Southern Oscillation phenomena, the Pacific Decadal Oscillation, and the apparent long-term decrease in river discharge in the Columbia River.

The combined effect of these changes has been to significantly alter the overall stability of the estuary-coast littoral system during historical time-scales.

After reviewing the sediment transport technical memorandum, several areas of concern still remain, particularly some of the conclusions reached concerning cause and effect along the river

S-36. The Corps also recognized the importance of the five anthropogenic actions identified here by DOGAMI and they are addressed in detail in Exhibit J of the SEIS. Their impacts on the Columbia River and littoral system sediment budgets were found to range from large for the MCR jetties and flow regulation, to insignificant for pile dikes. The climate phenomena of El Nino and Pacific Decadal Oscillation are mentioned in Exhibit J, but are not emphasized because they are beyond the influence of the project.

The Corps disagrees that there is a fundamental gap in the understanding of sediment transport in the river or estuary. The channel improvement project has presented a comprehensive series of sedimentation analyses that include the 1999 Final IFR/EIS, the June 2001 SEI workshop on sedimentation, the 2001 BA for endangered fish, and finally Exhibit J of the 2002 SEIS. These analyses have been based on the abundant available data on the Columbia River and years of professional experience with the Columbia River hydraulics and sedimentation. The 1999 Final IFR/EIS provides a complete description of existing sedimentation, including sediment transport and the navigation channel shoaling processes. The SEI workshop and the 2001 BA explain the existing system and the potential sedimentation impacts from the 43-foot deepening, with an emphasis on the estuary. Exhibit J of the SEIS provides a comprehensive review of sediment processes and trends in the Columbia River, estuary and coast since the late 1800s, with the emphasis on the past and potential future changes to the sediment budget. The SEI expert panel affirmed the reliability of the Corps’ sedimentation analyses when they found the Corps adequately understood the physical processes of the river and estuary, including flow alterations, dredging volumes, suspended sediment and bathymetry changes.

S-36

## Corps of Engineers Responses

S-36 channel, estuary, MCR, and the adjacent coastal response. More importantly, it is quite clear that there remain fundamental gaps in our understanding, including those of the U.S Army Corps of Engineers, of cause and effect in the Columbia River, particularly the transport of sediment along the river, sediment transport pathways and residence times between the river and lower estuary region, and the net exchange of sediment between the lower estuary and the coast. These deficiencies make it extremely difficult to manage the Columbia River/coast system in an effective and sustainable manner.

Listed below are a variety of issues:

1. Page 2, 2<sup>nd</sup> para: "However, the jetties caused a large discharge of sand from the MCR and vicinity, to the ocean. The sand eroded from the inlet and south flank of the inlet following jetty construction has deposited in the outer delta, on Peacock Spit, and the shorelines along Long Beach, Washington, and Clatsop Plains, Oregon."

S-37 There is no question that a significant amount of sediment was redistributed along the beaches of Washington and Oregon during and after the construction of the Columbia River jetties. It is well accepted in the scientific literature that these changes were directly related to jetty construction, which effectively concentrated river and tidal flows within a much smaller area, and led to the scouring out of the inlet throat (Lockett 1963). Thus, the erosion of sediment adjacent to and within the inlet, and offshore from the Columbia River reflected a massive redistribution of sediment along the coast. However, it is also evident from the recent work of Gelfenbaum et al. (2001) that these sediments have been almost fully absorbed into the coastal system. The question thus remains, what will happen along the Washington coast when this massive redistribution of sediment is fully absorbed by the coastal system? It seems intuitive that unless Columbia River sediments are able to reach the coast in sufficient quantities, as it did prior to jetty construction and the control of river flows, it is quite likely that parts of the Washington and Oregon coasts will undergo significant erosion in the future. In addition, these processes may be further enhanced through rising sea level, both eustatic and coseismic (from subduction zone earthquakes). Neither of these latter effects has been raised in the technical memorandum.

2. Page 2, 3<sup>rd</sup> para: "However, past dredging and channel modifications upstream of RM 40 have not measurably altered the available sand supply or sand transport in the river."

S-38 Based on the information available in the sediment transport technical memorandum, it is apparent that past dredging and channel modification effects upstream of RM 40 has never been adequately assessed.

3. Page 5, 2<sup>nd</sup> para: "Global scale climate variations that reduced streamflows were the primary cause of the decline in sand transport between the 1800's and 1972."

S-39 This statement completely ignores the role of major dam construction and the impact impoundment has had on sediment supply in the Columbia River. Dam construction commenced with the Bonneville dam in 1937, with several other dams having been

S-37. The Corps and DOGAMI appear to be in agreement over the significance of the MCR jetties on coastal sediment processes over the last 100 years. The Corps also agrees that a question remains as to what will happen when this massive redistribution of sediment is fully absorbed by the coastal system. Natural sedimentation processes shaped the coast and continental shelf of the Columbia River littoral cell over the previous 10,000 years. The MCR jetties caused localized changes in hydraulics (concentrated tidal flows and altered wave patterns) that resulted in the displacement of 800 mcy of sand. The distribution pattern of the MCR sand differed significantly from that of the natural system, with deposition initially concentrated offshore of the jetties and not spread out along the coast and continental shelf. Natural littoral forces are still working to redistribute that sand along both the Oregon and Washington coasts.

As documented in Exhibit J, there has been a natural, long-term decline in the Columbia River sediment yields to the coast; rates fell from a 10,000-year average of 15 mcy/yr to 7 mcy/yr during 1868-1926. More important to littoral processes is the decline in sand yield from the river, caused by both natural and human influences. Of the 15-mcy/yr 10,000 year average sediment yield to the coast, over three-fourths (11 mcy/yr) is estimated to have been sand. By 1868-1926, the average sand yield had declined to just over 2 mcy/yr primarily due to natural reductions in sand transport in the river and estuary. The sand yields declined to an average of 1 mcy/yr 1927-1958, due largely to climate variations and to a lesser extent, water resource development in the upper basin. Sand yields are probably even lower now because of the effects of flow regulation by upstream reservoirs that became effective in 1973. As explained in Exhibit J, those reductions in sand yields to the coast are all related to changes in Columbia River streamflows and have not been significantly impacted by past navigation channel actions, dredging, disposal, or pile dikes. The proposed 43-foot navigation channel also will not significantly impact future sediment yields to the coast. Sand yields can only return to pre-1900 levels if the large spring freshets, with high peak discharges and large flow volumes, are restored to the Columbia River, and even then the sand yields would be only 20% of the average 11 mcy/yr sand yields that existed during the 10,000 year formation of the littoral system. The long-term climate changes and upstream water resource development for flood control, irrigation and hydropower, mentioned in Exhibit J of the SEIS, make the restoration of large spring freshets impractical. Sea level rise and subduction zone earthquakes are outside of the control or influence of the proposed project and thus were not covered in the SEIS.

S-38. The Corps disagrees with the comment. Over the past 70 years, the Corps has built up a great deal of knowledge and a sound understanding of the sedimentation processes of the Columbia River. The effects of dredging and channel modifications upstream of CRM 40 have been assessed numerous times, including the following reports that are referenced in Exhibit J of the SEIS; Hickson 1930 and 1961; Lockett 1963; USACE 1986, 1987, 1999, and 2001; and Eriksen and Gray 1991. The Corps also has conducted special studies that have contributed to our knowledge but were not cited in the SEIS. Those studies include Design Memorandums for the 40-foot channel dredging and pile dike construction 1963-1968; Studies to Control Shoaling of the Navigation Channel, Lower Columbia River 1985; Maintenance Improvement Review 1988; Dobelbower Groins Monitoring 1988; and Sand Wave Removal Test 1994. As noted above, in response S-36, the SEI expert panel affirmed the Corps' knowledge and understanding of the Columbia River in 2001.

**Corps of Engineers Response**

S-39

constructed shortly after. To our knowledge, the effects of dams in impounding sand transported down the Columbia River has never been adequately assessed. Furthermore, the above statement ignores the role of dredging, which has removed substantial quantities of sediment from the system. Indeed, there appears to be no comprehensive assessment of the effects of dredging on sediment supply. Finally, in a report concerned with sediment transport and sediment budgets, it is surprising that there is very little discussion of how these sediments have been disposed of historically or more recently. It is acknowledged by scientists that the removal or disruption of the supply of sediments from a fluvial system to the coast can have significant adverse effects on the stability of the coastal system.

4. Page 9, 3<sup>rd</sup> para: “The project also will not reduce the abundant sand supply available in the riverbed within the project area.”

S-40

As discussed in the Oregon Department of Geology and Mineral Industries technical note “Columbia River Littoral Cell - Technical Implications of Channel Deepening and Dredge Disposal” concerns could be raised over the loss of sediments associated with channel deepening, channel maintenance, and MCR dredging. In particular, there is evidence to suggest that although sediment does not leave the estuary in large enough quantities to supply the coast, sand does come into the estuary from the offshore ocean environment (Lockett, 1963; Sherwood and others, 1990; USCE, 1999). These sediments are transported in on the flood tide, and over time accumulate in the main channel and elsewhere. Thus, any extraction of sand adjacent to the river mouth and navigation channel does constitute a net loss of sand from the coastal system since it continues to deplete sand from an already starved coastal system. Because of the lack of information on the volumes of sand that enters and leaves the estuary through the mouth of the Columbia River, this is probably one of the main reasons why further studies should be undertaken to better understand the transport hydrodynamics adjacent to the river mouth. Furthermore, although a 3 ft deepening of the Columbia River may not significantly influence the ability of the river to transport sediments under the present regime of controlled river flows as contended by the U.S. Army Corps of Engineers, the cumulative impact of pile dikes and channel deepening over the years from 25 ft, 30 ft, 35 ft and the current 40 ft channel has significantly altered the hydrodynamics of the system. Whatever decision is made concerning the channel deepening project, it would be prudent that a carefully planned monitoring program be established on the Columbia River to properly assess cause and effect.

The following comments refer specifically to the material contained in Appendix A:

S-41

5. Page 4, 3<sup>rd</sup> para: Further discussion is required concerning the temporal variability in river flows. In particular, it would be beneficial to discuss the temporal effect of the Pacific Decadal Oscillation (PDO), which may account for the reduced sediment transport volumes that occurred during the warm PDO phases between 1925 - 1946, and 1976 - 1996.

S-39. This comment refers to a paragraph that is part of a summary of the sedimentation analysis presented in Appendix A of Exhibit J. The impact of Columbia River dams on flow regulation and thus on sand transport are acknowledged two sentences later in the same paragraph. The effects of climate changes, dams, and dredging and disposal are examined in detail in Appendix A. Figure 2 of Appendix A clearly shows the decline in sand transport that occurred before the construction of the Columbia River dams. The question of how much sand is being impounded by the dams is irrelevant to assessing the potential sedimentation impacts of the proposed 43-ft channel. As explained in the 1999 Final IFR/EIS, the 2001 BA and Appendix A, there are ample sand sources downstream of Bonneville dam to maintain the sand supply for the Columbia’s sand transport for many hundreds of years. The Final IFR/EIS notes that there is as much as 100 mcy of sand just in the river’s active sand wave zone downstream of CRM 106. The sand wave zone is only the top 4-8 feet of the riverbed’s alluvial sand deposits that range from 100 feet deep near Portland/Vancouver to 400 feet deep in the estuary. Where dredging removes sand, it will expose the underlying sand to the river’s hydraulic forces and that sand will then become part of the active sand transport system. In areas requiring frequent maintenance dredging this will eventually result in a 3-foot deeper increment of sand being incorporated into the active sand transport system than would occur without the proposed 3-foot deepening. Sand from upstream of the proposed project and the newly exposed sand will maintain the Columbia River’s sand supply for the foreseeable future.

Disposal practices have varied with both time and location over the past 100 years, with some river locations utilizing in-water, shoreline, and upland disposal, depending on the conditions at the time of dredging. As noted in discussions about disposal practices in Appendix A, a complete description of historical disposal practices is impossible because many older disposal locations were not recorded. Disposal practices during the last 20 years have been recorded and the important characteristics of those practices are described in the 1999 Final IFR/EIS and Appendix A. The disposal plan for the 43-foot channel is described in the Final IFR/EIS, SEIS and the BA. As in the past, future disposal practices can be expected to vary depending on site conditions, such as volume of shoaling, dredging equipment available, disposal sites available, and environmental restrictions.

The Corps recognizes the potential for the removal or disruption of sand supply to the coast to affect the stability of the coastal system. However, as the reviewer noted earlier (comment S-37) a sudden injection of sand can also upset the stability of the coastal system. Over the past 100 years, the Columbia River littoral cell has experienced an abrupt increase in sand supply caused by the MCR jetties and a gradual decline to sand discharge from the river system because of natural and anthropogenic changes in the river’s flows. The Columbia River littoral system is very likely still adjusting to both those events and may continue to do so for many more years. As described in the Final IFR/EIS, BA, and SEIS, the proposed 43-foot project is not expected to alter the river’s sand discharges and therefore will not significantly impact the littoral system.

### Corps of Engineers Response

S-40. The Corps is in general agreement with the comment on the following points; some sand is discharged from the estuary to the coast, sand enters the estuary from the MCR, sand enters during flood tides, and sand entering the estuary from MCR does accumulate in the estuary. It also appears to the Corps that the recent sand discharges from the estuary to the coast may not be sufficient to maintain a stable littoral system. As discussed in Appendix A, the Corps is uncertain about the source of sand entering the estuary from the MCR because the available studies of this very complex area provide differing results as to the movement of sand through the MCR. The source may be localized in or just upstream of the MCR or it could be a combination of local and littoral sources. As discussed below, this uncertainty does not affect the Corps' conclusion regarding the project's impacts because the Corps' modeling and other analysis indicates that regardless of the source of sand entering the estuary, the Project will not affect the mechanisms of transport. Appendix A describes the pathways for sand entering the estuary from the MCR as being through the North Channel, with sand accumulation occurring in the North Channel and on Desdemona Sands, not in the main (South) channel as claimed by the reviewer. As explained in the impacts discussion of Exhibit J, the proposed 43-foot channel does not involve deepening the MCR, the North Channel, or the main (South) channel downstream of RM 5, and hydraulic modeling does not indicate any hydraulic changes in those areas. For these reasons the Corps does not foresee the 43-foot channel causing any changes in the movement of sand into or out of the estuary or through MCR, or in the areas of accumulation of that sand.

The Corps does not agree that the extraction of sand from the navigation channel, upriver or in the estuary, will impact the coastal system in the predictable future. Approximately 63 mcy is forecast to be removed from the river (CRM 40-106) and disposed of upland during the first 20 years of the proposed project. As explained in the Final IFR/EIS, BA, and Exhibit J of the SEIS, the removal of this material will not reduce the available sand supply or the river's sand transport capacity, and thus will not alter the river's sand yield to the estuary. In the estuary (downstream of CRM 40) the disposal plan is similar to past practices. Only 10 mcy are planned for upland disposal in the estuary. Approximately 7 mcy dredged between CRM 20-30 would go upland at Rice and Pillar Rock islands and about 3 mcy would be placed on Welch and Tenasillahe islands. Approximately 6 mcy would be placed as in-water fill at each of the two ecosystem restoration sites (Lois Island and Miller-Pillar). The remainder of the dredged sand, about 30 mcy, would be placed back in-water by means of flowlane and shoreline disposal, minimizing the extraction of sand from the estuary and keeping disposal in the active sand transport system. During channel maintenance, sand dredged from CRM 5-13 will be placed in flowlane sites downstream of CRM 5, keeping the sand in the active transport zone and moving that sand closer to the MCR.

Comparing the 10 mcy of estuary upland disposal to the Sherwood et al (1984) estimates of approximately 2,000 mcy of accommodation space in the estuary shows the insignificance of this upland disposal volume. Thus the proposed upland disposal (extraction) is not likely to alter the estimated 800 years that it may take to fill the estuary. It should be noted that there is an additional 3,000 mcy of accommodation space in the entrance and that 7,700 years are estimated to be required to fill the combined estuary and entrance volumes. The Corps has agreed to conduct a bank-to-bank bathymetric survey of the estuary prior to construction and to perform annual bathymetric surveys in and adjacent to the navigation channel. Those surveys will provide an update of overall estuary sedimentation and monitor the predicted channel response to the 3-foot deepening.

**Corps of Engineers Response**

6. Page 6, 2<sup>nd</sup> para: "The Corps (USACE, 1999) estimated the current average suspended bed material (sand) transport into the Columbia River is only between 0.2 and 0.6 mcy/yr".

S-42

It would be useful if the location where this was determined were included in the text.

7. Page 8, 2<sup>nd</sup> para: "They also found that sediment was not generally accumulating in the main stem reservoirs because of scour by high discharges."

S-43

This statement is not very clear. Does the statement imply that sediment has not been accumulating within specific river transport reaches? Or does it suggest that sediment is not accumulating behind the main Columbia River reservoirs?

8. Page 8, 2<sup>nd</sup> para: "Shoaling in the navigation channel through the river and estuary is primarily the result of convergence of bedload transport paths and sand wave development (USACE, 1999). This process goes on continuously, but occurs more rapidly during river discharges over 300,000 cfs. This shoaling is more a redistribution of bed sediment, rather than accumulation of sediment, since it does not change the volume of material in a river reach."

S-44

I assume you mean that sediment is constantly moving through the river reaches. However, what is the ultimate source of these sediments? The sand must be coming from somewhere. Is sand getting through the dams? Is all of the sand from tributaries between dams?

9. Page 13, 2<sup>nd</sup> para: "However, there are no bathymetric difference studies for the Columbia River upstream of RM 48."

S-45

For a river system as important as the Columbia River, it is quite surprising that there has been never been an attempt to quantify changes in the volume of sediment upstream of RM48. In terms of the effective management of the Columbia River fluvial system, this is a major oversight, particularly in terms of assessing the sediment budget of the river.

10. Page 21 2<sup>nd</sup> para: "As Table 3 shows, the only estimate of river channel volume changes is Hickson's (1961) 140-mcy of erosion between Bonneville and the estuary, between 1920 and 1960."

S-46

Has this area continued to erode?

11. Page 21 3<sup>rd</sup> para: "Therefore, the riverbed upstream of RM 48 has not been a net supplier of sand to the estuary or ocean."

S-47

Given the 205 million cubic yards of sediment dredged between RM40 and RM105, and the relatively low flows associated with the Columbia River (and hence low sediment transport potential) it is of no great surprise that this region is unable to supply sediments to the estuary, except in times of high discharge. Thus, the above statement would appear

S-41. The influence of climate variation on the river's hydrology and sand transport is acknowledged and references are provided in Exhibit J for anyone interested in more information on the Pacific Decadal Oscillation (PDO) or El Nino/La Nina cycles. The reviewer refers to the 1925-46 and 1976-96 periods as having reduced sediment volumes. The 1947-75 average of 3.8 mcy/yr is less than half of the 1879-1904 average of 8.8 mcy/yr. Sand transport in 1976-96 was substantially influenced by upstream flow regulation. It must also be recognized that the effects of any future high river flows also will be moderated by flow regulation from the current upstream reservoir system. The focus of Exhibit J is the Columbia River's sediment budget; the temporal variations in that budget and contributing factors, both natural and anthropogenic, are clearly described in the text.

S-42. This estimate would generally apply to the river between CRM 40 and CRM 125.

S-43. The statement in question summarizes Whetten et al. (1969) findings concerning sediment accumulation behind main stem dams. It has been rewritten in the revised Exhibit J to say: "Whetten et al. (1969) found that sediment was not generally accumulating in the main stem Columbia River reservoirs because sediment was being scoured from those reservoirs during high flows."

S-44. Sand sources are described on p. 8 of Appendix A of Exhibit J in the SEIS. The ultimate source of Columbia River sand is the Cascade Mountains. Currently, there may be some sand moving downstream through Bonneville Dam, but the main sand sources include tributaries downstream of Bonneville Dam, such as the Sandy and Cowlitz Rivers, and the riverbed of the Columbia River itself where sand is estimated to be 100 to 400 feet deep. Bedload particles have been estimated to travel only several hundred feet per year in the Columbia River. Thus the sand source of most navigation channel shoaling is the riverbed adjacent to and a short distance upstream of the shoal location.

S-45. While knowing the historic volume changes upstream of CRM 48 would be interesting, they are not necessary for effective management of the river. As explained in responses S-36 and S-38, the Corps has developed a sound understanding of the Columbia's current sand transport, geomorphology, and dredging and disposal practices. This understanding supports the conclusion that sand volumes changes upriver of CRM 48 are not an important factor in determining the project's impacts on accretion or erosion in the estuary, the mouth or along the coast. The Corps also continuously surveys the river channel to monitor shoaling. That knowledge and monitoring allow us to effectively maintain the existing navigation channel and to evaluate potential impacts for the proposed 43-foot channel.

S-46. This paragraph in Exhibit J is clarified in the Final SEIS. The 140-mcy had not eroded in the normal sense, but had been transported as bedload into the nearby navigation channel and then dredged and removed from the river. That shoaling process still continues, but the resulting riverbed volume changes depend on the disposal method used at each site. Where in-water and shoreline disposal have dominated, the volume changes are slight. Where disposal has been primarily upland, there has been a reduction in the riverbed volume. Combinations of those disposal methods are used at most shoaling locations upstream of CRM 40. Typical riverbed changes related to navigation development from 1909 to the present are shown on Figure 13 of Appendix A of Exhibit J.

to be a misrepresentation of the available evidence, which is acknowledged to be limited, and cannot be concluded as such.

## Corps of Engineers Response

- S-48
12. Page 39 1<sup>st</sup> para: “As can be seen in Table 5, there is a large volume imbalance within the MCR area. The total unaccounted for loss of material amounts to 247 mcy, between the amount of sediment being supplied from the Columbia River (138 mcy) and an apparent loss of sediment (- 109 mcy) in the areas surrounding MCR. Some of this sediment could be accounted for in the amount of sediment dredged from the entrance channel, but that only amounts to about 6 mcy for the entire period. The material may have moved into areas further north and south along the coast, areas still within the CRLC but that are not accounted for in Table 5. The volume changes further offshore are also difficult to evaluate due to lack of sufficient survey data.”

As discussed in the Oregon Department of Geology and Mineral Industries technical note “Columbia River Littoral Cell - Technical Implications of Channel Deepening and Dredge Disposal”, the ongoing erosion of sediment immediately adjacent to the Columbia River mouth, inlet, and offshore from the Clatsop plains, reinforces the conclusion that the Columbia River littoral system is starved of sediment. For this to occur, there must have been a major change in the sediment budget of the Columbia River/coast system. Such adjustments can only come about through changes in the process environment, or as a result of disruption in the supply of sediment to the coast. Although scientists have documented apparent increases in the wave heights offshore from the coasts of Washington and Oregon, modeling efforts as part of the Southwest Washington Coastal Erosion Study have indicated that this effect results in only minor adjustments in the stability of the system (Kaminsky pers. comm., 2002). Thus, the erosion of these areas is much more likely to be related to a general decrease in the supply of sediments from the Columbia River to the coast.

- S-49
13. Page 40 1<sup>st</sup> para: “The hydrologic analysis of Bottom et al. (2001) indicates that because of regional climate trends, annual runoff tended to be below normal between 1927 and 1944 and then returned to a more normal pattern for 1945-58.”

These changes are directly correlated with warm phases of the PDO cycle. See earlier note.

- S-50
14. Page 40 2<sup>nd</sup> para: “Other than the effects due to streamflow changes, the upstream reservoirs did not noticeably affect sand transport or supply.”

What evidence is there that points to this conclusion?

- S-51
15. Page 44 2<sup>nd</sup> para: “From the transport paths and sediment volume changes it is also possible to make an estimate of the volume of sand that may have entered the estuary from the ocean. Both UC-B and Locket indicate sand moves upstream in the north channel but not in the south channel in the vicinity of RM 4-5. The reports also show that the landward movement terminates around Desdemona Sands. Therefore, if there were any inflow of sand from the MCR, it would be part of the 24-mcy accumulation on

S-47. The Corps believes the statement is a reasonable conclusion based on the line of reasoning presented in the text of the Final SEIS, Exhibit J, Appendix A. The text acknowledges that there are not enough data to calculate an exact answer, thus the need to present the alternative hypotheses that are argued in the referenced paragraph and the next. The analysis utilizes the best available data and the Corps’ understanding of river processes to reach the stated conclusion. The reviewer did not offer an alternative conclusion.

S-48. The characterization of the Columbia’s littoral system as sediment starved, conflicts with the recent findings of Gelfenbaum et al. (2001) that since 1926 there has been a net accumulation of sediment. The Clatsop Plain inner shelf and offshore areas certainly show consistent decreases in volume that suggest sediment-starved conditions. However, erosion in the MCR and South Flank areas may very well still be in response to the hydraulic disturbance caused by the MCR jetty construction. Kaminsky (2000) notes that it is difficult to determine if those areas are yet approaching equilibrium with the jetty perturbation of the early 1900s.

Appendix A of the SEIS describes reductions in the Columbia River’s sand yields to the coast that have occurred over time scales of 10s to 1,000s of years. Those reductions may contribute to the observed sediment volume decreases on the Clatsop Plain offshore area, but other possible causes should not be overlooked. The Columbia River littoral cell sediment erosion and accretion appears to be driven by far more complex physical processes than the comment suggests. Other potential causes of current sediment trends include increased wave heights (mentioned, but dismissed by the reviewer), the still active sediment system response the MCR jetties (noted by the reviewer in comment S-37), sea level change, and large-scale climate variations such as El Nino/La Nina events.

S-49. See response to S-41.

S-50. The referenced paragraph is a summary of the results of the report by Whetten et al (1969). They examined the Columbia River basin sediment processes and reported on sources, impacts of dams, and downstream transport. The work by Sherwood et al (1990) and Bottom et al (2001) also conclude that the dams have not altered sand supply. Those authors used sand transport relationships developed from measured data for the Columbia River near Vancouver from 1964-70, to hindcast sand transport from 1879 to 1999. If the dams had altered the available supply of sand, a single sand transport-river discharge relationship could not be used for the entire time period. In reference to the difference in sand transport between the 1868-1934 and 1958-1981 time periods, Sherwood et al concluded, “The dramatic decrease in estimated sediment supply to the estuary is clearly related to the decrease in peak riverflow caused by regulation.” While the Corps does not believe that regulation caused all the 1958-81 decrease, we do agree that the reduction in sand supply to the estuary was caused by the decrease in peak riverflow.

S-51. The text of the referenced paragraph has been revised to explain that it is based on the theories of mass balance and that converging transport pathways will terminate in an area of sediment accumulation. The available information from UC-B (1936) and Locket (1967) come from the beginning and end of the time period and present consistent sand pathways. The volume changes come from Sherwood et al (1984). The pathways and volume changes represent net sediment movement over time. While the conclusion is not without qualifications, it is reasonable based on the best available information.

## Corps of Engineers Response

S-51

Desdemona Sand. As described above, the 19 mcy of sand eroded from the north channel, mid-estuary shoal, Grays Bay, and Brix Bay was the likely source of much of that accumulation. The additional 5 mcy of sand accumulated on Desdemona Sand could have come from the river, the MCR, or the ocean. Based on Lockett's conclusions that there was ocean sand moving upstream in the north channel, that additional 5 mcy would have come from the MCR or ocean. This amounts to an average annual sand inflow from the MCR of less than 0.2 mcy/yr."

This paragraph is speculative and should be revised to acknowledge the inferences made.

Neither the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement nor the technical memorandum on sediment transport provide any recommendations to address many of the technical deficiencies acknowledged by the U.S. Army Corps of Engineers throughout the document. As managers of the Columbia River, this deficiency reflects a serious oversight by the U.S. Army Corps of Engineers.

Several options were presented at a recent workshop on sand transport held in Portland on June 10<sup>th</sup> 2002. Two options presented at the meeting included:

- A comprehensive bank-to-bank survey of the lower estuary region;
- Installation of 3 monitoring stations to quantify river velocity and temperature.

It is imperative that these proposed efforts be explicitly stated in the final document. However, we would recommend the inclusion of the following:

S-52

- (1) The bank-to-bank survey is provided as a baseline survey. Given many of the acknowledged gaps in our understanding of the Columbia River, particularly the issue of sediment budgets, it would be prudent to undertake additional follow-up surveys to assess morphological changes in the river.
- (2) Although the installation of monitoring stations in the Columbia River is a good idea, the proposed system would essentially ignore sediment transport. In light of the virtual absence of sediment transport measurements in the Columbia River, it is essential that state-of-the-art instrumentation be installed to properly address deficiencies in our understanding of sediment transport dynamics throughout the river/estuary environment. As noted by Jay and Naik (200), it is anomalous that sediment transport is not regularly measured on a river as important as the Columbia River.
- (3) Given the complete lack of knowledge on changes in the volumes of sand upstream of RM 40, it would be prudent for a complete bank-to-bank survey to be undertaken upstream of RM 40.

S-53

Finally, the sediment transport document contends that there is no real sediment (sand) issue associated with the Columbia River. As noted in our agency's technical note "Columbia River Littoral Cell - Technical Implications of Channel Deepening and Dredge Disposal" this argument is based on two positions to which counter-arguments are offered in the present environment of insufficient data:

S-52. The channel improvement project has presented a comprehensive series of sedimentation analyses that include the 1999 Final IFR/EIS, the June 2001 SEI workshop on sedimentation, the 2001 BA for endangered fish, and finally Exhibit J of the SEIS. These analyses have been based on the abundant available data on the Columbia River (Exhibit J references 37 reports and papers on sedimentation) and years of professional experience with the Columbia River hydraulics and sedimentation. The SEI expert panel affirmed the reliability of the Corps' sedimentation analyses when they found the Corps adequately understood the physical processes of the river and estuary, including flow alterations, dredging volumes, suspended sediment and bathymetry changes. The Corps agrees there are gaps in historical data that limit the sediment analyses presented in the Final IFR/EIS, BA and SEIS. However, the analyses presented in these documents accurately portray sediment behavior and hydraulics in the riverine environment.

The commenter's statement that the Draft SEIS does not include recommendations to address uncertainties is inaccurate and surprising given the many discussions with the state on this point. The monitoring actions, including those for sedimentation, are described in Table S6-5, p. 6-43, of the SEIS. The sediment related monitoring actions include three hydraulic monitoring stations in the estuary, annual reporting of dredging volumes, and main channel bathymetric surveys. The hydraulic monitoring stations are being installed to validate the results of the hydraulic modeling that there would be no measurable hydraulic changes caused by the proposed 43-foot channel. Annual dredging volumes can be used to assess bedload movement and the O&M dredging forecast. This annual review allows the Corps to track the actual volumes of dredge materials against its projections. This comparison will provide one indication of the accuracy of the Corps analysis as presented in Exhibit J. Significant increases in volumes in the estuary above that projected would be one performance criteria that could be tracked and used together with other information to determine if there is an unexpected impact.

The proposed project also includes main channel bathymetric surveys to monitor the predicted riverbed responses to the deeper channel. The main channel surveys approach bank-to-bank coverage upstream of CRM 48 as requested by the reviewer and will be sufficient to monitor river responses along the navigation channel. Specifically, the survey results may be reviewed to determine the pattern of sand accumulation or depletion in the areas being surveyed. The monitoring results could also be used to plan adaptive management strategies if unexpected sediment impacts are found.

A bank-to-bank bathymetric survey of the estuary was agreed to as part of the ecosystem research actions in the BA. That survey will provide the data needed to update the volume change analysis conducted by Sherwood et al. (1984) on a consistent time scale (1935, 1958, 1982 and then 2003). The need for additional bank-to-bank bathymetric surveys will depend on future research priorities. The planned bank-to-bank bathymetric survey of the estuary will be included in the SEIS. Together these monitoring and data collection measures provide effective tools for monitoring the project's impacts and determining if unexpected patterns of accretion or erosion are incurring.

## Corps of Engineers Response

- **Position One:** Because the present system cannot discharge sand to the coastal environment, the future extraction of more sediment as a result of the channel deepening project and ongoing maintenance is justified. Such actions according to this concept would not affect the amount of sediment present in the coastal system because sand does not get out of the estuary.

**Counter argument:** While this may be the case under the present conditions, it has certainly never been the case historically. This is a circular argument that overlooks significant additional considerations as seen below. Furthermore, channel deepening and maintenance dredging adjacent to the river mouth and in the estuary may in fact enhance the estuary's contemporary role as a sink for beach sand.

- **Position Two:** There are considerable volumes of sand within the river and lower estuary that are unlikely to run out in the foreseeable future. The removal of the volumes of material touted for the channel deepening project and for its ongoing maintenance is negligible compared with the overall volume of sand stored in the Columbia River and its estuary.

**Counter argument:** The volume of sediment contained in the Columbia River system is undeniably enormous. However, sediment available for transport remains a finite resource particularly in a fluvial system as extensively modified as the Columbia River, with its many dams and existing flow regulations. Furthermore, although the depth of sand contained in the river may be large, not all of this material is available for transport. This is because the present fluvial system is striving to reach some form of equilibrium state, or grade elevation, that has been imposed on it over the course of the past 5 - 6000 years in response to a slowing of the post-glacial sea level rise. Thus, the bulk of the sediment contained in the Columbia River channel is essentially held in storage, and will remain so unless there is a sudden change in mean sea level, or a dramatic increase in river discharge. Furthermore, as previously noted concerns could be raised over the loss of sediments associated with channel deepening, channel maintenance, and MCR dredging, since these are the sediments that are available for transport under the present regime. Given many of the uncertainties in the sediment budget presented as part of the technical memorandum, and those identified as part of the Southwest Washington Coastal Erosion Study, every effort should be made to better quantify and assess the transport of sediment throughout the Columbia River system.

### References:

Gelfenbaum, G., M.C. Buijsman, C.R. Sherwood, H.R. Moritz, and A.E. Gibbs, 2001, *Coastal Evolution and Sediment Budget at the Mouth of the Columbia River, USA*, 4th International Conference on Coastal Dynamics, Lund, Sweden.

Jay, D.A. and P. Naik, 2000, *Climate Effects on Columbia River Sediment Transport*, USGS Open File Report 00-439, Southwest Washington Coastal Erosion Workshop Report 1999, edited by G. Gelfenbaum and G. Kaminsky.

S-52 (con't). It should be noted that the Columbia River system imposes inherent limitations on a perfect understanding of sediment transport. The reasons for this are; suspended sediment concentrations are low, average annual sediment transport is small, bedload moves predominately during flows over 300,000 cfs and is difficult to measure, there is a wide range in river discharges and large freshets are infrequent, the estuary is large and contains a variety of bathymetric and hydraulic environments (such as Cathlamet Bay, the North and South channels, the inter-tidal flats, and near the entrance), and the hydraulic conditions at the MCR are complex and hazardous to work in when sand transport is likely the highest (high tidal or river discharges and/or high wave conditions). To measure sediment transport throughout the Columbia River, estuary, and MCR system would require a very large annual monitoring effort, for an extended period of years to cover the wide range of special and temporal variations in the system. As discussed below, such an effort is not appropriate or necessary for this project.

The level of future sediment monitoring necessary in the Columbia River and estuary depends on the issues to be addressed. The Corps, in cooperation with NOAA Fisheries and USFWS, identified a monitoring plan to confirm the expected impacts from the proposed project and provide a base for adaptive management, if necessary. This plan addresses the impacts that have been identified and provides a mechanism for responding to new information.

The development of a precise sediment budget for the entire system is a major undertaking that is outside normal Corps authority and beyond what is necessary for this project. However, the Corps' Regional Sediment Management (RSM) program may offer an opportunity to address some of the broader sediment concerns expressed by the reviewer. The RSM is a national initiative based on the recognition of the regional implications of dredging and other activities in the littoral zone. RSM treats sand as a resource and applies a regional (rather than project) perspective to managing sand in coastal, estuarine, and riverine systems. The RSM program encourages collaborative partnerships among stakeholders.

S-53. The two "positions" outlined by the reviewer suggest a misunderstanding of the Corps' sediment impact analysis. Position one is not a position advocated by the Corps in the 1999 Final IFR/EIS, BA, or SEIS. The Corps' analysis (documented in detail in Exhibit J) concludes that sand moves in both directions in the MCR and that the volumes of sand moving are small. It has also been the Corps' position that the proposed 43-foot channel would not significantly alter the sand yield to the estuary or the coast. The 43-foot channel would not enhance the estuary's role as a sink for coastal sands in the foreseeable future, as explained in Exhibit J and in response to comment S-40.

Position two addresses only one aspect (supply) of the sediment system. The Corps' arguments supporting our conclusion that there will be no significant changes to the sediment or sand budgets are based on there being insignificant or no measurable changes to the systems transport capacity or sand supply. The Corps recognizes that not all the sand in the Columbia River's bed will be available for transport, but as explained in response to comment S-39, only a small fraction of that sand is needed to maintain the sand supply. The comment seems to confuse sand supply with sand transport potential. The sand on or just below the surface of the riverbed represents the available sand supply. How much of that sand may be in transport over any given time depends on the river's discharge and resulting sand transport potential. As has been stated in responses to your comments S-36 through S-52, the Corps believes it has adequately assessed the proposed 43-foot channel's potential sedimentation impacts to the river, estuary, and coast.



Lockett, J.B., 1963. Phenomena affecting improvement of the lower Columbia estuary and entrance. Federal Interagency Sedimentation Conference, Jackson, Mississippi, U.S. Department of Agriculture, 626-668.

**Corps of Engineers Response**

**Oregon Economic & Community Development Department**

The Oregon Economic and Community Development Department has reviewed the US Army Corps of Engineers' Supplemental Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement (SEIS). The Oregon Economic and Community Development Department supports deepening the Columbia River channel to 43 feet as proposed in the SEIS. We offer the following comments concerning the economic impacts of this proposal.

S-54. Comment acknowledged.

Maintaining economically competitive ports on the Columbia River is a key to Oregon's economy remaining competitive in a global market. The Columbia River serves as a vital trade corridor for Oregon's manufactured goods and agricultural commodities as well as a large share of the nation's grain exports. In 1997, approximately 30 million metric tons of cargo valued at \$13 billion moved through the lower Columbia River ports. This is due in part to the lower Columbia River providing the shortest route to Asian markets for exports. Asian markets not only receive the majority of the waterborne trade from the West Coast, but have also served as a critical component of Oregon's economic growth during this decade. The Oregon Economic and Community Development Department believes it is necessary to maintain a strong and direct link to Asian and international markets in order to ensure Oregon's current and future economic health and diversity.

S-54

The Oregon Economic and Community Development Department supports the analysis and conclusion of the SEIS and the restated reports. The reports document that over time there has been growth in the level of waterborne commerce on the Columbia River. With this growth we have seen an increase in the average vessel size due in part to the efficiency gains for shippers using larger, deeper draft vessels to transport bulk items such as grain as well as containerized goods. Without deepening the channel, these vessels cannot come into Portland fully loaded, thus making the Columbia River ports less competitive. This creates market pressure to utilize California and Puget Sound ports, increasing the costs of shipping cargo to and from Oregon. If the Columbia River channel is not deepened, Oregon companies will probably lose business to other locations with lower transportation costs and Oregon consumers will simply have to pay more.



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**Corps of Engineers Response**

Sept 15, 2002

Robert Willis CENWP-EM-E US Army Corps of Engineers, Portland Dist. PO Box 2986 Portland OR 97208-2946	Judy Grigg Port of Longview PO Box 1258 Longview, WA 98632-7739
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**RE: Comments on Draft Supplemental Environmental Impact Statement for Columbia River Channel Improvement Project**

Dear Mr. Willis and Ms. Grigg,

Thank you for the opportunity to comment on the Columbia River Channel Improvement Project Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (DSEIS).

In our prior communications, including the September 29, 2000 letters denying section 401 water quality certification and consistency with Washington’s coastal zone management program, Department of Ecology (Ecology) has raised a number of concerns. Our understanding is that this DSEIS was prepared, in part, to respond to those concerns. We also understand that considerable effort was focused on other topics, including salmon listed under the Endangered Species Act.

S-55

We would like to thank the Ports and the Corps for the significant work over the past year to address the concerns of Ecology and other state agencies. This DSEIS marks a “check point” in that effort. The ongoing process to address the issues of concern has included numerous focus meetings and the production of technical memoranda which are attached in an appendix to the DSEIS. Our comments today are part of that ongoing dialogue.

Ecology has already provided input (written and verbal) on many of the issues. These comments will provide an update on Ecology’s view of the issues, particularly those topics for which information was developed too late for Ecology to provide input prior to the publication of the DSEIS. Additionally, we will try to summarize previous statements

S-55. Comment noted. The scope and purpose of the SEIS is further explained in our response at F-2. Detailed responses to Ecology’s comments are below.

Department of Ecology's Comments on the Columbia River Deepening DSEIS  
September 15, 2002  
Page 2

**Corps of Engineers Response**

that still remain relevant. Our detailed comments are attached. We hope that our concerns will be addressed and integrated into the final SEIS.

If you have questions, comments, or concerns, please contact me at  
bmc461@ecy.wa.gov or 360 407 6976.

Sincerely,



Brenden McFarland  
Environmental Coordination Section Manager  
Shorelands and Environmental Assistance Program

attachment: detailed comments

cc (via email):

Laura Hicks, Army Corps of Engineers, Portland District  
Dianne Perry, Port of Portland  
John Malek, EPA  
Carol Jolly, Governor Locke's Office  
Gary Cooper, WA DNR  
Bob Burkle, WA DFW  
Steve Manlow, WA DFW  
Bill Jolly, WA Department of Parks and Recreation  
Mike DeSimone, Pacific County  
Tom Byler, Governor Kitzhaber's Office  
Russell Harding, OR DEQ  
Christine Valentine, OR DCLD  
Jonathan Allan, OR DOGAMI  
Dave Hunt, Channel Coalition  
Matt Van Ness, CREST  
Dale Beasley, CRCFA  
Peter Huhtala, CDOG  
Tracey McKenzie, PIE  
Kristin Rich, PIE

**Department of Ecology's  
Detailed Comments on the Draft Supplemental Environmental Impact  
Statement for the Columbia River Channel Improvement Project**

Ecology's detailed comments are organized under the following headings:

- Aquatic Resources (including crab, sturgeon, and other organisms)
- Wetlands
- Sand Management and Sedimentation
- Shoreline and Coastal Zone Management

While these subjects are used as topical headings, the material ties to our 401 and CZM decisions. All the topics covered were previously cited in our September 29, 2000 letters denying 401 certification and CZM consistency. The material in the final supplemental EIS (including response to comments) is a tool that will help inform our permit decisionmaking.

We want to make it clear that we are appreciative of the progress made towards addressing the issues we raised previously. Depending on the issue, the amount of progress varies. For example, we are appreciative of the measures taken to assess the impacts on crab from entrainment, yet we would like to see more work on mitigating for those impacts. Additionally, we would like to see more work on the disposal impacts and habitat alteration impacts to crabs. Other topics also reflect this balance of progress versus remaining issues to address.

S-56

The introduction of an adaptive management approach may hold the best prospect of addressing Ecology concerns on many of the issues. For some issues there is uncertainty associated with the topic (such as crab and sand management), yet acquisition of information cannot be accomplished within a short time frame. In order for Ecology to make decisions in the short-term, we will need to outline in greater detail future studies planned and determine appropriate actions in response to potential outcomes of such studies. Additionally, Ecology would need to formalize an adaptive management agreement that requires future decisions in order to provide the assurances necessary for more immediate permit decisions.

In order to put in place an adaptive management approach, we would need to have a discussion on how best to deal with overlaps between Ecology concerns and elements of the adaptive management approach involving federal agencies resulting from the ESA reconsultation process. For Ecology permitting needs, we cannot necessarily rely on an agreement between the federal agencies that would exclude our agency from review and approval of study plans, reports, and decisions about resulting actions.

We look forward to response to our comments and are interested in ongoing discussion to resolve the remaining issues.

S-56. The Corps concurs that an adaptive management approach is likely the best approach in dealing with several of the issues that still have some level of concern with your agency. It is the Corps' intent to have a separate process from the ESA adaptive management process for the state issues related to water quality and coastal zone authorities, since the issues with the states are much broader. This process has been proposed and recently discussed with WDOE, ODEQ, ODLCD, and USEPA as an adaptive management process to deal with 401 and CZMA concerns with both states and to discuss both the channel improvement project and the Mouth of the Columbia River project from a regulatory perspective.

**Aquatic Resources (including crab, sturgeon, and other organisms)**

The comments in this section focus on issues related to marine and freshwater aquatic resources particularly Dungeness crab, Sturgeon, Smelt and their essential habitat. The comments take into account the Technical Memoranda included in Appendix K of the Draft SEIS and discussions of the Crab Technical Focus group including information presented on September 5, 2002 that have not yet been incorporated into the Draft SEIS.

S-57

Ecology recognizes the applicant's efforts toward addressing many of the issues raised in the 401 denial and CZM consistency letter regarding potential impacts to Dungeness crabs, Sturgeon and Smelt through the recently conducted and in progress studies. Findings from these studies will provide useful information on the magnitude of direct entrainment impacts, indirect impacts to some aspects of habitat change, and disposal impacts. Much of this information however will not be available prior to permit decision deadlines. A framework explicitly detailing how results of these 'studies in progress' will address the existing concerns and be interpreted to inform project management decisions should be included in the final SEIS.

The comments below on this topic include a table organizing Ecology's concerns and expectations followed by comments focusing on the crab technical memorandum.

**Corps of Engineers Response**

S-57 (includes responses to table). The table provided is unclear as to how the Department would have expectations shown in column 7 in the table without completing the management decisions specified as incomplete in column 6 of the table. In addition, most of the issues discussed in column 5 have been resolved and the studies are either completed or underway. Baseline studies for the proposed ocean disposal sites were completed and the information is disclosed as part of the Final SEIS, Exhibit N. As noted in the response to F-2 assessments for sites designation are contained in the 1999 Final IFR/EIS.

Crab impacts from entrainment 1, bullet 1: This task has been completed except for the final salinity versus abundance model using data collected in 2002. Please see information provided in the Final SEIS, Exhibit K-4.

Crab impacts from entrainment 1, bullet 2: The Corps is funding three additional hydraulic monitoring stations in the estuary. These stations, in addition to the rest of the CORIE monitoring network, collect real time data for both flow and salinity. This information will be used to the extent practicable to schedule dredging for the construction of the project, to minimize impacts to crabs. It may not be possible to schedule the dredges for the O&M program. O&M dredging is performed after the spring freshet and when shoaling infringes on the authorized channel depth, usually during the summer.

Crab impacts from entrainment 1, bullet 3: The Corps will continue to avoid and minimize entrainment impacts to Dungeness crab to the maximum extent practicable.

Crab impacts from disposal, bullet 1 to 3: The preferred option for dredged material disposal during channel improvement project construction for CRM 3-30 would be to place it in a temporary construction sump between CRM 18-20 for subsequent construction of the Lois Island ecosystem restoration feature rather than ocean disposal. All data collected to date indicates no crab occur at that Lois Island location based on its low salinity. Consequently, there is no need to develop a statistically robust experimental design or mitigation for construction disposal. There is a potential to impact crabs with O&M flowlane disposal downstream of CRM 5. This flowlane area is small compared to the estuarine area (CRM 15 to mouth, bank to bank) inhabited by Dungeness crab. The project flowlane disposal increment compared to the existing condition is small. Baseline studies for the proposed ocean disposal sites were completed and the information is disclosed as part of the Final SEIS, Exhibit N. Assessments for site designation are contained in the 1999 Final IFR/EIS.

Crab impacts 3, bullet 1-3: A bank-to-bank bathymetric survey will be obtained prior to construction of the deepened channel. Up-to-date bathymetry was used in the salinity models for the navigation and main channels where the potential impacts are expected to occur. The oldest bathymetry used in the models was for those areas outside of the main channel. The modeling results presented in the 1999 Final IFR/EIS and the 2001 BA indicate that hydraulic and salinity changes range from none to very slight for areas away from the navigation channel. Updating the models' bathymetry may result in slightly different base condition results, but would not alter the with-project impact levels. The existing model results provide the level of understanding of the estuary's hydrodynamics necessary to judge the project's potential impacts to circulation, salinity, temperature, and the ETM. The SEI expert panel confirmed the adequacy of the hydrodynamic modeling during the BA consultation.

Sturgeon impacts 4, bullet 1: This information is provided in the Final SEIS, Exhibit K-1.

The table below organizes Ecology's concerns, the measure(s) being implemented to address the concern, the technical issues and management decisions that remain incompletely addressed, and what still needs to be included in the final SEIS.

Issue Number	Issue	supporting documents	Applicant's response	Technical analysis remaining incomplete	Management decisions remaining incomplete	Ecology's expectations
<i>Crab impacts</i>						
1	Direct impacts to crab from entrainment	DEIS letter 1999 FEIS letter 1999 401 letter CZM letter attachment Outstanding issues8/10/01 letter	<ul style="list-style-type: none"> <li>Existing information compiled and analyzed.</li> <li>Entrainment Study designed then reviewed by state agencies.</li> <li>Sampling begun in lower Columbia River (CR) in March and June and planned to continue through October 2002</li> </ul>	<ul style="list-style-type: none"> <li>Validation of salinity/crab relationship in CR through concurrent sampling of salinity during entrainment sampling.</li> <li>Further sampling upriver in Upper Sands, Tongue Point Crossing and Miller Sands Channel</li> <li>Verification of dredge volume sampled (flow meter)</li> <li>Estimate of total crab entrained through construction of deeper channel and 20 yrs maintenance dredging.</li> <li>Estimate of crab abundance and entrainment under various flow conditions.</li> </ul>	<ul style="list-style-type: none"> <li>Determination of the level of impact that triggers the need for, type, and extent of mitigation has not been discussed.</li> </ul>	<ul style="list-style-type: none"> <li>Continue gathering entrainment data further upstream, analyze data to establish salinity/crab relationship. Run model with high and low flow salinity distribution patterns (using newly collected bathymetry data- see issue no. 3) to estimate number of crabs entrained.</li> <li>Monitor flow and salinity to determine (on an annual basis) dredging windows to avoid and minimize impacts to crab.</li> <li>Determine mitigation requirements in cooperation with state resource agencies.</li> </ul>
2	Direct impacts to crab from disposal	DEIS letter 1999 FEIS letter 1999 401 letter CZM letter attachment Outstanding issues8/10/01 letter	<ul style="list-style-type: none"> <li>Burial study included in FEIS 1999</li> <li>Proposed baseline study of Deep Water Site</li> </ul>	<ul style="list-style-type: none"> <li>Results of the study presented in the 1999 FEIS did not provide reasonable assurance that crabs would not be impacted from burial or suspended sediment.</li> <li>Information is lacking on temporal and spatial crab abundance and distribution at potential disposal sites</li> </ul>	<ul style="list-style-type: none"> <li>Preferred disposal alternatives cannot be legitimately selected lacking information on relative level of impacts.</li> <li>Determination of the level of impact that triggers the need for, type, and extent of mitigation has not been discussed.</li> </ul>	<ul style="list-style-type: none"> <li>A statistically robust experimental design to assess these potential impacts should be outlined then made available for review and comments (<i>before</i> any sampling begins) by state resource agencies.</li> <li>Crab populations should be sampled and characterized for all potential disposal sites and monitored post disposal</li> <li>Determine mitigation requirements in cooperation with state resource agencies.</li> </ul>

Issue Number	Issue	supporting documents	Applicant's response	Technical analysis remaining incomplete	Management decisions remaining incomplete	Ecology's expectations
3	Indirect impacts to crab through habitat alteration	DEIS letter 1999 FEIS letter 1999 401 letter CZM letter attachment Outstanding issues 8/10/01 letter Comments on 2001 BA	<ul style="list-style-type: none"> <li>• Salinity/entrainment relationship investigated in the entrainment study; salinity is being concurrently measured with entrainment samples and at CORIE monitoring stations.</li> <li>• A bank-to-bank pre-construction survey is planned</li> </ul>	<ul style="list-style-type: none"> <li>• Model predictions of changes to the distribution of salinity, temperature and turbidity maximum resulting from channel construction and 20 yrs of maintenance needs to be assessed with up to date bathymetric data. Potential changes to crab distribution and vulnerability to impacts from dredging or disposal must be assessed.</li> </ul>	<ul style="list-style-type: none"> <li>• An adequate understanding of the existing physical conditions is required before potential impacts from channel deepening and maintenance can be assessed</li> </ul>	<ul style="list-style-type: none"> <li>• Complete bank-to-bank survey and re-run CORIE model with new bathymetric data. Apply pre and post channel construction scenarios to predict distributions of salinity, temperature and turbidity maximum.</li> <li>• Monitor bathymetric changes in highly dynamic areas and entire bathymetry at pre determined time interval and re-run model</li> <li>• Determine avoidance, minimization and if necessary mitigation requirements in cooperation with state resource agencies.</li> </ul>
<i>sturgeon impacts</i>						
4	Direct impacts to sturgeon from flow lane disposal	DEIS letter 1999 FEIS letter 1999 401 letter CZM letter F&W 6/26/02 Tech memo comments	<ul style="list-style-type: none"> <li>• Compilation of existing information</li> <li>• Study initiated to assess sturgeon distribution and abundance</li> </ul>	<ul style="list-style-type: none"> <li>• Tagging studies to monitor sturgeon movement in these sites before and during disposal</li> <li>• Assessment of whether sites are important rearing areas for sturgeon</li> </ul>	<ul style="list-style-type: none"> <li>• Assessment of habitat use is necessary to determine potential impacts</li> </ul>	<ul style="list-style-type: none"> <li>• Development of a matrix detailing the potential for adverse direct impacts to sturgeon based upon what is learned from the studies.</li> <li>• Specific mitigation measures must be determined in cooperation with the state agencies</li> <li>• A monitoring plan to continually assess impacts that may result from maintenance disposal must be developed in cooperation with the state agencies.</li> </ul>

Issue Number	Issue	supporting documents	Applicant's response	Technical analysis remaining incomplete	Management decisions remaining incomplete	Ecology's expectations
5	Indirect impacts to sturgeon through habitat	DEIS letter 1999 FEIS letter 1999 401 letter CZM letter F&W 6/26/02 Tech memo comments	1. Study initiated to assess abundance, distribution and type of prey species sturgeon rely on.	<ul style="list-style-type: none"> <li>Diet analysis from stomach content sampling and comparison to benthic sampling at these sites</li> </ul>	<ul style="list-style-type: none"> <li>Assessment of whether benthic invertebrates in these deep instream sites are important prey species</li> </ul>	<ul style="list-style-type: none"> <li>Development of a matrix detailing the potential for adverse impacts to prey species based upon what learned from the studies.</li> <li>Specific mitigation measures must be determined in cooperation with the state agencies</li> </ul>
<b><i>Biological impacts from physical changes in the estuary</i></b>						
6	Biological impacts from physical changes to the estuary	DEIS letter 1999 FEIS letter 1999 401 letter CZM letter attachment Mar 2001 letter	Applicant refers to findings from the SEI independent science panel.	<ul style="list-style-type: none"> <li>Impacts to benthic invertebrates and their habitats requires a thorough assessment, particularly since they have a fundamental position near the base of the foodweb. Such a review should include referencing information when available regarding ranges of physical habitat parameters, recolonization rates, and species assemblages pre and post dredging</li> </ul>	<ul style="list-style-type: none"> <li>When physical changes are considered with respect to habitat requirements of the benthic species avoidance, minimization and/or mitigation measures can be properly assessed.</li> </ul>	<ul style="list-style-type: none"> <li>Develop a monitoring plan that incorporates CORIE data collection to continually evaluate range of parameters benthic species are exposed to throughout the duration of the channel construction and maintenance.</li> </ul>



**Corps of Engineers Response**

S-58 The comments below (in this section) are an edited version of those submitted to the applicant on June 26, 2002 pertaining to the Technical Memorandum (now included in Appendix K of the Draft Supplemental EIS ) entitled: *The impacts of the Columbia River Channel Improvement Project Dredging and Disposal on Dungeness Crabs (Cancer magister)*. The edits reflect Ecology’s understanding of the status of these concerns following discussions at the September 5<sup>th</sup> 2002 Crab Focus Group.

Section 2, final paragraph  
Although changes in level of impact from existing entrainment due to O&M may not be significant, the entire impact associated with maintenance dredging must be addressed to determine whether impacts are significant. *Ecology acknowledges the applicant’s intent to address of impacts of the entire maintenance volume at the September 5<sup>th</sup> 2002 Crab Focus Group meeting and expects this to be incorporated into the final SEIS document.*

S-59 Section 3.1, final paragraph  
Application of DIM to entire maintenance dredge volumes, not just incremental maintenance dredge volumes must be addressed. *Ecology acknowledges the applicant’s intent to address of impacts of the entire maintenance volume at the September 5<sup>th</sup> 2002 Crab Focus Group meeting and expects this to be incorporated into the final SEIS document*

S-60 Section 3.3, paragraph 1  
The conclusion that no additional crab sampling or dredge entrainment sampling appears warranted in Upper Sands, Tongue Point Crossing and Miller Sands Channel is unreasonable. *Ecology acknowledges the applicant’s intent to sample further upstream in these areas expressed at the September 5<sup>th</sup> 2002 Crab Focus Group meeting and expects this to be incorporated into the final SEIS document.*

S-61 Section 4.3, final paragraph  
Ecology requires information on Dungeness crab population abundance and impacts (both direct and indirect) from dredging and disposal. With accurate information a plan for avoidance, minimization, and, if necessary, mitigation can be developed. A comparison of the number of crabs entrained to the total number of crabs harvested is not, ultimately, the single issue of concern.

S-62 Section 5.1, paragraph 1  
The crab/salinity model was developed from Grays Harbor data. Verifying this relationship with entrainment data compared with CORIE stations in the Columbia River is desirable. Assuming this relationship holds for the Columbia River, following construction and maintenance the salinity distribution is predicted to change, with the maximum intrusion moving upstream. This prediction will 1) need to be assessed with model runs using new bank to bank bathymetry and verified with post project bathymetry and 2) Evaluate any changes to the salinity distribution with respect to crabs. Further intrusion of the salinity wedge is likely to drive the distribution of crabs further upstream and increase the area where crabs are vulnerable to entrainment. Although the absolute

S-57 (con’t).

Sturgeon impacts 4, bullet 2: Avoidance and minimization has been discussed in a multi-agency group including representatives from WDOE, WDFW, ODFW, USFWS, and NOAA Fisheries. Preliminary agreement has been reached for this approach outlined in the Final SEIS, Exhibit K-1.

Sturgeon impacts 4, bullet 3: The matrix under development does not contain a long-term monitoring study. Impacts to sturgeon will be minimized to the extent practicable through avoidance and timing of dredging actions during project O&M.

Sturgeon impacts 5, bullet 1: This information has been collected and analyzed and is presented in the Final SEIS, Exhibit K-1.

Sturgeon impacts 5, bullet 2: Avoidance and minimization has been discussed in a multi-agency group including representatives from WDOE, WDFW, ODFW, USFWS, and NOAA Fisheries. Preliminary agreement has been reached for this approach outlined in the Final SEIS, Exhibit K-1.

Biological impacts from physical change in the estuary 6, bullet 1: The Corps is committed to fund, for 7 years, 3 hydraulic monitoring stations in the estuary. As we have discussed with representatives from your agency on November 6, 2002, the Corps will use annual navigation channel bathymetric survey data to assess any potential for changes to the physical environment within the estuary and then assess whether additional data collection is warranted.

S-58. Comments and statements about the entrainment study at the September 5, 2002 meeting are noted and agreed to.

S-59. See response S-58.

S-60. See response S-58.

S-61. Concur, additional information is added to the Final SEIS from the 2002 crab research and modeling efforts.

S-62. Additional information is provided in the Final SEIS on the crab entrainment data collected in the summer of 2002. This includes further refinement of the crab/salinity model using additional CORIE data. The small change in upstream salinity predicted for the channel improvement project is not expected to have a significant impact on upstream crab distribution compared to what occurs now due to normal flow and tidal variations. In upstream areas, crabs occur primarily in the deeper channel areas because this is where salinities are highest. Recent main channel bathymetry was used to predict salinity changes. New bank-to-bank bathymetry will not aid in the prediction of salinity changes in the deeper channel areas. Both the CORIE and WES models are highly reliable in predicting salinity changes in the channel areas where the existing information on bathymetry is very good. The bank-to-bank survey would only be useful in refining existing conditions in the shallow water areas where crabs do normally not occur because of the low salinity, and the predicted salinity changes are very small.

**Corps of Engineers Response**

number of crabs may be small on an annual basis, the impacts over the life of the projects may be significant. This needs to be addressed in the impact assessment.

- S-63 Section 5.1, paragraph 3  
Sampling also needs to occur further upstream of Flavel Bar, especially during the summer and fall and in low flow conditions to accurately assess potential entrainment impacts. *Ecology acknowledges the applicant's intent to sample further upstream in these areas at the September 5<sup>th</sup> 2002 Crab Focus Group meeting and expects this to be incorporated into the final EIS document.*
- S-64 Section 5.2, paragraph 1  
Evidence supporting the assertion that "...these organisms are expected to recolonize the dredged areas and the habitat is expected to recover quickly" must be cited. If supporting evidence cannot be found, such claims should be removed and this should be noted as an issue that will be addressed either through monitoring of benthic invertebrate populations, monitoring relevant habitat indicators, or a combination of these.
- S-65 Section 5.3, conclusion  
It is inaccurate to use the phrase "are not expected to be measurable" if any crabs at all are entrained. The number entrained may be insignificant based on some defined level of significance but is still measurable. The determination of significance needs to be defined in coordination with the state agencies responsible for protecting the resource.
- S-66 Section 6.1, paragraph 1  
SEIS must address not only impacts due to construction of the deepened channel but also maintenance. A worse case scenario indicates 16 mcy being placed in the Deep Water Site (7 mcy from construction, 9 from maintenance over 20 yr life of project). *Ecology acknowledges the applicant's initiation of baseline biological characterization of the deepwater site and intent to examine burial impacts through further study at the September 5<sup>th</sup> 2002 Crab Focus Group meeting and expects this to be incorporated into the final EIS document.*
- S-67 Section 6.3, final paragraph  
Evidence supporting the assertion that "The habitat alteration is expected to have essentially no adverse impact on crab populations in this area" must be cited. If supporting evidence cannot be found, such claims should be removed and this should be noted as an issue that will be addressed either through monitoring of benthic invertebrate populations, monitoring relevant habitat indicators, or a combination of these.

S-63. As discussed at the September 5<sup>th</sup> Crab focus group meeting, samples have recently been taken upstream of Flavel Bar (CRM 10-14) at Miller Sands (CRM 24) during periods of low flow when salinity was highest and crabs would be expected to occur. The results of this sampling are included in the Final SEIS.

S-64. The reference used for this statement is Nightingale, B. and C. Simenstad, 2001, *Dredging Activities: Marine Issues*. This report is a white paper submitted to Washington Department of Fish and Wildlife, Washington Department of Ecology and Washington Department of Transportation, July 13, 2001. Within the above document, several studies are referenced that support our statement that recolonization of the dredged area by benthos is expected to occur quickly. Specifically:

- McCabe et al. (1996) reported no significant effect of clamshell dredging on the standing crop of benthic invertebrates in the Wahkiakum County Ferry Channel. They reported that benthos in slumping channel walls may have contributed to the rapid recolonization.
- Rapid recolonization (substantial recovery in 3 months) was also attributed to benthos in slumping channel walls in an estuary in South Carolina (Van Dolah et al. 1984).
- Richardson et al. (1977) reported that invertebrates recruiting from surrounding areas could facilitate recolonization.

McCabe, G.T., S.A. Hinton, and R.L. Emmett. 1996. Benthic invertebrates and sediment characteristics in Wahkiakum County Ferry Channel, Washington before and after dredging. Coastal zone estuarine studies. Northwest Fisheries Science Center, National Marine Fisheries Service, Seattle, WA.

Richardson, M.D., A.G. Carey, and W.A. Colgate. 1977. Aquatic disposal field investigations Columbia River disposal site, Oregon. Appendix C: the effects of dredged material disposal on benthic assemblages. Report to U.S. Army Corps of Engineers, Waterways Expt. Station, Vicksburg, MS.

Van Dolah, R.F., D.R. Dalder, and D.M. Knott. 1984. Effects of dredging and open-water disposal on benthic macroinvertebrates in a South Carolina estuary. *Estuaries* 7: 28-37.

S-65. The Final SEIS has been revised to include additional data on crabs entrained. See Exhibit K-4.

S-66. See responses to F-2 and S-57.

S-67. The full statement is, "The habitat alteration is expected to have essentially no adverse impact on crab populations in the area because the deposited material falls within the range of material that is suitable for this species and the prey they consume."

**Corps of Engineers Response**

**Wetlands**

These comments are specific to the Draft Wetlands Mitigation Plan (June 24, 2002), Appendix 2, Volume 2, of the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement. These comments should be considered Ecology's opinion on the Project's impacts to wetlands from the upland disposal of dredged material and the mitigation of those impacts. Where appropriate, specific page numbers are provided; some comments are more general in nature and do not reference a specific statement in the Plan.

Page 8 – Please note that Ecology staff have not yet given approval that the proposed mitigation actions will compensate for impacts to wetlands resulting from this project. We have agreed that the mitigation approach (i.e., large, focused mitigation actions) and locations are appropriate, but have concerns over the proposed construction and implementation of the plan. In recent discussions with the Corps and the Ports, Ecology and WDFW agreed to drop the requirement for additional HEP analysis with the understanding that the sites in the proposed mitigation plan, including the entire area of Martin Island and Woodland Bottoms, would not be reduced based on alterations to the scope of the project.

Any ambiguity over the use of the embayment or uncertainty over the undefined 80 acres of upland must be addressed. An appropriate contingency should be identified in case the applicant is ultimately unable to fill in the 32 acre freshwater embayment on Martin Island. Final approval from Ecology will include a limit on any additional dredge material being placed on Martin Island.

Most of our remaining concerns center on the specific design elements of the proposed plan. There is no specific description of construction actions related to mitigation; e.g., the elevation, location and extent of berm construction and excavation, water control structures, other excavation and fill, and any other construction related activity or impact. The final mitigation plan must include a description of pre and post-project conditions.

No slope should be graded to steeper than 5:1 in the buffers or 10:1 in the wetlands.

Monitoring needs to be extended for a 10-year period. Five monitoring events within that period should be adequate; i.e., years 1, 3, 5, 7, 10. An as-built report will be required in addition to the follow-up monitoring.

Performance standards are not necessarily reflected in the monitoring requirements; e.g., amphibian egg masses. However, care should be taken that performance standards are reasonable and are within the influence of the applicant; e.g., using the presence of amphibian egg masses as a standard of success after five years may not be as practical as ensuring the appropriate vegetation is in place for egg attachment.

The Monitoring Plan (Table 2) needs to be combined with Table 3 so the Interim Performance Standards are linked to monitoring methods and schedules. These standards

S-67 (con't). As indicated in the recolonization studies mentioned in comment S-68, any habitat impacted will quickly reestablish itself and still be useable to Dungeness crabs. Another study from the White Paper substantiates this and is listed below:

Hinton et al. (1992) found there to be an increase in benthos densities after disposal in June 1989, when measured in June 1990. Although a slight decrease in productivity was assumed to be probable during disposal and shortly after, successful recolonization occurred by June 1990.

Hinton, S.A., R.L. Emmett, and G.T. McCabe. 1992. Benthic invertebrates, demersal fishes and sediment characteristics at and adjacent to ocean dredge material Disposal Site F, offshore from the Columbia River, June 1989-1990.

S-68. The Corps convened a meeting with State and Federal resource agencies and Cowlitz County on December 2, 2002 to resolve concerns raised by the agencies and the county regarding wildlife mitigation. Specifically, the agencies and the county addressed concerns over construction and implementation of the proposed mitigation efforts at Martin Island and Woodland Bottoms, including the concerns raised by the County under its Shoreline Master Program regarding recreational use and filling of the Martin Island lagoon for wildlife mitigation purposes.

As a result of this meeting, the Corps now proposes to fill only 16 acres of the embayment for wildlife mitigation purposes. Because the Corps has reduced habitat impacts, including wetland habitat impacts, since publication of the 1999 Final IFR/EIS, a minor reduction in wetland mitigation acreage is warranted. The mitigation ratio for wetland habitat will still be greater than 12:1 after this reduction of 16 acres.

Regarding the rest of the mitigation on Martin Island, the Corps is not including the 80-acre parcel once proposed as a disposal site in the wildlife mitigation development plan.

For Woodland Bottoms, the Corps proposes to breach the levees that contain Burris Creek and allow that stream to flood over the wetland mitigation acres. This will provide for a more natural hydrologic regime for the wetland habitat, an objective of WDOE, WDFW and Cowlitz County for this location.

Regarding the specific description of construction actions related to mitigation, these would be accomplished during Plans and Specifications when the final mitigation plan will be completed. The sponsor ports have not acquired these lands to date but will be required to do so by the Corps upon their signing of the Project Cooperation Agreement, a legally binding contract.

The Corps will extend the monitoring period to 10-years after construction with five monitoring periods during that timeframe as suggested in your comment. An as-built report can also be developed and provided.

We will combine the Monitoring Plan (Table 2) with Table 3 such that the Interim Performance Standards are linked to the monitoring methods and schedule.

S-68

are more objective and may be more appropriate than some of those given in Table 1. Generally, those standards with measurable criteria (e.g., survival rates of planted material) are preferable as performance standards than those that rely on anecdotal observations (e.g., presence of nesting birds). This information is useful and should be included in the monitoring reports, but should not be considered a standard by which to measure the success of the project.

S-69. Page 32, Table 3, an interim performance standard for Martin Island is "surface water present during normal tidal cycles." This standard lacks the necessary specificity to determine if compliance has been achieved. More specific information needs to be provided in terms of the expected hydroperiod of this wetland. This and other performance standards should be presented in terms of wetland function. In other words, what is the targeted wetland function associated with this mitigation action and how will the performance standard track that function?

S-70. Page 15 - "Provide a more diverse aggregate of habitat types" is given as a design objective. This can be accomplished in part through the development of "micro habitat" features such as excavating channels and other depressions (such as behind root wads), and creating upland mounds and other undulating features. This level of design detail has not been provided, but will be required in a final mitigation plan.

S-71. Page 15 - A permanent deed restriction must be placed on the mitigation sites, in addition to title to the land. A landowner and responsible party must be identified. For example, an agreement with the WDFW which includes a permanent restriction on the use of the land as a natural area and the understanding that the habitat elements of the mitigation plan will be maintained in perpetuity. It will also be necessary to identify the responsible party for mitigation follow-up. As the applicant, the Ports will bear that responsibility unless another party is identified. That party will have the legal responsibility to fulfill the conditions of the 401 Certification regarding mitigation actions.

S-72. It is stated on page 27 that wetland functions will be assessed using Ecology's *Methods for Assessing Wetland Functions on Riverine and Depressional Wetlands in the Lowlands of Western Washington* (1999). However, there is no indication of when and for what purpose this assessment would occur. This assessment should occur as part of the baseline study, prior to mitigation action, as well as being a component of post construction monitoring; perhaps at years 5 and 10. This will present all parties with information that will be useful for this project and future mitigation proposals.

Baseline monitoring must be done as soon as possible. There are statements concerning assumptions about existing and proposed hydrology, elevation, surface contours, and vegetation communities that can not be confirmed without an understanding of existing conditions. Understanding existing conditions will provide more certainty regarding anticipated hydrologic conditions (i.e., the extent, frequency, depth, and duration of inundation) resulting from mitigation actions.

S-69. The basis for our wetland mitigation element of the Wildlife Mitigation Plan was the USFWS's Habitat Evaluation Procedures (HEP) that analyzed habitat quantity and quality over time. The WDOE was a partner in the wildlife mitigation planning process. The objective for Martin Island embayment was development of intertidal marsh habitat utilizing the surveyed elevation of adjacent, existing intertidal marsh to accomplish the objective. Given the proper elevation from the adjacent intertidal marsh habitat, we will then attain a hydro-period identical to established marsh habitat. The WDOE's requirement for more specific information on expected hydro-period is, therefore, unnecessary.

S-70. WDOE's desire for development of "micro-habitat" in the Martin Island embayment can be accomplished relatively simply during site construction. The desired elements can be, and typically are, described in the final mitigation plan with design detail completed during plans and specifications.

S-71. While the sponsor port will hold the title to the property, the Corps is the applicant for 401 certification. Accordingly, the Corps will require the sponsor ports, through the Project Cooperation Agreement, to place permanent deed restrictions on mitigation property after acquiring it. Deed restrictions will ensure use of the land as a natural area and ensure that the habitat elements will be maintained in perpetuity. The Corps is coordinating with WDFW to determine if they will accept the role as the responsible party for long-term maintenance of the mitigation sites.

S-72. Your suggestion for wetland function assessment as a baseline and post-construction monitoring effort (years 5 and 10) will be implemented. Baseline monitoring to determine existing conditions will be accomplished during Plans and Specifications when the sponsor port has acquired these mitigation lands.

The Corps is aware of Ecology's concern that mitigation activities should be targeted to develop naturally functioning and self-sustaining systems. And we reiterate that the Woodland Bottoms site lies behind main flood control dikes, which makes development of a natural, and self-sustaining wetland system difficult. During the Plans and Specifications phase, the Corps will present a proposal regarding the Woodland Bottoms wetland mitigation element directed toward development of a naturally functioning, self-sustaining wetland to the extent practicable given existing conditions.

Ecology's uncertainty over the long-term commitment to funding ongoing active management of the mitigation sites is unfounded. The Corps has established that it can set up a trust fund in which a lump sum is placed to cover projected mitigation O&M costs for the project life. That information has been provided to Ecology at several interagency meetings as our preferred method to assure that the site management agency, assumed to be WDFW, will have adequate funding to manage the site.

S-72 Ecology staff has expressed significant concerns in the past over the proposed mitigation construction methods; we continue hold the view that mitigation activities should be targeted to developing a naturally functioning and self sustaining system. The use of water control devices perpetuates the need for active management which is contrary to the goal of ecosystem restoration. A healthy wetland exists in a state of dynamic equilibrium, fluctuating through periods of drought and flood, as animal and plant populations seek out that point where they can survive and thrive. The use of water control structures prevents this natural fluctuation from occurring, holds the wetland at an artificial point in its development, and creates an ongoing need for more management. We would like to see the Corps and Ports explore construction options that avoid structures or facilities that will require regular and routine maintenance. This may be accomplished, among other methods, through a series of step pools or excavation to develop the same area of seasonal impoundment. This should help reduce costs over time as well. There is considerable uncertainty in our minds over the long-term commitment to funding ongoing active management of a mitigation site. The potential sustainability of the site with little or no active management will provide greater assurance that compliance with state water quality requirements will be met.

S-73 As stated in the mitigation plan, no planting of wetland vegetation is planned for Woodland Bottoms or the Martin Island embayment or excavated wetland. Success standards of 20% cover the first year, 40% by year 3 and 70% by year 5 are proposed. At the same time, a standard of 20% cover of invasive species has been established as a maximum threshold. The likelihood of meeting these standards will be dependant on the hydrologic conditions that are achieved through the mitigation actions, the existing seed bank, and the opportunity for new colonizers. Understanding those possibilities will be greatly enhanced with good baseline information. Specific contingencies should be identified as appropriate responses to potential development scenarios at the mitigation sites.

S-74 The embayment at Martin Island is proposed to be capped with material excavated from upland areas on the Island. Care should be taken that potential problems with invasive plant species are not exasperated by this action. Soils placed near the perimeter of the embayment may be at elevations that are suitable for the germination and growth of species such as Reed Canarygrass (*Phalaris arundinacea*) and Purple Loosestrife (*Lythrum salicaria*), especially if the surface is going to be exposed for extended periods due to tidal fluctuations. Soil from areas with infestations of invasive species should not be used where there is a likelihood of continued survival.

S-73. The Corps believes that attainment of the proper site elevation is the key to development of intertidal marsh habitat at Martin Island. Site elevation will mimic that of immediately adjacent, existing intertidal marsh habitat, thus assuring proper hydrologic conditions. The adjacent and upstream intertidal marsh plant communities will provide sufficient plant propagules to establish a viable marsh plant community at the Martin Island lagoon mitigation site.

As discussed at the December 2002 interagency meeting, the Corps proposes to breach the levees at Woodland Bottoms that contain Burriss Creek and allow that stream to flood over the wetland mitigation acres. This will provide for a more natural hydrologic regime for the wetland habitat, an objective of WDOE, WDFW and Cowlitz County for this location. The Corps believe that wetland plant seeds in the soil seed bank will provide adequate source material for marsh plant community development at Woodland Bottoms. We have implemented test plots in the Salmon Creek (Vancouver, WA) watershed that have demonstrated amply that seeds in the soil seed bank will propagate and populate these wetland development sites given exposure and water. Exhibit K-8, Part II, has been revised to include contingencies to address native and non-native wetland plant establishment in the wetland mitigation units.

S-74. The final site elevation for Martin Island embayment will be based upon the surveyed elevation of immediately adjacent intertidal marsh that occurs below the zone where reed canarygrass is observed to be established. We believe that elevation control is the critical factor regarding establishment of an intertidal marsh plant community. Reed canarygrass seeds, and those of other invasive plants, will be transported to the site by the Columbia River and wildlife that use the site. That is the simple reality of an ecosystem already compromised by these species. Regardless of what actions are taken to control/minimize invasive species, it must be recognized that they are pervasive in the ecosystem and they can be expected to occur at this mitigation site.

## Sand Management and Sedimentation Issues

### Introduction

In review of all the available data and literature it has become evident that the cumulative affect of human intervention has converted the Columbia River estuary from a source of sand to the littoral cell to a sink of sand that draws in and accumulates sand from the coastal zone. The proposed channel deepening project and proposed 20-yr dredged material disposal plan enhances the capacity of the estuary to function as a sink for coastal sand, thus maintaining, and likely increasing, erosion along the beaches of Washington and Oregon. Not only does this erosion cause the loss of public and private land, infrastructure and resources, the erosion also actively undermines the very stability of a fundamental federal navigation facility – the Columbia River jetties. Until there is a radical shift in dredged material disposal practices whereby dredged sand is kept within the active transport system and is managed in a way to reduce the losses of coastal sand into the estuary, the maintenance of the Columbia River navigation project will come at the cost of deterioration of these federal, state and local amenities.

S-75

The proposed dredged material management plan of extracting 3.5 to 8.75 times more sand from the river and estuarine system than can naturally be replenished by the river is contrary to the Corps own regional sediment management objectives of managing dredged material as a finite resource and restoring and maintaining coasts as balanced natural systems. The Portland District Corps position that that the lower Columbia River and estuary has an abundant supply of sand is no justification for removing huge quantities of sand from its active transport system and contributing to the net loss of sand in the coastal zone. The fact that the Columbia River valley contains an enormous volume of sand does not mean that this sand is available for transport to the coastal zone. On the contrary, the Corps own analyses suggest that the proposed project will increase the length of salinity intrusion in the navigation channel, thus decreasing the downstream transport of river sand and increasing the capacity of the estuary to accommodate sand from the coastal zone.

In summary, the proposed channel deepening project and 20-yr dredged material disposal plan exacerbates the deficit of sand supply to and within the coastal zone. The impact violates basic policies of sustaining Washington coastal resources and communities.

### The Coastal Sand Deficit

S-76 The proposed project is not only a navigation channel improvement/deepening plan, but also a 20-yr dredging and dredged material disposal plan. Regardless of the channel improvement/deepening aspect of this project, the Corps has proposed a substantial change in sediment management practices, one that removes substantially more sand from the river and estuarine system than previous practices. This proposed change in management practice conflicts with common goals of Regional Sediment Management to

S-75. This comment introduces an assortment of sand management issues without consideration of the interrelationships between sedimentation processes, or the physical and temporal scales of those processes. The comment does not appear to recognize the injection of nearly 800 mcy of sand into the coastal system following construction of the MCR jetties or the coastal systems roughly 100-year reaction to that injection of sand. Coastal erosion is referred to as a problem without acknowledging that the Southwest Washington Coastal Erosion Study found that for over 100 years, the Washington shoreline for 12 miles to the north of the MCR has been prograding and accreting sand. The statement that the estuary has become a sink for coastal sand is inconsistent with evidence that indicates the estuary has been and can still be both a source and sink for coastal sand depending on seasonal weather and/or hydrologic conditions.

The bottom line concern of WDOE is that the proposed project “exacerbates the deficit of sand supply to and within the coastal zone.” The Corps has recognized this concern and it is addressed in a holistic evaluation of sedimentation and sedimentation impacts in Exhibit J of the 2002 SEIS. That evaluation does not support WDOE’s conclusion. Specific WDOE sedimentation concerns and the Corps’ responses are presented in S-76 through S-97.

S-76. The Corps is proposing some changes in disposal practices that will place more sand in upland disposal sites. Approximately 63 mcy is forecast to be removed from the river and disposed of upland during the first 20 years of the proposed project from upstream of the estuary (CRM 40). Most of the new upland sites are upstream of CRM 75 (all are upstream of CRM 43) and many are beneficial use sites. As explained in the 1999 Final IFR/EIS, BA, and Exhibit J of the SEIS, this change in upstream disposal is not expected to alter the river’s sand delivery to the estuary, downstream of CRM 40. Where dredging removes sand from the riverbed, the underlying sand is exposed to the river currents and will become part of the active sand transport system. Thus, there is no meaningful reduction in the sand supply. The timing and rate of transport of the exposed sand will vary depending on the river conditions, just as it would for the riverbed sands without dredging. Most maintenance dredging occurs in the summer when river flows are low, so transport may not occur until the winter, or even spring, when the river flow and sand transport increases. The removal of sand upstream of CRM 40 should have no impact on coastal erosion.

In the estuary (downstream of CRM 40) the proposed disposal plan is similar to past practices, except for the addition of the ecosystem restoration sites. Only 10 mcy during the first 20 years of maintenance is planned for upland disposal. About 7 mcy to be dredged from CRM 20-30 would go upland on Rice and Pillar Rock Islands. Over 2 mcy would be placed upland on Tenasillahe Island near CRM 38. The two ecosystem restoration sites, Lois Island and Miller-Pillar, will each receive approximately 6 mcy placed as in-water fill. The remainder of the dredged sand, about 30 mcy over 20 years, would be placed back in-water at flowlane and shoreline sites. During channel maintenance, nearly 10 mcy of sand dredged from CRM 5-13 will be placed in flowlane sites downstream of CRM 5, keeping the sand in the active transport zone and moving that sand closer to the MCR. This disposal plan minimizes the extraction of sand from the estuary, while meeting other important regional economic and environmental goals. Again, Exhibit J documents that there should be no significant sedimentation impacts to the estuary as a result of this disposal plan.

**Corps of Engineers Response**

retain dredged material within active zones of sediment transport, and to enhance the natural functioning of coastal systems.

The Corps has claimed that the Columbia River has an unlimited sand supply and the removal of material from construction and maintenance of the navigation project will not effect the available sand supply to the coast. This claim is based on the assumption and preliminary model results that suggest there will be no significant change in tidal or fluvial hydraulics to affect a change in sediment transport. Yet the Corps BA (p. 6-57 states that "...alteration of the channel bathymetry, resulting from dredging and flowlane disposal, has the potential to change the relative balance between the freshwater velocities and ocean tidal forces." Furthermore, the Corps FEIS states that "tidal forces have established a pattern of sediment transport within the Columbia River Estuary, which is responsible for the fact that river sediments in transport close to the bottom are inhibited in their passage to the ocean. These forces also introduce ocean sediments into the estuary throughout the length of the salinity intrusion. As a consequence, bottom sediments from the ocean as well as from the upland areas are gradually filling the estuary."

The Corps apparently misses several key points in regard to sand supply to the coast:

1. The net extraction of sand from the river and estuary through dredging disposal practices results in a decrease in the overall volume of sand in those systems. Due to flow regulation and up-river dredging, the sand that is removed from the estuary can not be replenished by the river in the absence of a catastrophic, unmitigated event such as an extreme flood or debris flow from a volcanic eruption.
2. A decrease in sand volume in the estuary increases the accommodation space of the estuary to accumulate sand and maintains the estuary as an effective trap for fluvial and marine sediment.
3. An enormous supply of sand in the river does not equate to any sand supply to the coast. As noted by Allan and Beaulieu (2002), "The volume of sediment contained in the Columbia River system is undeniably enormous. However, sediment available for transport remains a finite resource particularly in a fluvial system as extensively modified as the Columbia River, with its many dams and existing flow regulations. Furthermore, although the depth of sand contained in the river may be large, not all of this material is available for transport. This is because the present fluvial system is striving to reach some form of equilibrium state, or grade elevation, that has been imposed on it over the course of the past 5 – 6000 years in response to a slowing of the post-glacial sea level rise. Thus, the bulk of the sediment contained in the Columbia River channel is essentially held in storage, and will remain so unless there is a sudden change in mean sea level, or a dramatic increase in river discharge. Furthermore, as previously noted concerns could be raised over the loss of sediments associated with channel deepening, channel maintenance, and MCR dredging, since these are the sediments that are available for transport under the present regime.

S-77. The Corps' judgment that the proposed project will not significantly affect sand supply to the coast is based on our comprehensive evaluation of the Columbia River system's hydraulics and sedimentation processes. The two independent, three-dimensional hydrodynamic model studies that showed minimal impacts to estuary hydraulics provided important information, but are only part of the overall evaluation presented in the 1999 Final IFR/EIS, BA, and SEIS. In reference to the reviewer's two quotes from Corps documents; the first is simply an introductory statement recognizing the potential for change, which the BA analysis demonstrated would be negligible. The second quote is a very brief summary of processes that are described in detail in Exhibit J of the SEIS.

S-78. The Corps has acknowledged that the removal of sand from the river and estuary reduces the overall volume of sand in the riverbed. However, it is critical to place this reduction in context, as sand beds hundreds of feet thick will remain after completion of the proposed dredging. The expected reductions in riverbed sand volumes will not measurably impact sand transport in the river or estuary. In addition, the Corps' disposal plan aims to minimize sand removal from the estuary while also accomplishing other important goals, such as safe navigation and ecosystem restoration. As described in Exhibit J, changes in the Columbia River's hydrology, caused by both climate variations and flow regulation, have reduced the sand inflow from the river to the estuary to around 1 mcy/yr under current conditions, but it has not stopped.

S-79. As noted in response to comment S-76, the proposed disposal plan only removes 10 mcy from the estuary over the first 20 years of the project. That volume is approximately the same volume as would be removed from the estuary for maintenance of the 40-foot channel, without construction of the 43-foot channel. The remaining 42 mcy of disposal will be placed in-water at ecosystem restoration, shoreline, and flowlane sites. Comparing the 10 mcy of upland disposal to the Sherwood et al. (1984) estimates of the volume of accommodation space, approximately 2,000 mcy in the estuary and 3,000 mcy in the entrance (includes the MCR, Baker Bay, Youngs Bay, Desdemona Sands, and the lower reaches of the North and South channels) shows how insignificant this upland disposal volume is in the context of the estuary environment. The proposed upland disposal (extraction) is small by comparison to the accommodation space available for sand and is not likely to alter the estimated 800 to 7,700 years that it may take to fill the estuary and MCR.

S-80. WDOE's sediment comments indicate a special concern about increased accommodation space for coastal sands in the estuary. As the Corps has described in Exhibit J of the SEIS, coastal sands have been and are expected to continue accumulating in the North Channel and Desdemona Sands area downstream of CRM 15. The only removal of sands from downstream of CRM 15 is the 3 mcy that would be moved to the Lois Island restoration site during construction. This 3 mcy would come from the South Channel where sand movement is dominated by river processes so there would be no immediate impact on coastal sand accumulation in the North Channel and Desdemona Sands. In the longer term, coastal sand could eventually fill the over 400 mcy of accommodation space Sherwood et al. (1984) estimated for the North Channel and Desdemona Sands. This fill space has nothing to do with and is not affected by the project because the dynamic hydraulics in the North and South channels of the estuary function in different ways. Based on a continuation of the average fill rates for those areas from 1935-58 from Sherwood et al. (1984), it would require approximately 900 years to fill this space. If coastal sand accumulation spreads to other areas of the lower estuary, the accommodation space expands substantially to nearly 3,000 mcy. The removal of 3 mcy would not significantly alter the accommodation space available to coastal sands, now or in the foreseeable future.

S-80. See our response to the DOGAMI comment S-53.

Given many of the uncertainties in the sediment budget presented as part of the technical memorandum, and those identified as part of the Southwest Washington Coastal Erosion Study, every effort should be made to better quantify and assess the transport of sediment throughout the Columbia River system.”

- S-81 4. A change in hydraulics is not required to result in a greater loss of sand from the coast to the estuary. On the contrary, increasing the salinity intrusion (a Corps-stated impact of this project) increases the distance over which littoral sand can be transported upstream as bedload, enhancing the sink capacity of the estuary for littoral sand. The overall effect of this change is to decrease the littoral availability of fluvial sand supply and increase the littoral sand supply from the coast to the estuary.
- S-82 5. Regardless of the extent of additional impacts caused by the deepening project, a review of recent studies suggest that even maintaining the status quo (existing disposal practices) would cause impacts and would need to be modified as an adaptive management measure. Because historical dredging has exceeded inflow of fluvial sand in all by six years since 1910 is no justification to continue this practice in the future.
- S-83 6. The utilization of dredged sand from the Columbia River navigation project is one of the few viable options for reducing erosion in the Columbia River littoral cell and offsetting the losses of coastal sand to the estuary caused by the construction and maintenance of this project. The key issue here is that sand removed from the estuary could and should be used to restore sand supply to the littoral cell, particularly in light of contribution of the project itself to the coastal sand deficit.
- S-84 7. The Corps recent change in proposal (as described in the BA) to avoid deepwater ocean disposal of dredged sand within the first 10 years of the project by placing sand in the Lois embayment and Miller-Pillar pile dike sites is not a significant improvement in dredged material management (from a coastal erosion perspective). The use of these sites effectively removes sand from the active transport system. Moreover, the use of these sites results in extracting a large quantity of sand from the lower estuary (some, if not most of which has been deposited from inflow from the coastal zone) and moving it upstream of Tongue Point, further upstream than even the extent of downstream fluvial bedload transport and up-river oriented bedforms found during low-flows. Therefore, the use of these sites reduces the fluvial supply of sand to the lower estuary, likely extracts sand that recently originated from the coastal zone, and increases the capacity of the lower estuary to continue to fill with sand from the coastal zone.
- S-85 8. Although the Corps agrees that if the estuary were to fill to capacity, then more sand would be supplied to the coast, the Corps position that it would take a long time until the estuary is filled is no justification to continue removing more than 3.5 times the amount of fluvial supply, enhancing the sink capacity of the estuary and the deficit of coastal sand.

S-81. The Corps disagrees with the reviewer. The Corps believes hydraulic changes, from the proposed project or other sources, would be required to produce a greater loss of sand from the coast to the estuary. Sand transport processes are not the same as those for salinity transport; there must be strong currents to move sand, while salinity can diffuse in still water. The hydrodynamic modeling of low flow conditions predicted the proposed 43-foot channel would cause only slight increases in salinity intrusion in the South Channel, on the order of 1 ppt or less between CRM 10-30, and bottom velocity changes of -0.1 to 0.2 fps in the same reach. Changes of these magnitudes, limited to the South Channel under low flow conditions, are not expected to have a measurable impact on the predominately downstream sand transport through the South Channel to the MCR. Furthermore, the models predicted fundamentally no changes in salinity or velocities in the MCR, the reach that controls the movement of sand into and out of the estuary, thus there should be no change in the rates of sand transport into or out of the estuary from the 43-foot project.

S-82. The Corps cannot respond to this comment because there are no indications of what impacts or what recent studies are being referred to in the comment.

S-83. As has been explained in the 1999 Final IFR/EIS, BA, SEIS, and in responses to other WDOE comments, sand removal from the estuary has been minimized and the proposed project is not expected to impact coastal sand supplies. In particular, maintenance dredging between CRM 5-13 will dispose of sand in-water downstream of CRM 5, moving that sand closer to the coast and keeping it in the active sand transport system.

S-84. See responses to comments S-76 and S-79.

S-85. See responses to comments S-76 and S-79.



**Findings of the DSEIS and Exhibit J**

The draft document "Columbia River 43-ft Navigation Channel Deepening Sedimentation Impacts Analysis" (Exhibit J) prepared by Portland District Corps of Engineers, June 2002, appears to be an initial substantive attempt by the Corps of Engineers review historical changes and quantify sedimentation processes throughout the river, estuary, and coastal system. However, the report does not effectively evaluate the potential impacts of the proposed 43-ft channel deepening project. Instead, the report reviews historical data and literature to construct an interpretation of sedimentary processes in the system over the last century. Thus, while the compilation of historical information is commendable, a meaningful evaluation of project impacts is still lacking.

S-86

The report makes many statements and draws conclusions that appear to be unsupported by the available data. For example, on page 21 of the report it states "The detailed data on riverbed volume changes, sand transport rates, and disposal placement, necessary to calculate the sand behavior in this reach does not exist. It is therefore necessary to draw conclusions about sediment processes from theory and the limited data that is available." While the engineering profession may require decision-making in the absence of complete data, an important distinction must be made when conducting an assessment of environmental impacts. In making objective and scientifically-defensible environmental assessments with insufficient data, often the best professional practice is limited to drawing hypotheses, not conclusions. When conclusions must be drawn from limited data, scientists define parameters upon which their findings are supported, similar to professional engineers who incorporate factors of safety in order that there are reasonable assurances that the safety, health, and welfare of the public are protected. This report contains many "conclusive findings" that appear to either lack the appropriate parameters upon which these findings apply and are supported, or they lack the appropriate margins of safety necessary to assure that the welfare of the public is protected. We do not agree that the available data is interpreted correctly and there is no proposed action to address the uncertainties on issues related to the sediment budget in the report.

A few major "conclusive findings" are made that warrant specific mention here:

S-87

1. The report asserts that "past dredging and channel modifications have not measurably altered sand supply or sand transport in the river or estuary". Yet, the report appropriately acknowledges that "Dredging has exceeded sand transport in all but seven years since 1910, and four of those years were prior to completion of the 35-ft channel". The tables included in the report indicate that dredging has played a major role in the sediment budget for most of a century. Furthermore, because sand discharge has been reduced due to flow regulation and irrigation, the influence of dredging has increased over the last 30 years. The Corps has previously stated that there will be lower future maintenance dredging levels due to the removal of the sand from the system that will reduce re-handling. This change in practice certainly constitutes a change in the sand budget, relative to the current situation. The Corps seems to ignore evidence that the net removal of sand from the system appears to be a practice that has been initiated only within the last 2 decades. Sherwood et al. (1990)

S-86. The Corps disagrees with the reviewer's remark that the statements and conclusions in Exhibit J are unsupported by the available data. These analyses have been based on a wide range of available data on the Columbia River and years of professional experience with the Columbia River hydraulics and sedimentation. The 1999 Final IFR/EIS provides a complete description of existing sedimentation, including sediment transport and the navigation channel shoaling processes. The SEI workshop and the 2001 BA explain the existing system and the potential sedimentation impacts from the proposed 43-foot channel, with an emphasis on the estuary. Exhibit J of the SEIS provides a comprehensive review of sediment processes and trends in the Columbia River and estuary since the late 1800s with the emphasis on the past and potential future changes to the sediment budget. The SEI expert panel affirmed the reliability of the Corps' sedimentation analyses when they found the Corps adequately understood the physical processes of the river and estuary, including flow alterations, dredging volumes, suspended sediment and bathymetry changes.

The statement that there are no proposed actions to address uncertainties is incorrect. The Corps has proposed monitoring actions to measure predicted environmental impacts, including those for sedimentation that allow the Corps to evaluate its conclusions on an ongoing basis. Those actions are described in Table S6-5, p. 6-43, of the SEIS. The sediment related monitoring actions include three hydraulic monitoring stations in the estuary, annual reporting of dredging volumes, and main channel bathymetric surveys. The hydraulic monitoring stations are being installed to confirm the results of the hydraulic modeling that no measurable hydraulic changes are expected from the proposed 43-foot channel. Annual dredging volumes can be used to assess bedload movement and the O&M dredging forecast. The main channel bathymetric surveys are to monitor the predicted riverbed responses to the deeper navigation channel. The main channel surveys approach bank-to-bank coverage upstream of CRM 48 and will be sufficient to monitor riverbed responses along the navigation channel. The monitoring results can also be used to plan adaptive management strategies if unexpected sediment impacts are found.

A bank-to-bank bathymetric survey of the estuary was agreed to as part of the ecosystem research actions in the BA. That survey will provide the data needed to update the volume change analysis conducted by Sherwood et al. (1984) on a consistent time scale (1935, 1958, 1982 and then 2003). The need for additional bank-to-bank bathymetric surveys will depend on future research priorities. That action will be listed in Table S4-7 of the SEIS when the table is added to the text.

S-87. The Corps' did not include the sand volume changes in the riverbed in our sediment budget because neither the riverbed volumes nor the upland disposal volumes are available. This does not represent a major shortcoming since that sand was simply moved from storage in the riverbed to storage on shore. The resulting changes in the depths and shape of the river channel were outlined in Exhibit J of the SEIS. It is the Corps' expectation that placing future dredged material upland will lower the riverbed enough that bedload transport can proceed without interfering with the navigation depths and thus reduce future maintenance dredging. As the WDOE reviewer has noted in comment S-80, not all the sand in the Columbia River system is available to supply the sand transport system, much of it is held in long-term storage in the riverbed. As explained below, the available sand supply in the riverbed is actually only a surface layer directly exposed to the river's currents.

Suspended sand is picked up by the river and carried along in the water column at near the average speed of the river. The Columbia River has attained its suspended sand transport capacity before it reaches the project area. The primary sources for the suspended sand are the Columbia's riverbed between Vancouver and Bonneville Dam, and tributary streams, especially the Sandy River. The suspended transport occurs under most flow conditions with the rate dependent on the river discharge.

Corps of Engineers Response

- S-87 suggests that 49.3 - 100 Mm<sup>3</sup> has been disposed in upland sites since 1939. Over a period of 50 years, this amount is approximately 1.5 Mm<sup>3</sup>/yr. Gelfenbaum *et al.* (1999) estimates that the river supply of sand during 1935-1958 was 2.6 Mm<sup>3</sup>/yr suggesting the annual upland disposal of sand at that time was less than the annual supply.
- S-87 2. The report asserts that "The project will not reduce the abundant sand supply available in the riverbed within the project area". At the same time, the Corps claims that the total sand transport is 0.4-1.0 million cubic yards per year (mcy/yr) and proposes to remove 70 mcy of sand from the Columbia River within the next 20 years, an equivalent rate of 3.5 mcy/yr. Therefore, the proposed project would remove 3.5 to 8.75 times the amount of sand transported in the river on an annual basis. This net extraction of sand from the system reduces the volume of sand in the system and increases the capacity of the estuary to trap sand, and reduces the potential sand supply to the coast.
- S-88 3. The report asserts that "Deepening of the navigation channel will not alter the sand transport through the MCR nor the sediment budget of the littoral cell". Dredging at MCR and the navigation channel in the lower estuary has clearly already altered this balance. As noted by Allan and Beaulieu (2002) "any extraction of sand adjacent to the river mouth and navigational channel does constitute a net loss of sand from the coastal system since it continues to deplete sand from an already starved coastal system." To determine the degree to which further alteration of the balance would occur requires detailed data collection, analyses and modeling studies.
- S-89 4. The report asserts that "There will continue to be... a small net discharge of sand from the estuary to the MCR." This statement is not supported by the available data and contradicts other statements made in the FEIS without providing any evidence. This assertion also directly contradicts statements made by the Portland District Corps of Engineers that the effects of dam construction and flow regulation have eliminated the supply of sand to the coast. In addition, the Corps study on sediment trend analysis (McLaren and Hill, 2001) concluded that "the results of the STA clearly show that the nearshore shelves and beaches on both sides of the Columbia river mouth are sediment starved."
- S-90 5. The report states that "...past dredging and channel modifications upstream of RM 40 have not measurably altered the available sand supply or sand transport in the river." Yet the Corps provides no evidence that the effects upstream of RM 40 has ever been adequately assessed. On the contrary, the Corps acknowledges that "...there are no bathymetric difference studies for the Columbia River upstream of RM 48." And at the same time the Corps claims that "...the riverbed upstream of RM 48 has not been a net supplier of sand to the estuary or ocean." These statements are contradictory and unsupported by available evidence.
- S-91 6. The report states that "Global scale climate variations that reduced streamflows were the primary cause of the decline in sand transport between the 1800's and 1972." As pointed out by Allan and Beaulieu (2002) "This statement completely ignores the

S-87 (con't). As the suspended sand is carried through the river there is an active exchange process between the water column and the riverbed, some sand settles to the riverbed and other sand is eroded from the bed surface and enters the water column. This exchange process is referred to as dynamic equilibrium. Where the river enters the estuary, CRM 40, the suspended sand transport (the volume of sand moving in suspension) is the same as at the upstream end of the project. The sources for suspended sand exiting the river to the estuary are the riverbed upstream of Vancouver, the riverbed through the river reach, tributaries upstream of Vancouver, and tributaries in the river reach. Because the river maintains a dynamic equilibrium, suspended sand does not contribute measurably to navigation channel shoaling, and dredging and disposal do not alter suspended sand transport.

Bedload is a layer of sand a few grains thick that is rolling and bouncing along on the surface of the riverbed. Bedload moves much slower than the suspended sand because the bottom velocity is less than the river's average velocity and because of the friction between sand grains and the bed surface. Bedload transport rates also depend on flow conditions and the rate increases rapidly when river discharges exceed 300,000 cfs. Bedload sand grains move intermittently and usually only for short distances, traveling on the order of hundreds of feet per year in the Columbia River. The source for bedload is therefore the surface of the riverbed in the immediate vicinity of the transport. Bedload influences, and in turn is influenced by, the shape of the riverbed. Bedload forms the sand waves found on the surface of the Columbia's riverbed. The side-slopes of the riverbed help determine the local direction of bedload transport.

Overall, the Columbia River's bedload transport appears to be at, or at least near, dynamic equilibrium in the project area; the amount entering the river reach at CRM 106 is not discernibly different from the amount leaving at CRM 40. However, because bedload is a localized process, site-specific currents and bed topography, can simultaneously produce areas of erosion, accretion, and dynamic equilibrium across the riverbed at any given location. Bedload accretion caused by local riverbed topography is the primary cause of shoaling in the navigation channel. Most of the sand dredged from navigation shoals is in at least temporary storage; only the surface layer would be part of the bedload transport. Dredging does not alter the bedload transport because after dredging a new surface layer is exposed and it then becomes part of the bedload transport.

S-88. See responses to comments S-76 and S-79.

S-89. The Corps agrees that the referenced statement is not supported by available evidence. The direction of the small net movement of sand cannot be identified at this time.

The McLaren and Hill (2001) study provides some important information about sand transport near the MCR, but it is not a definitive study and must be considered along with the remainder of the information available. As they note in their report, not all their findings would agree with the results of other studies. Their findings of sediment starved beaches needs to be reconciled with Gelfenbaum *et al.* (2001) finding of sediment accumulation along both Clatsop and Long Beach and Kaminsky's (2000) finding of shoreline progradation in the same areas. McLaren and Hill (2001) also found no landward sand transport into the estuary from the MCR, a finding that is inconsistent with the results of earlier studies as described in Exhibit J of the SEIS.

S-90. The Corps finds nothing contradictory in the three statements quoted by the reviewer. Our response to comment S-87 provides additional clarification to the arguments in Exhibit J supporting the validity of the first statement. We believe the third statement is a reasonable conclusion based on the analysis presented in the text of Exhibit J preceding the statement.

S-91 | role of major dam construction and the impact impoundment has had on sediment supply in the Columbia River. Dam construction commenced with the Bonneville dam in 1937, with several other dams having been constructed shortly after. To our knowledge, the effects of dams in impounding sand transported down the Columbia River has never been adequately assessed. Furthermore, the above statement ignores the role of dredging, which has removed substantial quantities of sediment from the system. Indeed, there appears to be no comprehensive assessment of the effects of dredging on sediment supply. Finally, in a report concerned with sediment transport and sediment budgets, it is surprising that there is very little discussion of how these sediments have been disposed of historically or more recently. It is acknowledged by scientists that the removal or disruption of sediment supply from a fluvial system that supplies a coast, can have significant adverse effects on the stability of the coastal system.”

Other issues:

S-92 | The past removal of sand to the uplands has been underestimated. In addition to the MCR and main navigation channel projects, there were a number of navigation projects in the estuary that required dredging: Skipanon River channel, Baker Bay channel, Ilwaco, and Chinook. In addition, Mott and Lois Islands were created, the Tongue Point Seaplane base area was filled, and downtown Astoria was filled ca. 1921 after fire destroyed the original downtown (built on pilings). There are also major fills around Puget Island and Tenasillahe Island. Other fills are located near the Port of Astoria and west of Tongue Point (inside the railroad tracks). Early in the 20th Century, Longview was also filled. Also, numerous dikes in the system contain sand that has been permanently removed from the system. Whether or not this removal of sand was associated with the Federal navigation project, these sand extractions are part of the historical record affecting the sand budget, and need to be acknowledged in a report of this nature that attempts to review the historical influences on Columbia River sedimentation.

The related potential impacts on salmon habitat need to be clarified. The Corps has consistently stated that: a) most dredged material comes from re-distribution of sediment already in the system (i.e., dredging is uncorrelated with supply), and b) removal of sand from the system will eventually cause a reduction in maintenance dredging. If these arguments are correct, then this seems to require that degradation of shallow water areas is a prerequisite to reducing the supply of sand into the channel.

**Measures to Reduce Impacts**

S-93 | The report provides no recommendations to deal with many of the uncertainties regarding the impacts of the project on the coastal sand budget. Ecology has the following recommendations in this regard:

S-90 (con't). The second statement is part of the text that acknowledges that there is not enough data to calculate an exact answer; thus, the need to present alternative hypotheses that are examined in this paragraph and the next. The analyses utilize the best available data and the Corps' understanding of river processes to reach the stated conclusion. The reviewer did not offer an alternative conclusion.

S-91. See the response to the DOGAMI comment S-39.

S-92. The Corps acknowledges that other dredging and disposal actions have occurred in the Columbia River and estuary during historic times. It was not our intent to provide a complete history of all dredging and disposal actions, but only those central to evaluating the potential sediment impacts of the proposed 43-foot federal navigation channel.

The BA goes to great lengths to evaluate the expected impacts to salmon and their habitat. The potential impacts to shallow water salmon habitat are thoroughly addressed in the BA. The conclusions of the BA have been affirmed by NOAA Fisheries in their biological opinion for this project.

**Corps of Engineers Response**

S-93. Responses are provided below for each numbered comment.

- S-93
1. The Corps of Engineers should propose dredge material disposal sites that keep sand in the active transport zone of the lower estuary and coastal systems with the specific objective of augmenting (rather than diminishing) the sand supply to the coastal zone. The use of new disposal sites should be monitored to assess the effectiveness of sand feeding to the littoral cell.
  2. In order for the project to become consistent with Washington's CZMP, a plan is needed to eliminate or significantly reduce the loss of sand to the littoral cell to avoid coastal erosion impacts. The plan should identify specific appropriate measures by which coastal erosion is avoided, minimized and/or mitigated.
  3. The Corps of Engineers should lead and financially support a partnership with states of Oregon and Washington on Regional Sediment Management. The RSM effort should include a comprehensive regional systems management plan for the conservation of sand and other coastal resources in the river, estuary and littoral zone as well as shoreline prediction models based on regional sediment budgets.
  4. The Corps should commit to data collection and development of models that would assist in the study of sand transport through and within the estuary and littoral cell.
  5. The Corps should work in conjunction with the Ecology and the USGS to assess the probable effects of the navigation project on estuarine and coastal shoreline configurations within the Columbia River littoral cell.
  6. The Corps should also commit to mitigate, through replenishment, any sand deficit that is caused by the deepening project, including construction and maintenance.
  7. The Corps should investigate other options of enhancing the sediment supply to the estuary and coast, such as releasing sediment trapped behind sediment retention structures.

The report makes no mention of any realistic monitoring plan. Bathymetry data is identified in the Corps Biological Assessment to be collected only once, and most monitoring for other purposes ends within 7 years. A monitoring effort should be designed that lasts the duration of the project, and regularly assess changes in sand transport (import, export and storage in the estuary, to the degree possible), sediment properties (e.g., texture), suspended sediment and Estuarine Turbidity Maximum (ETM) properties, salinity, temperature, and stratification.

S-94  
As a prerequisite to implementing a successful monitoring program, Ecology has previously recommended that the Corps develop a project management plan that:

1. Explicitly states project performance criteria such as avoiding a net loss of littoral sand volume by influx to the estuary. Project performance criteria are essential to enable review and evaluation of the project relative to the explicitly stated

1. As described in responses to comments S-76 and S-79, the Corps has proposed a disposal plan that returns most sand dredged in the estuary back to the active transport zone. The proposed plan is similar to existing disposal practices in the estuary. The Corps has the ability to make changes to that plan if the State of Washington would be willing to obtain the environmental clearances and pay all incremental costs. The new disposal sites in the proposed disposal plan are contained upland sites upstream of CRM 43 and two ecosystem restoration in-water fill sites in the estuary. The new sites are not intended to contribute sand to the littoral system, so there is no need to monitor their effectiveness toward that goal.

2. See S-93 #1 above.

3. The Corps supports the initiation of a Regional Sediment Management (RSM) study. The scope of that study will depend on funding and regional priorities.

4. This action should be considered for inclusion in a RSM study.

5. This action should be considered for inclusion in a RSM study.

6. The Corps' analysis concludes that the proposed 43-foot channel project is unlikely to cause a sand deficit on the Washington coast. Therefore, no mitigation is necessary. Adaptive management actions will monitor and address any unexpected problem caused by the project.

7. Enhancing the sand supply to the estuary and coast is a different objective and has no relevance to assessing the potential impacts from the proposed project. The Corps has the ability to make changes to the proposed disposal plan, such as transporting riverine sands to the estuary or coast, if the State of Washington would be willing to obtain the environmental clearances and pay all incremental costs.

The Corps does not believe that releasing sand from behind retention structures would increase supply to the estuary or coast. However, it could have severe consequences for Washington citizens living downstream of the Toutle River Sediment Retention Structure, or those living or working near Columbia River shoreline fills protected by pile dikes.

Another way to enhance sand supply to the estuary and coast would be to return to the high discharge spring freshets such as those that existed in the late 1800s. The Corps does not believe this is a viable option because of the enormous impacts higher flows would have on irrigation, hydropower, and flood damages throughout the entire Columbia River Basin.

S-94. An explanation of the Corps' hydraulics and sediment monitoring plan is given in response to DOGAMI comment S-52. As discussed in that response these measures provide an effective approach to monitoring the project's performance against the expected impacts and should be used instead of the approach recommended below by WDOE.

1. This is an unreasonable performance criterion because there is not a sufficient baseline for comparison. The only estimate for sand influx to the estuary is the 0.2 mcy/yr between 1927-58 presented by the Corps in Exhibit J. This estimate was arrived at based on a mass balance of sand over the entire time period. There are no data available to give any indication of under what hydraulic conditions that sand influx occurred and whether the rate was increasing or decreasing with time.

**Corps of Engineers Response**

- S-94
- performance criteria.
  - 2. Identifies adaptive management responses and corrective actions for situations where project performance criteria are not achieved.
  - 3. Commits to implementing adaptive management responses, *including corrective actions if project performance criteria are not achieved*, and
  - 4. Institutes adaptive management measures to balance any net loss of sand resources or net loss of the productive capacity of fish and shellfish habitat.

Ecology has previously recommended a monitoring plan designed to detect and assess possible impacts due to the deepening and/or subsequent maintenance of the deepened channel. This plan included short-term data collection and monitoring to be carried out to adequately document the pre-and post-project construction phase and to determine any initial system responses to the construction phase, as well as a long-term data collection and monitoring to document project maintenance practices and determine longer term responses to both construction and maintenance activities.

The Monitoring Program should include as a minimum the following baseline data sets:

- S-95
- 1. A baseline collection of estuary bathymetric (seafloor/riverbed) survey and topographic (inter-tidal beach/shoreline) survey information, and should be completed prior to initiation of channel deepening. These surveys and data collection shall meet or exceed the resolution of the 1958 and 1982 bathymetric surveys. The baseline survey shall cover bank-to-bank of the estuary from River Mile 3-40.
  - 2. Sediment trend analyses and/or tracer studies of the lower Columbia River and estuary should be conducted (prior to or concurrently with project construction) within the estuary from River Mile 3-40 to determine sediment transport patterns and flux estimates.
  - 3. Prior to project construction, controlled aerial photographs (1:24,000 scale or better resolution) should be collected of shorelines extending from 10 km north and south of the ocean coast adjacent to the MCR, and from the MCR to River Mile 40, including the north and south banks of the estuary and all island shorelines.

The Monitoring Program should include as a minimum the following monitoring activities within the first 5 years of initiation of construction:

- 1. Bathymetric surveys from River Mile 3-18 of the same resolution of the baseline survey should be carried out on an annual basis within the first two years after completion of construction.

S-94 (con't).

1 (con't). The estimated influx may have been a continuation of the sand movement initiated by the MCR jetties or it may have been related to climate conditions during that time. Reduced river discharges may have caused a change in the relative balance between tidal and riverine forces that could cause an increase in the influx of sand from the MCR. Without knowing how those large hydraulic forces influence the sand influx, there is no way to determine the cause of any variations in sand influx that might be observed.

2. No impacts are reasonably anticipated and monitoring will occur to verify the analyses. The proposed adaptive management process would evaluate this information and respond to any unexpected project related impacts.

3. Adaptive management actions can be identified and implemented in response to unexpected project related impacts.

4. See #3 above.

S-95. Responses are provided below for each numbered comment.

1. The Corps has committed in the BA and SEIS to conduct the recommended survey.

2. As outlined in Exhibit J of the SEIS, several investigators have studied sand transport patterns in the estuary. Those studies have defined accretion and bedload transport patterns that have remained essentially unchanged since the 1930s. The Corps does not agree that expending limited federal resources to evaluate an unchanged condition is either needed or prudent.

3. The Corps' proposed monitoring plan focuses on the navigation channel where sedimentation impacts are more likely to occur. Riverbed changes are expected to start at the dredged areas and slowly migrate outward from the navigation channel. The degree of impacts is anticipated to be greatest in the navigation channel and to diminish with distance away from the channel. The Corps' channel surveys will measure these changes as they occur and will be able to identify any unexpected riverbed changes. No shoreline changes are expected along the coast. In the estuary, the proposed project is not expected to cause erosion of the estuary mainland or island shorelines, except at a few sandy beach areas immediately adjacent to the navigation channel, such as the Miller Sands and Skamokawa shoreline disposal sites. Controlled aerial photographs of such a large area of the coast and estuary, where no potential impacts have been identified or are expected, is not an appropriate expenditure for this project.

1. The Corps has committed to continue annual bathymetric surveys of the riverbed adjacent to the navigation channel. Those surveys typically extend out to shallow water and should be adequate to identify any unexpected estuary responses to the proposed 43-foot channel as explained in response to S-56. We do not believe surveys of shallow water areas further away from the channel are justified at this time because adjustments from deepening are likely to first occur near the channel. If unexpected impacts are observed along the navigation channel, an expanded survey area could be considered as part of an adaptive management action.

**Corps of Engineers Response**

- S-95
2. Beach profiles shall be surveyed at 1 km increments along the beaches 10 km north and south of the MCR on an annual basis for the first 10 years of the project.
  3. During year 5 of the project, a bathymetric survey from River Mile 3-18 of identical resolution of the baseline survey should be performed.
  4. During year 5 of the project, controlled aerial photography (1:24,000 scale or better resolution) should be collected of shorelines extending from 10 km north and south of the ocean coast adjacent to the MCR, and from the MCR to River Mile 18, including the north and south banks of the estuary and all island shorelines.
  5. Within six months of completion of the above activities, reports should be generated including the results of the bathymetric surveys, aerial photographs, volumes of construction and maintenance dredging in the channel, and available information on river flow and sediment transport.

The Monitoring Program should include as a minimum the following long term monitoring activities within the following 15 years of initiation of construction:

- S-96
1. Continue the collection of beach profiles at 1 km increments along the beaches 10 km north and south of the MCR on an annual basis for years 5-10 of the project.
  2. A bank-to-bank upper estuary bathymetry survey between RM 18-40 of identical resolution to the baseline survey shall be conducted at year 10 of the project.
  3. A bank-to-bank estuary bathymetry survey between RM 3-40 of identical resolution to the baseline survey shall be conducted at year 20 of the project.
  4. During year 20 of the project, controlled aerial photography (1:24,000 scale or better resolution) should be collected of shorelines extending from 10 km north and south of the ocean coast adjacent to the MCR, and from the MCR to River Mile 18, including the north and south banks of the estuary and all island shorelines.

**Summary of Environmental Impact**

S-97

The proposed project contributes to the deficit of sand in the Columbia River littoral cell. Columbia River sand is needed to maintain the beaches between Point Grenville, Washington and Tillamook Head, Oregon. Due to human intervention, predominately associated with construction of dams, jetties and navigation channels, and dredging disposal practices, the natural supply of Columbia River sand appears to have been effectively diminished to the point that the estuary has become a net sink (as opposed to a source) of sand for the littoral cell. The proposed project exacerbates this problem by removing sand from the system via both upland disposal and other in-water sites that remove sand from active transport in the river and estuary. The amount of sand removed greatly exceeds the amount of sand that can enter the river, estuarine and coastal system from the tributaries and upland drainage basin.

S-95 (con't).

2. No potential impacts to coastal beaches have been identified; therefore there is no justification for conducting beach profile surveys as part of this project. As noted by Kaminsky (2000) it is difficult to determine if the prograding shorelines of the Columbia River littoral cell are approaching equilibrium following the perturbation caused by the MCR jetty construction, or if reduced sand supply from the Columbia River, climate changes, and/or sea-level rise are influencing shoreline behavior. If the influences of those very large-scale physical factors cannot be determined, any shoreline impacts from the insignificantly small changes that the proposed project might unexpectedly cause in littoral sand supply would not be discernable from the proposed beach profile surveys and aerial photography.
3. See #1 immediately above.
4. See #3 immediately above.
5. The Corps will report our monitoring results as stated in the SEIS.

S-96. Future monitoring for the project should be designed in response to any observed impacts as part of the adaptive management program. If no unexpected impacts are found in the first few years, there would be no reason to continue for 20 years.

S-97. WDOE's comment does not define the physical or temporal scales of coastal processes or the impacts they are claiming the proposed project may produce. When WDOE refers to a "sand deficit" in the littoral cell, it is unclear if they are referring to less sand being supplied from the river than occurred over the past 10,000 years or in the late 1800s, or the 270 mcY loss of sand from the Clatsop Plain inner shelf and offshore areas, or the dissipation of the sand supplied by the construction of the MCR jetties. As explained in Exhibit J, results from the Southwest Washington Coastal Erosion Study found the shorelines of Long Beach on the Washington coast are accreting and prograding. WDOE's reference to a "sand deficit" is inconsistent with the observed accretion.

In referring to reduced sand yield from the river, WDOE cites dams, MCR jetties, navigation channels, and dredging and disposal practices, and chose to ignore the effects of climate changes over both historic and geologic time scales. The Corps and others have documented a reduction in sand transport because of flow regulation by dams. But rather than reduce sand to the coast, the MCR jetties injected 800 mcY of sand into the littoral system. On the other hand, no one has been able to identify a single effect to the coast from nearly 100 years of navigation channels, and the associated dredging and disposal practices in the river. Yet WDOE claims the proposed 3-foot deepening "will exacerbate this problem".

Sand is a critical and declining resource to the beaches of southwest Washington and, to the maximum extent practicable, all dredged sand should be kept within the river, estuary, and littoral system. Sand dredged from the river navigation channel should be disposed of at in-water sites or at beach nourishment sites to avoid the net removal of river and littoral sand. All sand dredged from the estuary and the mouth of the Columbia River (MCR) should be disposed of in ways that mitigate for sand deficits attributable to flow regulation and the erosion effects attributable to the net removal of littoral sand via other dredging practices. All riverine and ocean disposal should be conducted in a manner that avoids, or minimizes and mitigates for biological impacts as well as coastal erosion.

S-97

Ecology has previously determined that the impact to sand movement and availability from the proposed dredging and disposal is not consistent with the requirements or intent of the Shoreline Management Act and our State's Coastal Zone Management Program. There has been a severe lack of progress on these issues since that original determination. Although deepening of the Columbia River can be an acceptable form of development, the project proposal does not adequately define impacts to sand movement and availability within the Columbia River littoral cell, the result of these impacts to coastal communities and shorelines of the state, nor does the proposal provide for mitigation of the proposal's impact to sand related resources. The Corps of Engineers must work with state, local, and federal agencies to resolve regional sediment management issues, with a specific goal of keeping the dredged sand in the littoral system by disposing of dredged sand in the river or along the coast shallower than 60 feet.

#### References

- Allan, J., and J. Beaulieu, 2002. RE: Sediment transport technical memorandum, letter to Ms. Laura Hicks dated June 26, 2220, 9 p.
- Gelfenbaum, G., C.R. Sherwood, C.D. Peterson, G.M. Kaminsky, M.C. Buijsman, D.C. Twitchell, P. Ruggiero, A.E. Gibbs and C. Reed, 1999. The Columbia River cell: A sediment budget overview: Proceedings of Coastal Sediments '99, Hauppauge, Long Island, New York, American Society of Civil Engineers: 1660-1675.
- McLaren, P. and S. Hill, 2001. A sediment trend analysis (STA<sup>®</sup>) and an acoustic bottom classification (ABC) in the mouth of the Columbia River: Implications to dredge disposal operations and coastal erosion: Geosea<sup>®</sup> Consulting (Canada) Ltd, Brentwood Bay, BC, Canada: 20.
- Sherwood, C.R., D.A. Jay, R.B. Harvey, P. Hamilton and C.A. Simenstad, 1990. Historical changes in the Columbia River Estuary: Progress in Oceanography, 25: 299-352.

S-97 (con't). In the estuary (downstream of CRM 40) the proposed disposal plan is similar to past practices, except for the addition of the ecosystem restoration sites. Only 10 mcy during the first 20 years of maintenance is planned for upland disposal. About 7 mcy to be dredged from CRM 20-30 would go upland on Rice and Pillar Rock islands. Over 2 mcy would be placed upland on Tenasillahe Island. The two ecosystem restoration sites, Lois Island and Miller-Pillar, will each receive approximately 6 mcy placed as in-water fill. The remainder of the dredged sand, about 30 mcy over 20 years, would be placed back in-water at flowlane and shoreline sites. During channel maintenance, nearly 10 mcy of sand dredged from CRM 5-13 will be placed in flowlane sites downstream of CRM 5, keeping the sand in the active transport zone and moving that sand closer to the MCR. This disposal plan minimizes the extraction of sand from the estuary, while meeting other important regional economic and environmental goals. Again, Exhibit J documents that there should be no significant sedimentation impacts to the estuary or coast as a result of this disposal plan.

As WDOE is aware, the Corps and USEPA have been working very closely with local, state, and federal interests since 1995 to identify an acceptable disposal plan. The Corps believes that the disposal plans for the river and estuary satisfy a broad range of factors and interests such as beneficial use of dredged material, regional ecosystem goals, minimization of project impacts to fish and wildlife (including endangered species), safe navigation, and also avoid impacts to the littoral sand supply. Under the latest disposal plan if the ecosystem restoration features at Lois Island embayment and Miller-Pillar are fully implemented, ocean disposal of river or estuary sands is not necessary during construction and the first 20 years of maintenance of the proposed channel improvement project.

Since 1993, the Federal Government has proposed a variety of ocean disposal options, for both the channel improvements and the MCR projects, including disposal in coastal waters less than 60 feet deep to keep sand in the littoral drift. Much of that history is documented in the 1999 Final IFR/EIS, Appendix H. The position of the Federal Government with regard to the ocean disposal element remains unaltered (see response to F-2). It is expected that the Shallow Water and Deep Water Sites will be designated by the USEPA in 2003, and that the primary user would be the Corps' MCR project. Both the USEPA and Corps have policies encouraging beneficial use of dredged material. If alternate uses of dredged material are identified and found compliant with federal laws and regulations, including considerations of cost, then such alternatives likely would have priority over ocean disposal. The Corps has the ability to take advantage of nearshore or beach placement options if the State of Washington would be willing to obtain the environmental clearances and pay all incremental costs.

***Shoreline and Coastal Zone Management***

The following are comment on the technical memorandum titled: "Consistency with Local Shoreline Master Programs".

Many of these comments were provided verbally in discussions held with local governments, Port sponsors and Pacific International Engineering. We are reiterating those comments which are most substantive.

1. Page 2, Section 3, 2<sup>nd</sup> paragraph and Page 3, Section 3.1.1, first paragraph. Shoreline jurisdiction is not limited to "within 200 feet of the shoreline". Most counties include the extent of the 100 year floodplain in shoreline jurisdiction. This could be clarified by saying "all Project elements occurring within shoreline jurisdiction".

2. Page 3, Section 3.1.1, last paragraph indicates evaluation will be "in the following order:" but then moves on to Section 3.1.2. Either delete this paragraph or provide the outline.

3. Page 3, Section 3.1 should also include a discussion of Conditional Use Permit criteria.

4. Page 5, Upland Dredged Material Disposal – the location of the disposal sites is mixed up. Fazio and adjacent to Fazio are in Clark County. The three new sites listed are not associated with any jurisdiction. Is this an all-inclusive list of disposal sites proposed within the State of Washington? If not it should be made clear. It might be more helpful to refer to a table listing all sites proposed for construction and maintenance, particularly since the next paragraph discusses a maintenance-only site.

5. Page 5, Restoration Activities. This paragraph should clearly identify which activities will occur within Washington State and which are located in Oregon.

6. Page 6, Section 4.1.2 (1). It is difficult to assess whether the proposed ecosystem restoration activities will be consistent with local shoreline master programs (SMPs) and the Shorelines of Statewide Significance (SSWS) Criteria because there is minimal information on how these restorations will be accomplished. In general, not all "restoration projects" are appropriate nor are they all automatically consistent with the Shoreline Management Act and the underlying SMPs. It is dependent on the activities required in order to accomplish the restoration.

7. Page 6, 3<sup>rd</sup> paragraph. Please cite sources of data used here and elsewhere within the body of the consistency analysis, and in all the Technical Memoranda for that matter. Don't assume the reader is well versed in the entire project and in all the various reports.

8. Page 9, Section 4.1.3 (2) – Ecology disagrees with the statement that dredging is a normal public use of the shoreline. In general, we consider normal public uses to include navigation, fishing, recreation, and other traditional uses (see Volume 1, Shoreline

S-98. Comment noted. The Final SEIS, Exhibits E, F and K-9 have been revised.

S-98



Administrator's Manual, Shoreline Management Guidebook, Second Edition 1994). While dredging may facilitate navigation for those ships with deep drafts, it is not a normal public use.

**Wahkiakum County**

9. Page 11, Section 4.2.2, 2<sup>nd</sup> and 3<sup>rd</sup> paragraphs – The fact that the Department of Ecology issued Coastal Zone Consistency determinations for the maintenance dredging project is not a justification, nor does it determine coastal consistency for the proposed construction of a 43-foot channel. These statements should be deleted.

10. Pages 11-13 list the proposed disposal sites within Wahkiakum County. All disposal sites need to obtain the appropriate shoreline permit(s) from the County prior to use (whether for construction or maintenance) for this project. This includes those sites which have been or are being used for maintenance of the existing channel if work (temporary or permanent) within shoreline jurisdiction meets the definition of substantial development. This commitment, which has been made verbally by the sponsor Ports, should be stated in writing.

S-99

11. Page 14 Mining/Mineral Extraction – Ecology disagrees with the statement that the resale of dredged materials does not constitute mining because it does not naturally occur at the site. In fact, the material is removed from the river in close proximity to the location at which it is then resold (removal for economic use of sands from a bed beneath an aquatic area). Presumably some quantity of material, over and above that necessary for the beach nourishment is placed on the site to allow for the resale to occur.

12. Page 14 Commercial (Sand Resale) Activities – Ecology disagrees with the statement that because the resale of sand is promoted by a public agency it does not qualify as a commercial activity in the SMP. In fact, the stockpiling of material for the purposes of commercial resale requires a current, valid shoreline permit.

13. Page 16 Section 4.2.5.2.1 (1)(c) –Only dredging associated with restoration activities occurring within Wahkiakum County should be cited here. In fact, most of this paragraph should be stricken as much of what is stated is not applicable. The dredging is to deepen the navigation channel, not for restoration purposes.

14. Page 17 Section 4.2.5.2.1 (3)—The written analysis fails to address the biological productivity issue.

15. Page 17 Section 4.2.5.2.1 (4) – The project should comply with this requirement, and in addition, there must be a written commitment by the sponsors to obtain all applicable shoreline permits for all activities within shoreline jurisdiction associated with the disposal of dredged material. The Corps must acknowledge that sites will not be used until such time as all appropriate shoreline permits have been obtained for all activities within shoreline jurisdiction associated with the disposal of dredged material.

S-99. Comment noted. The Final SEIS, Exhibits E, F and K-9 have been revised.

16. Page 17 Section 4.2.5.2.1 (6)—Adverse effects are not limited to impacts to salmonids or crabs. Please address project related impacts to water quality, aquatic vegetation, other wildlife, and other shoreline resources including upland impacts.
17. Page 17 Section 4.2.5.2.1—Regulation #7 was omitted. This is the regulation that states “New project dredging in Conservation aquatic areas shall be limited to shallow draft navigation or access channels.” This regulation should be included and discussed in this evaluation.
18. Page 17 Section 4.2.5.2.2 (1)—This is another area, of a number in the document, where the analysis is limited to salmonids and other in-water species. In fact, the Shoreline Management Act and the SMP are much broader in scope. The response needs to be much more comprehensive in terms of the overall ecological systems and natural resources of the Columbia River. This comment applies to all areas as appropriate.
- S-99 19. Pages 18-19 Section 4.2.5.3.1 (1)—The CREST Dredged Material Disposal Plan (DMDP) is referenced. Confirmation of the appropriate version of the DMDP is necessary.
20. Page 21 Section 4.2.5.3.1 (9) (a)—The analysis is not responsive to the stated regulation.
21. Page 22 Section 4.2.5.3.1 (12) (a)—While the disposal site itself is located outside shoreline jurisdiction the pipes to get the material to the site are not.
22. Page 23 Section 4.2.5.3.1 (14)—There is no response to this regulation included in the analysis.
23. Page 24 Section 4.2.5.4.1 (4)—Resale stockpile locations need to be shown on the site plans submitted in the shoreline permit application necessary to continue this activity at this location.
24. Page 25 Section 4.2.5.5.1—In order to be consistent this site must have a valid shoreline permit in place authorizing the placement of materials for the purpose of resale.

**Pacific County**

- S-100 25. Page 32 Section 4.3.4 (12)(c)—In order to issue a CZM determination for this project, which includes the use of the Deepwater Ocean Disposal site, impacts will have to be assessed. Ecology disagrees with the proposition that because potential use is in the future, any impact is remote and speculative. If this site is to be included in our CZM determination, a more definitive answer regarding impacts, or lack of impacts, is necessary.

S-100. The 1999 Final IFR/EIS analyzes impacts at the Deep Water Site. Additional information regarding this site is included in the Final SEIS.

**Clark County**

S-101 26. Pages 36-44 Section 4.4—Clark County is not included in Washington's Coastal Zone. However there must be a written commitment by the local sponsors to obtain the applicable shoreline permits. These permits are required for all activities within shoreline jurisdiction associated with the disposal of dredged material. Upland sites can not be used for dredge material disposal (construction or maintenance) until such time as all appropriate shoreline permits have been obtained for all activities within shoreline jurisdiction.

S-101. Comment noted. The Final SEIS, Exhibits E, F and K-9 have been revised.

**Cowlitz County**

S-102 27. Pages 45-62 Section 4.5—Cowlitz County is not included in Washington's Coastal Zone. However there must be a written commitment by the local sponsors to obtain the applicable shoreline permits. These permits are required for all activities within shoreline jurisdiction associated with the disposal of dredged material. Upland sites can not be used for dredge material disposal (construction or maintenance) until such time as all appropriate shoreline permits have been obtained for all activities within shoreline jurisdiction.

S-102. Comment noted. The Final SEIS, Exhibits E, F and K-9 have been revised.

28. Page 48 Martin Island and Woodland Bottoms mitigation sites—Both mitigation sites are located within shoreline jurisdiction. Development of these mitigation sites requires all appropriate shoreline permits. Development of mitigation sites for impacts associated with a project are not considered an exempt activity under the Shoreline Management Act.

29. Page 48 Martin Island—The placement of dredge spoils within the 34-acre embayment is proposed in order to create wetland/intertidal marsh. However this mitigation proposal will likely have adverse impacts to an existing recreational use of waters of the state. There has been no discussion regarding the potential impact to this existing use by boaters nor is there any proposal to avoid, minimize or mitigate for this impact. This needs to be addressed.

30. Page 61 Public Access—See comment above.

**City of Vancouver**

S-103 31. Pages 73-74 Policy 81, Regulation 245—The Vancouver Shoreline Master Program has a strict prohibition on speculative landfill. In light of the Port of Vancouver's long range development plan for the Gateway parcels, including Parcel 3, it must be clearly stated in the shoreline permit that the proposed site is dedicated to dredge disposal during the life of the project. Any alternative use of the site will required additional shoreline permitting.

S-103. Comment noted. The Final SEIS, Exhibits E, F and K-9 have been revised.

***Other Comments***

S-104 The DSEIS should note all the federal, state, and local permits, approvals, and licenses necessary to accomplish the project. This includes disposal sites as well.

S-104. Comment noted. The Final SEIS, Exhibits E, F and K-9 have been revised.

**[end of Ecology comments on the Columbia River Deepening DSEIS]**



Corps of Engineers Response

State of Washington  
**Department of Fish and Wildlife**  
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September 12, 2002

U.S. Army Corps of Engineers, Portland District  
ATTN: Robert Willis, Chief, Environmental Resources Branch  
P.O. Box 2946  
Portland, Oregon 97208-2946

Port of Longview  
ATTN: Judy Grigg  
P.O. Box 1258  
Longview, WA 98632-7739

Subject: Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement  
for the Columbia River Channel Improvement Project

Dear Mr. Willis and Ms. Grigg:

S-105 | The Washington State Department of Fish and Wildlife (WDFW) has reviewed the *Draft Supplemental Integrated Feasibility Report (IFR) and Environmental Impact Statement (EIS)* for the Columbia River Channel Improvement Project. These reports document changes in the channel improvement project that have resulted from consultation under the federal Endangered Species Act, and also contain supplemental information requested by the States of Washington and Oregon in relation to the Coastal Zone Management Act, the Clean Water Act, and the State Environmental Policy Act (SEPA). Specific information is provided that documents the updated disposal plan; the updated resource information on smelt, white sturgeon, fish stranding, Dungeness crab and sediment transport; and the ecosystem restoration features intended to restore habitat conditions on the Lower Columbia River. WDFW appreciates and recognizes the applicant's efforts toward addressing many of the concerns raised by WDFW and the other resource agencies.

WDFW offers the following comments pertaining to the proposed modifications to the channel improvement project. These comments should be considered as supplemental to our previous comments, and are intended to reflect project modifications related to the above-referenced issues. WDFW may provide additional comments as the environmental review process progresses.

S-105. Comment noted.

**WILDLIFE AND WETLAND MITIGATION**

Wildlife mitigation for the channel improvement project addresses disposal impacts associated with upland habitats (including agricultural lands), riparian forest habitats, and wetland habitats. The wildlife mitigation plan relied heavily on the Habitat Evaluation Procedures (HEP) methodology to assess project-related wildlife impacts and mitigation attainment levels. An interagency mitigation team (WDFW, Oregon Department of Fish and Wildlife, Washington Department of Ecology, Corps of Engineers, and U.S. Fish and Wildlife Service) was formed to assist with the HEP process and determine mitigation levels. As noted in our previous correspondence (January 25, 1999 letter), because of inconsistencies and inaccuracies in the HEP process, resources agencies recommended reanalysis of the HEP data, or that the mitigation efforts be expanded to provide a "full mitigation" plan that ensures habitat impacts are adequately addressed. The Corps of Engineers opted to complete the HEP analysis in accordance with resource agency recommendations, and formed an agency workgroup to assist with resolution of the mitigation issues.

S-106. Comment noted.

S-106

The supplemental IFR/EIS indicates that disposal of dredged material would adversely affect approximately 171.4 acres of agricultural land, 50 acres of riparian woodlands, and 15.4 acres of wetlands. These acreages represent a substantial reduction in habitat impacts over the previous proposal, largely because of the following changes :

- Reduction in impacts to riparian forest from 67 acres to 50 acres due to reduced disposal at Lord Island (O-63.5).
- Reduction in impacts to agricultural land from 200.4 acres to 171.4 acres due to reduced disposal at the Gateway site (W-101).
- Reduction in impacts to wetlands from 20.4 to 15.4 acres due to reduction in the Mr. Solo disposal site resulting from mapping corrections.

The agreed upon strategy for mitigating disposal site impacts is to develop and/or restore large, contiguous and functional blocks of wildlife habitat. Instead of replacement in-kind for habitats impacted, emphasis was placed on mitigation actions directed toward the development of wetland and riparian forest. In Washington, mitigation actions would take place on approximately 378 acres at Martin Island (W-80), and 284 acres at Woodland bottoms, near the City of Woodland. Mitigation in Oregon would take place on the Webb site, a 190-acre parcel situated near Westport.

S-107

Riparian habitat restoration includes the development and restoration of 212 acres of riparian habitat, or 4.4 times the impact acreage. Wetland habitat mitigation would include restoration and development of 209 acres of wetland habitat, which is over 10 times the acreage impacted. As noted during the August 30, 2002 workgroup meeting in Longview, given the reductions in impact acreage, WDFW concurs that the current wildlife mitigation proposal would adequately mitigate for disposal impacts, subject to the following:

S-107. The preliminary mitigation agreement (Corps, WDFW and WDOE) was discussed with the attending members of the interagency wildlife mitigation team (WDOE, USFWS, and the Corps) in a December 2002 meeting. The results from that meeting are discussed in response S-68 and in the Final SEIS, Exhibits K-5 and K-8. The Corps is confident that the wildlife mitigation plan, as revised, is more than adequate.

S-107

- The acreage of the Martin Island and Woodland Bottom mitigation sites is not reduced based on alterations to the project scope. All of Martin Island is secured for wildlife mitigation, including the 79.55 acre pasture at the upstream end of the Island (Figure 9, July 2002 Draft Supplemental IFR/EIS). No dredged material disposal should take place on Martin Island, with the exception of placement to create emergent marsh habitat within the Island embayment (approximately 34 acres).
- Mitigation plan deficiencies are adequately addressed, as discussed on Page 11 and 12 of WDFW's January 25, 1999 Integrated Feasibility Report and EIS comment letter, and the Washington State Department of Ecology's June 25, 2002 comments on the draft *Wildlife and Wetland Mitigation Technical Memorandum*.

If commitments are provided to secure the wildlife mitigation sites, and the above-referenced deficiencies are addressed, WDFW believes it would not be necessary to complete the HEP analysis as originally recommended.

#### WHITE STURGEON

Disposal of dredged material is proposed at three flowlane sites that are known to support white sturgeon. WDFW's primary concerns relating to disposal impacts include both direct loss of sturgeon, and losses of food resources upon which sturgeon depend. Flowlane disposal has the potential to bury sturgeon that are not capable of avoiding the material, and may also cover benthic invertebrates or other organic material that sturgeon use as a food supply. Loss of this food supply may reduce the long-term value of these areas as feeding and rearing areas for sturgeon.

In response to concerns raised by WDFW, ODFW, and the U.S. Fish and Wildlife Service, the Corps of Engineers agreed to fund studies to determine sturgeon abundance and distribution in the deeper areas of the lower Columbia River, and their feeding habitats and behavior in these deeper areas by using an acoustic telemetry study. Specific objectives of the studies include identifying potential impacts of disposal activities, as well as determination of mitigation measures for addressing impacts.

S-108

Studies on disposal impacts to white sturgeon are incomplete, and the degree to which sturgeon rely upon deep-water disposal sites, or whether these sites are important food producing or rearing areas for sturgeon, is largely unknown. Study results to date, however, do verify that white sturgeon are present at all three potential flowlane disposal sites sampled.

The draft supplemental IFR/EIS indicates that if after all the studies are completed, it is concluded that deep-water disposal would adversely impact sturgeon, then measures to avoid or minimize impacts would be implemented. However, given the aggressive permitting timeline being pursued, studies will not be completed prior to the necessary permitting decisions. The

S-108. Comment noted. Based on discussions with WDFW and other resource agencies, the Final SEIS includes a sturgeon mitigation plan. See Exhibit K-1.

State agencies' ability to secure adequate mitigation once permits are issued will be seriously compromised, and irretrievable resource losses could result.

S-109

In previous discussions and correspondence, WDFW requested that the COE and project sponsors prepare a mitigation strategy that identifies, 1) potential adverse impacts to sturgeon based on various study outcomes, and 2) specific mitigation measures to address these impacts (e.g., no-net-loss of fish life and productive habitat). This approach would provide the regulatory agencies with more certainty that impacts would be adequately mitigated. However, this has not yet been done. A mitigation strategy identifying how sturgeon and sturgeon habitat impacts will be adequately and fully mitigated should be included in the final SEIS.

S-109. The Corps concurs. A mitigation strategy for sturgeon has been developed and is incorporated in the Final SEIS. The Corps waited to develop the strategy until some of the preliminary results from the sturgeon tagging study were available.

#### SMELT

Primary agency concerns regarding potential adverse impacts to smelt (eulachon) from the channel deepening project include disposal in spawning areas, direct dredging in spawning areas, and sedimentation. In response to agency concerns, studies were undertaken to provide additional information on smelt. The main objectives of the study were to: (1) determine the presence or absence of smelt egg deposition areas in the navigation channel to assess the importance of channel spawning areas to the overall production of smelt; (2) determine distribution and abundance of larval migrants within and adjacent to the navigation channel to assess the potential for entrainment during dredging operations; and (3) determine if any measures were necessary to minimize the potential effects of dredging to the overall smelt population. These studies were funded by COE and were conducted by WDFW and ODFW staff.

S-110

The following assessments of the potential impacts of channel deepening operations on smelt were based on the results of the field studies:

- Given the large numbers of larvae and their distribution across the river channel and through the water column, and the relatively small areas within which dredging will occur as a percentage of this total, it is unlikely that dredging associated with channel deepening would have a significant impact (through entrainment) on the outmigrating larval population
- Dredging associated with the Channel Improvement Project is unlikely to directly impact smelt spawning areas because the dynamic nature of the bottom within reaches to be dredged would not provide a stable enough substrate that would allow an adhesive smelt egg to incubate for 30 days.
- Smelt eggs incubating in near-shore areas in the proximity of dredging activities may be affected if these activities alter flow patterns or increase sedimentation. However, Hydraulic models indicate dredging will not significantly alter the river's flow patterns.

WDFW concurs with the key study findings. These studies indicate that dredging activities are not expected to adversely affect smelt populations through entrainment, disturbance to spawning

S-110. Comments noted. The study results from the ODFW/WDFW are included in the Final SEIS in Exhibit K-2.



areas, or loss of incubating eggs. Disposal is generally not a concern since in-water disposal sites are downstream of important smelt spawning areas. These reports also suggest that timing or equipment limitations are not necessary to reduce adverse impacts to smelt populations.

### FISH STRANDING

The Draft SEIS technical memorandum on fish stranding concludes that the project "is not expected to produce either a direct or an indirect effect on stranding of young salmonids". This conclusion is based largely on the Sustainable Ecosystems Institute (SEI) analysis of the stranding issue, which indicated that little, if any, change in ship wave size is expected to occur from the project. This analysis predicted that the blockage ratio of a 43-foot draft vessel in a deepened channel would only be 1% to 5% higher than that of a 40-foot draft vessel in a 40-foot channel. For smaller ships, a 1% to 5% decrease in blockage ratio was predicted. The report concluded that while 43-foot vessels may generate slightly larger wakes than now occur, this would be offset by most ships producing smaller wakes, resulting in negligible impacts overall. The Biological Assessment (BA) and technical memorandum also reference a 1992-93 NMFS study that concluded fish stranding is not a significant problem.

S-111

The conclusion that increased stranding from larger ships would be offset by decreased stranding from smaller vessels seems to be based on the assumption that stranding rates are approximately equal for these two types of vessels. However, observations by the Washington Department of Fisheries (Bauersfeld, 1977) suggest that most stranding results from large, rather than small, vessels. Bauersfeld found that small boats, such as pleasure craft and tugboats, did not strand fish. Larger ships, on the other hand, produced large waves and extensive uprush that usually resulted in juvenile fish stranding. Stranding rates for ships with a draft greater than 25 feet were also found to be 6 times greater than ships with a lesser draft. These observations suggest that stranding from smaller vessels is currently not a significant problem. Any reduction in wake from smaller vessels may therefore not contribute to reduced fish stranding, and would not offset the anticipated increase in stranding from larger vessels. The proposed channel deepening would likely result in a net increase in juvenile stranding from increased shipwake.

S-112

The technical memo references a NMFS study (Hinton and Emmett, 1994) that suggests fish stranding is currently not a significant problem. A WDFW review of the NMFS study identified significant problems with the sampling methodology (e.g., site selection, lack of night monitoring, etc.) that make results unreliable at best. In particular, the absence of monitoring during the night, which is the time period during which most stranding occurs (Bauersfeld, 1977), would suggest that the 1994 NMFS data does not accurately reflect the scope of stranding impacts.

S-113

A second study referenced in the memo, conducted by the Washington Department of Fisheries (Bauersfeld, 1977), demonstrated that significant stranding and mortality results from large vessel shipwake. During this study, WDF estimated that over 150,000 juvenile salmonids, mostly Chinook, were stranded on five sites that were monitored. Extrapolation of study results to the remainder Columbia River would suggest that, potentially, millions of juvenile fish are currently being stranded every year. These impacts remain unmitigated. Given the potential

S-111 to S-115. Comments on stranding noted. Though we disagree with your analysis that there will be a net increase in stranding with the channel improvement project, we have agreed to fund a research program to further identify the causes of stranding and monitor stranding levels after the project is completed. A pilot study on stranding was conducted at three sites during both day and nighttime periods in 2002. The study results are included in the final report that has recently been provided to your agency. An interagency team is developing the scope of the studies planned for implementation next year. It is anticipated that your agency will continue to be involved with this process. The Corps also concurs with the concept of developing a mitigation strategy as prescribed by the terms and conditions of the Biological Opinion (cited below) for potential fish stranding impacts. This strategy has been incorporated into the Final SEIS. The Corps has also previously explained that the Project includes a number of restoration measures that will restore lost functions and values. These project components include tide gate retrofits, circulation enhancement, and habitat restoration. The project as a whole (navigation and restoration) increases the productive capacity of the Columbia River and does not cause a net-loss in productive capacity as suggested by the comment.

Include language from terms and conditions:

a. The Corps shall minimize effects from stranding through the following actions:

i. Develop and implement a stranding study to be developed in conjunction with NOAA Fisheries, USFWS, the Ports, and appropriate state agencies. The stranding study will evaluate parameters that influence stranding. Potential factors include: cross-sectional area, velocity, water level, bank configuration, location along river, slope of bank, ship traffic past site, and type, size, draft, and speed of vessel. To the extent appropriate, the Corps will integrate this study with efforts related to implementation of the September 15, 1999, Biological Opinion on the operation and maintenance dredging from John Day Dam to the Mouth of the Columbia.

ii. The scope of the stranding plan shall include an identified scope including goals, milestones for completion, check-in points, triggers for management change (i.e. management decision points that include specific metrics), and sampling/testing protocols to be developed in coordination with NOAA Fisheries.

iii. The results of the stranding plan shall be used to develop a plan to minimize and/or eliminate fish stranding. The stranding minimization plan, as it applies to ship traffic will be provided to the U.S. Coast Guard, for use in their regulation of river traffic, and to the adaptive management team for consideration during the adaptive management process.

**Corps of Engineers Response**

number of individual fish involved, even a modest increase (e.g., 1% to 5%) in stranding would have significant adverse impacts to salmonid populations.

S-111 to S-115 (con't).

iv. The stranding study design shall be submitted to NOAA Fisheries by December 15, 2002, for approval.

S-114 The technical memo "action plan" calls for establishment of a monitoring plan and program for assessing fish stranding impacts related to the project. In addition, the May 20, 2002 Biological Opinion for the project (Section 12.5, 3 h) includes provisions for developing and implementing a stranding study, as well as implementing an adaptive management process for reviewing results and identifying mitigation measures. These documents reference measures to "avoid and minimize" impacts, but there are no commitments for compensatory mitigation for unavoidable impacts. While WDFW supports the proposed monitoring and adaptive management, this approach leaves a great deal of uncertainty with regard to mitigation commitments.

v. The stranding study shall be implemented by April 2003.

vi. The results of the stranding study, including management recommendations to minimize stranding, shall be presented at the adaptive management team meeting (January, 2004). Management recommendations shall be reviewed by the Adaptive Management Team and implemented where feasible.

S-115 Mitigation for fish stranding impacts should include an up-front commitment, in the final SEIS, that all unavoidable fish stranding impacts associated with this project will be fully mitigated, in accordance with the standard Washington State mitigation sequencing (e.g., avoidance, minimization, reduction, compensation, etc.). This would include compensatory mitigation for all unavoidable losses of fish life from stranding impacts. Losses should be established based on extrapolation from stranding studies. Potential compensatory mitigation actions could include habitat restoration activities (e.g., large woody debris placement, channel improvements, riparian habitat restoration, etc.) in tributary streams designed to replace, through increased habitat capacity, those fish lost from shipwake stranding. Mitigation also take into account losses that accrue throughout the entire life of the project.

vii. The stranding study will be repeated two years following construction of the deeper channel.

viii. Post construction stranding studies will be evaluated by the Adaptive Management Team.

**CRAB**

**Columbia River Deepening and Associated Disposal in the Estuarine and Marine Areas**

S-116 In the marine area of the project we have two major concerns that we feel are inadequately addressed and mitigated in the Columbia River Deepening EIS: Deepening and incremental maintenance dredging of the estuarine portion of the project, and disposal of dredged material in the marine environment. We are specifically concerned about the impacts to Dungeness crab from these activities, because they are a very important animal, commercially and recreationally, because they are the source of the principle prey item (crab spawn) of sub-adult chinook and coho salmon, and because they are an indicator organism dependant upon habitats critical to many of the other productive species that would be negatively impacted by the same activities.

S-116. The Federal Government disagrees that impacts to crabs have been inadequately addressed and mitigated. Additional crab information has been collected since 1999 and presented to interested agencies, stakeholders, and disclosed through this Final SEIS, Exhibit N. See responses F-2, S-19 to S-28, and S-117 to S-131.

**Dredging:**

S-117 Dredging entrains and kills Dungeness crabs, which are likely found as far upstream as favorable salinity allows them to feed, rear, and migrate. Entrainment of these crabs during both construction and incremental maintenance of the constructed area needs to be mitigated, by utilizing avoidance measures and by using proven habitat enhancement methods to replace those crabs unavoidably entrained and killed. Fortunately for the Portland District, the Seattle District has dealt successfully with these issues in the 1989 Grays Harbor Navigation Improvement Project EIS, and ongoing coordination and refinement of mitigation measures agreed to in this

S-117 EIS has culminated in the September 1998 Revised Crab Mitigation Strategy Agreement, found on the web at: [http://www.nws.usace.army.mil/ers/reposit/Revised\\_Crab\\_Strategy.pdf](http://www.nws.usace.army.mil/ers/reposit/Revised_Crab_Strategy.pdf). This document, signed by all of the participating regulatory agencies and the Seattle District Engineer, outlines in detail the methods for avoiding, minimizing, calculating, and mitigating crab impacts. While timing and numbers of crabs in the Columbia estuary likely differ from those in Grays Harbor, investigations utilizing the protocol outlined in the Strategy, coupled with existing data from past crab investigations in the Columbia, could easily be utilized to enumerate these differences and develop a successful Columbia River strategy. Most of the work has been done, so adoption of the framework of this strategy into the EIS should be simple and straightforward. To facilitate this, we recommend that the Portland District biological team work closely with the Seattle District, who should be able to easily explain the Strategy and its implications.

S-118 There are concerns with entrainment of Dungeness crab specific to the Columbia River that need to be addressed. Sampling effort needs to be expended to identify the extent of areal and seasonal utilization of the estuarine portion of the navigation channel by crabs, so that dredging can be directed to areas of seasonal low abundance, as it is in Grays Harbor. This is particularly important in the lower reaches of the Columbia that are proposed for deepening, as the historical crab data we have from this portion of the Columbia was mostly collected using gear that has questionable efficacy for capturing crabs - the McCabe et. al. balloon shrimp trawl data. This data, when compared with data collected using the most efficient gear of all, the entrainment sampler, produces wild underestimates of crab abundance. Therefore, WDFW supports the use of the entrainment sampler on the Essayons and the use of the latest version of the Dredge Impact Model (DIM), as outlined in the June 9, 2002 Technical Memorandum and as appended in the September 5, 2002 presentation of "Entrainment of Crab in the Columbia River Estuary: June 2002 Measurements and Status of Summer 2002 Measurements". Sufficient sampling needs to be conducted in all reaches up to Grays Bay, in all dredged areas of the channel where Dungeness crab could be found, specifically in Lower Desdemona, Upper Desdemona, Flavel Bar, Upper Sands, and Tongue Point Crossing. This data needs to be paired with tidal and salinity data collected at the time of sampling, and referenced to real-time salinity data, tides, and flows that are continuously being collected at reference stations. Enough data over enough range of tidal and flow conditions will produce an accurate picture of where crabs are and when they are there, in relationship to real-time salinity, tide, and river flow. It is important that entrainment sampling be conducted over the next several years at every dredging opportunity, preferably round the clock and in every other load every time the Essayons dredges the channel in any reach where crabs could remotely be found. The sampling schedule and protocol outlined in the September 5 presentation is excellent. Sampling needs to continue for the number of years necessary to capture both normal and unusual annual variations in flow and salinity.

S-119 Ultimately, this data will be used to produce a predictive model that can use real-time river flow, tidal, and salinity data as the predictive parameter, which can then be used to schedule dredging during conditions that predict nearly zero crab impacts in each location. Avoidance of entrainment needs to be the first goal, and we are confident that this can be done with a scheduling agreement similar to that arrived at in the Grays Harbor Strategy. If this is not always possible, however, due to unpredictable conditions like drought or unusual and dangerous

SS-117 to SS-119. The situation cited for the Seattle District's Grays Harbor project is not directly applicable to the Columbia River. Coordination and discussions are occurring with the Northwestern Division as well as the Seattle District. The Final SEIS has been revised to provide additional information pertaining to crab entrainment and adult equivalent losses to the commercial crab fishery. The Corps' determination of impacts indicates a pilot study to verify shell plot technology is not warranted. See 6.6.1.2 and Exhibit K-4.

S-119 sediment accumulations that have to be removed during times of favorable salinity for crabs, entrainment of crabs can be dramatically reduced by the use of a clamshell dredge, and this tool should be utilized to the greatest extent possible for construction and maintenance of the channel in estuarine areas where it is practical to do so. After minimizing impacts to the extent possible, the use of the DIM to calculate impacts, and either replacement of crabs using shellplot technology as outlined in the Strategy, or further reductions of existing impacts by avoidance of dredging during productive periods that exceed the take of crab projected in the incremental dredged portion, could be utilized for mitigation. After minimizing impacts to the extent possible, use of the DIM to calculate impacts, and either replacement of crabs using shell placed in intertidal areas as outlined in the Grays Harbor Strategy, or further reductions of existing impacts by avoidance of dredging during productive periods that exceed the take of crab in the incremental dredged portion, could be utilized for mitigation. WDFW recommends that the Corps consider a pilot study be conducted as soon as possible to verify whether shell plot technology is feasible in intertidal areas of Baker Bay near the estuary mouth.

S-120 One aspect of the September 5<sup>th</sup> proposal differs from the way crab are enumerated in the Grays Harbor Strategy, and is concerning to WDFW. We would prefer that crab impacts be enumerated and tracked as 2+ age crab and not converted to Lost Recruits to the commercial fishery as proposed in the Modified DIM (slide 7 in the presentation). This is a problematic way to depict losses for several reasons. First, it overlooks the recreational fishery, which is allowed to take crabs at a smaller size and a younger age - many 3+ age crab are taken in this fishery - and like many recreational harvest activities, value to the economy from each organism taken is around 15 times greater for those taken recreationally than those taken commercially. Second, it overlooks the fact that Dungeness crab are capable of reproduction at 2+, and contribute significantly to both population vigor and production of prey items for other important animals, especially salmon, at this age. In today's managed population, almost all of the male crabs reproduce at 2+ and contribute almost all of the gametes necessary for fertilization of females, as almost every 3 and 4 year old male is taken in the commercial or recreational fishery every year. Third, there is additional unnecessary variance around the mean generated from additional survival calculations. There is already too much variance in the survival rate projection from 0+ to 2+ to establish acceptable confidence limits around the mean, and when this is added to the variance from sampling we soon get into the realm of unsupportable approximations. Finally, converting impacts to lost recruits is disingenuous, as it makes the impact look small compared to the impact of the commercial fishery. This is, however, a fishery that is highly selective and nearly perfect from a management standpoint, as it impacts only males that are completely surplus to reproductive needs, and it removes large specimens that both compete with and cannibalize smaller crabs, thus actually enhancing survival and increasing production of the population in general. Dredging, by contrast, removes all ages and sexes indiscriminately, which is totally detrimental to the population. So for these reasons the best way to depict this impact is to calculate it in terms of lost 2+ crab, as is done in the Grays Harbor Strategy, and we request that this be done in the Columbia version also.

S-120. The Corps concurs with this comment. The Final SEIS and appended crab report now contain an analysis using 2+ crabs loses.

**Disposal:**

S-121 Identification of suitable disposal sites for dredged material in the marine environment, especially in the context of coordinating disposal of dredged MCR sediments, has been the subject of considerable effort by the Corps, resource agencies, environmental groups, and fishermen's associations for several years now. We are encouraged to see the proposal in the revised EIS to dispose of construction sediments in the Lois Island embayment, to convert this artificially deepened area back to productive shallow water habitat, and are supportive of this beneficial use idea. Still we are very disappointed to see that the designation of a new deep water site, for ultimate disposal beginning in 10 years of many millions of cubic yards of incremental maintenance material, is still being proposed. This purposefully proposes placing coarse sediment in heavily fished areas, in productive areas of finer grain sediment, and in areas where it will never enter the littoral drift process. We are further discouraged and confounded by the Corps insistence upon implementing a habitat assessment plan for this site, developed without meaningful input by State agencies and others with interests, that falls far short of being able to even provide the simplest data that we would need to evaluate the project and develop crab mitigation, as it proposes to utilize the same balloon shrimp trawl as a sampling tool that has proven to be inadequate in estimating crab abundance in the river. At the very least the use of the calibrated plumb staff beam trawl using the techniques developed by Armstrong, et. al., so that statistically significant data on crab densities could be acquired, should have been proposed. Moreover, this plan to waste sand in deep water completely fails to recognize that beneficial uses for this sediment exist that are critical to developing long-term solutions for management of erosion on the Washington Coast.

S-122 But what is particularly confounding to us is the dismissal of the one idea that has come out of this process in a favorable light by all participants: Beneficial use for erosion control at Benson Beach. The statement was made in the EIS that a separate project sponsor for Benson Beach is required. We do not agree with this statement, as this is essentially another beach nourishment site, and the deepening project, which includes beach nourishment already at many sites along the river, is already being co-sponsored by the Corps and seven lower Columbia River ports. With feasibility assured by the success of the pilot project conducted this year, which demonstrated among other things that disposal times including pumpout may well be close to the same for a load disposed at Benson Beach as a load disposed by bottom dumping in the proposed deep water site much further away from the dredging area, we feel that this sponsorship should be extended to disposal on Benson Beach of incremental maintenance material to the maximum feasible amount, based upon site capacity and safe disposal windows. Beneficial use at Benson Beach is one of the only ways that these sediments can be utilized in a manner consistent with all of the input received by the Corps. Put simply, disposal by nourishing Benson Beach makes virtually all of the disposal problems go away.

S-123 We realize that it is likely not feasible to dispose of all the sediment all of the time at Benson Beach, particularly when the maintenance of the MCR reach is added to the annual disposal requirement. A limited in-water disposal site near to the project area will likely be necessary. Fortunately, continued use of sites C and E is agreeable to most of the coordinators of MCR disposal issues. We are in favor of the continued use of Site E to the maximum extent practical,

S-121 to S-123. The Federal Government disagrees with the reviewers' comments regarding the decision to designate ocean disposal sites. See the 1999 Final IFR/EIS, Appendix H, for the record of that process. The proposed channel improvement project will not impact the marine environment as stated. The WDFW's endorsement of the Lois Island embayment beneficial use site is noted. Much of the discussion provided by WDFW is related to the MCR, which is not a part of the revision to the proposed channel improvement project. A copy of WDFW's comments has been delivered to the MCR Project Manager and to USEPA.

Placement of dredged material at Benson Beach is not part of the recommended plan for the channel improvement project, nor does it constitute a viable alternative to ocean disposal except on a limited, year-by-year basis (see the 1999 Final IFR/EIS). The Federal Government disagrees with the statement that placement of material at "Benson Beach would make virtually all the disposal problems go away." Use of Benson Beach has issues regarding feasibility, construction and performance. The Corps, USEPA, and other entities began in 2002 evaluating the actual placement of dredged material at Benson Beach and will continue to do so based on the availability of funding. If individuals or entities would like material placed at any site, that entity is required to pay the incremental cost for such an action. When material was placed at Benson Beach in 2002 from the MCR project, non-federal entities paid the incremental difference in cost compared to the Corps least cost plan for disposal of dredged materials. Generally, if an alternative disposal option is offered that has all appropriate approvals and is less expensive than the Federal plan, dredged material would be provided.

In the 1999 Final IFR/EIS, the Federal Government stated a preference to use the Shallow Water Site because the evidence indicates that much of the material placed there remains in the littoral system. At the time of the 1999 Final IFR/EIS, the capacity of the Shallow Water Site was unknown. Monitoring of material disposed in Expanded Site E (a combined 103/102 site) since 1997 has provided the Federal Government with valuable information. That information, other available information, and modeling studies are expected to clarify the site's capacity, which would allow the Federal Government to better manage ocean disposed dredged material. A second site to accommodate material that could not be placed in the North Jetty or Shallow Water sites was determined to be necessary.

tempered with timing restrictions to avoid the high concentrations of soft shelled crab observed in the area late in the summer. While we would prefer that use of Site E be curtailed after the end of July, to protect the high numbers of soft shelled crab that use the area after their summer molt, however, the agreements on timing and use of the site worked out with CRCFA are acceptable to WDFW, and should be incorporated into both the EIS and MCR certification.

S-124. There are still concerns with burial of Dungeness crab that need to be addressed. The recent Corps study referenced in the EIS is by no means complete or conclusive, and is replete with many shortcomings in experimental design, but preliminarily one thing is becoming clear: If a crab has buried up in the normal course of avoiding wave energy, currents, or predation; or to molt, shelter its eggs if female, or simply to rest between feedings, and this crab is covered by disposed sediments, it dies, as it is unable to dig out of these sediments. This is particularly a problem for soft shelled crabs, which when buried appear unable to escape as little as 4 inches of sediments, but is likely a contributor to mortality in any crab, as has been observed in other studies. We do not know how much of a crab's life is spent buried. However, this could easily be determined by observations of crabs in the wild or in aquaria designed to emulate the natural environment, and would be a worthwhile pursuit in conjunction with the burial study. We do know now that disposal kills buried crabs, and that disposal in areas containing high concentrations of crabs, particularly soft crabs, needs to be avoided. Crabs that are not avoided and are killed need to be mitigated by replacement using shellplots as outlined in the Strategy, or by utilizing other avoidance techniques. Monitoring of crab abundance and condition on the disposal site needs to be conducted to estimate mitigation requirements.

S-125. Disposal at Benson Beach, or any other upland or beach nourishment site, does have one drawback compared to in-water disposal, and that is the likelihood that all crabs entrained while dredging will be killed. This may be offset somewhat by the lack of crabs, or any other critical resources or habitats, on this rapidly eroding beach, but is still a concern. Again, avoidance by use of clamshell and timing needs to be employed, but there are other measures to reduce entrainment that are necessary to consider. First, direct pumpout of dredged material from the barge or hopper will prevent entrainment of more crabs that may be in a re-handling area. This is the method employed in Grays Harbor, and the method successfully employed in the pilot project. Unlike other jetty systems, much of the North Jetty of the Columbia is located behind a natural headland. There are spruce trees and other upland vegetation that are actually trying to grow on top of the jetty fairly near its waterward end, something never seen on jetties elsewhere. Historically, vessels are reported to have successfully sought shelter from severe storms behind the jetty next to Cape Disappointment. Perhaps there is enough shelter here to allow the installation of a permanent discharge line, possibly mounted on piling, with a flexible coupler that could withstand some wave energy when hooked up to the barge or dredge during most conditions encountered in the summer, when dredging is usually performed. Analysis of the information produced by the pilot study will likely produce significant improvements in the feasibility of direct pumpout of large quantities of material. The goal needs to be development of a long term and cost effective program to ensure that Benson Beach gets nourished to the maximum extent practicable every year.

S-124. As has been stated several times in the past, we recognize and concur with the statements that the burial study done by Pacific Northwest National Laboratories was a pilot study to determine the feasibility of getting crabs to molt in the laboratory and evaluate crab and juvenile flatfish response to burial by dredged material. The Corps and USEPA recognize the limitations of the tests as indicated in the final report and never represented the results as a definitive assessment of disposal impacts on crabs, but merely an indication. Additional tests, implemented under the MCR project, have been in the planning stages and may be implemented this year if funds are available. Pacific Northwest National Laboratories has submitted a draft proposal for an additional disposal impact assessment. This proposal will be shared with interested agency representatives when it is further along in its development. Any studies conducted by the Corps or USEPA for MCR or the ocean disposal sites will be coordinated. Under the preferred plan presented in the Final SEIS, the Corps does not intend to use ocean disposal for the channel improvement project during construction and the first 20 years of maintenance.

S-125 to S-131. Benson Beach disposal is addressed in responses S-121 to S123. The WDFW presents many new and novel ideas regarding the long-term approach to dredge material disposal. The various scenarios are put forth without reference to engineering, environmental, and economic studies that have been conducted. The Corps and USEPA would be interested in any data or sources that would provide sufficient information to further assess these ideas. For example, more information would be required to assess the economics and efficiency of surplus Skagit yarders or high lead logging equipment with huge dragline bucket to move large amounts of sand over the North Jetty. The Corps and USEPA embrace and are committed to the concept of beneficial use of dredged material and will continue wherever possible to pursue such options. As explained in responses S-121 through S-123, if non-federal entities are willing to sponsor and pay for incremental costs, the Federal Government will consider your experimental concepts.

S-125 In-water disposal in a re-handling site, such as Site C, also referred to as the “dumping ground”, adjacent to the jetty that was recently re-authorized for disposal, may ultimately prove more practical, as material could be stored there during adverse conditions and transferred onto Benson Beach at a later date. However, re-handling may be dangerous for crabs which may unavoidably enter the re-handling area, maybe in seasonal high abundance, especially if a suction type dredge is used to re-handle the material. Crab entrainment may be minimized by the use of mechanical re-handling equipment, such as a dragline located in uplands on the north side of the jetty. There are large number of surplus Skagit yarders and similar brands of high lead logging equipment designed for harvesting old growth timber that have no use it today’s small log harvests, that could potentially be equipped with a huge dragline bucket that could move large amounts of sand over the jetty efficiently. This tool would also allow some entrained crabs to escape the re-handling area after disposal, and may ultimately, if practical, result in the least mortality and mitigation of any disposal method. If a suction type dredge proves the only feasible tool, and if it appears that wave state may preclude the use of a standard floating pipeline dredge, it still may be possible to utilize this method by mounting a land-based plant in a caisson or other type of gated structure on the landward side of the jetty, to allow material to be re-handled through the jetty to reduce head while protecting the plant.

S-126 Another tool that is worth considering is the Punaise (“thumbtack”) dredge. This could be installed in Site C and dredges could dispose material over it. Since the intake is several feet underneath the bed, entrained crabs may be able to escape the area, and be much less likely to find their way into the dredged material, although this would need to be studied. Discharge would then occur at Benson Beach, probably over but possibly even through the jetty, which could be equipped with a gate or other passage to reduce discharge head and increase efficiency. Whatever method is selected, some crabs unavoidably entrained would be killed, but since practical methods have been developed to mitigate these impacts, these crabs could be replaced without permanent harm to the resource.

S-127 An option less favorable to the crab resource and the fishermen that depend on this resource, but one that likely could be accomplished with no net loss to resource productivity with appropriate timing and mitigation measures, is the construction of nearshore erosion control berms north of Peacock Spit. This would need to be accomplished after the commercial crab fishing season has ended for the year, in late August or September, and would need to be permitted through the 404 process. Areas could be identified that are coarse grained and well within the erosion zone, likely minus 30 or landward, that could be investigated for crab utilization and used for pinpoint disposal along a contour line, with the understanding that the crab mortality that occurred would be mitigated using shellplots as outlined in the Strategy. These berms could easily and cost effectively be built with a hopper dredge, as they have been offshore of Grays Harbor, and if successful would provide cost effective relief of disposal site capacity problems.

S-128 Further possibilities for beneficial use also exist. As mentioned previously, coastal erosion is becoming an increasingly serious issue in Washington, and was the recent subject of a 5 year joint USGS/DOE study that you are likely aware of. It is also the subject of several multi-million dollar erosion control projects, an inter-agency task force convened at the request of the

Governor, a sand management workgroup involving the Portland District and a beneficial use workgroup involving the Seattle District, and the subject of considerably state and federal legislative interest.

S-129 For example, during the development of the Ocean Shores Coastal Erosion Management EIS a presentation was made, by one of the coastal engineers from the Department of Ecology involved in the coastal erosion study, about the results of modeling the North Coast drift cell, using the Unibest model from Delft Hydraulics. The results of modeling indicated that an average of approximately 220,000 cubic yards of sand needed to be added to this drift cell per year to keep the shoreline in position. The sand from upriver reaches that is proposed in the EIS to be loaded on barges and transported to the ocean for disposal would be ideal for this purpose. This sand could be disposed in the nearshore areas with minimal impacts, as sediment analysis has indicated that areas near the Grays Harbor jetties are gravelly and not fine grained as they are near the Columbia, so are not as productive for crabs or crab fishermen. Beam trawling has confirmed the lack of crabs or other organisms in nearshore areas south of the South Jetty, and similar work north of the North Jetty could be conducted to confirm this also. Delivery to the beach could be accomplished by disposal in the very nearshore area, perhaps in as little as 20 feet of water, by swinging the barge toward shore on a long tow line, releasing the sediment just outside of the breakers. Some novel ideas, such as combining regular barging of wood chips from Grays Harbor to the Columbia with a backhaul of sand to the Grays Harbor area, were proposed during the Ocean Shores EIS process and are definitely worth considering.

S-130 Presently, all of the suitable material dredged in Grays Harbor is utilized for both nearshore and beach nourishment in Half Moon Bay, to protect Westport. The breach fill, constructed of sand that was mined in an emergency effort to re-connect the South Jetty to the mainland, has just required augmentation this past year. Interest has also been expressed in using sand to nourish Whitcomb Flats, a critical habitat area in the Harbor that is presently eroding. Finally, of course, there is the identified need in for sand in Ocean Shores. There is not nearly enough sand dredged in Grays Harbor to meet even a few of these needs. Transport of Columbia River sand to Grays Harbor, for any of these purposes, should be considered. The Seattle District of the Corps, which is now obligated to nourish Half Moon Bay to prevent exposure of the recently constructed revetment protecting the Westport sewage treatment plant, should cooperate with the Portland District in actively seeking ways to facilitate this.

S-131 Further ideas that merit consideration are disposal off of the highly erosive area of Washaway Beach, an option favored by fishermen and one sure to receive support from beleaguered North Cove property owners and their government representatives. Also, the spits off of the Shoalwater Indian Reservation have begun to erode alarmingly in recent years, requiring a hard armoring solution that has caused considerable loss of wetlands, and a nearshore beneficial use site has been designated and is presently used for all the suitable sand dredged from Federal maintenance projects in Willapa Bay. This would be an ideal area to transport and dispose of barged sediment during calm weather. These options would require separate project sponsorship, but if practical means can be found to accomplish these and other beneficial uses, and if the benefits outweigh the costs of other erosion control projects, these ideas should be considered. The Corps is obligated to seek beneficial uses for dredged material first, and exhaust all of these uses before



disposal is considered. Nowhere else in the country, other than in the Pacific Northwest, is this valuable sand allowed to be wasted. It should not be done so here, especially to the detriment of critical habitat and the resources supported by this habitat.

To summarize:

1. Adopt and utilize the *September 1998 Revised Crab Mitigation Strategy Agreement*, modified as necessary to fit Columbia River Estuary conditions.
2. Investigate crab densities using the entrainment sampler in all dredged areas suspected to have sufficient salinity for crab utilization.
3. Develop a salinity/flow based timing and density matrix by reach and utilize to avoid times of high densities of crab.
4. Utilize mechanical dredging to limit entrainment of crabs and fish.
5. Mitigate for crabs unavoidably entrained during construction and in the incremental portion of subsequent maintenance dredged material, using shellplots in Baker Bay as outlined in the Strategy. Work with WDFW to investigate feasibility of crab enhancement in Baker Bay.
6. Investigate crab densities using the calibrated plumb staff beam trawl and techniques developed by Armstrong, et. al., to characterize crab densities, age class, and condition in disposal sites.
7. Continue research on burial impacts to Dungeness crab, including observational research in the wild or in aquaria that emulates wild conditions to determine the amount of time spent buried by various classes and ages of soft and hard shell condition crab.
8. Ensure that the maximum amount of sand gets placed on Benson Beach.
9. Work with the fishing community and resource agencies to try to find some feasible way of constructing nearshore erosion control beach feeder berms north of Peacock Spit, using a hopper dredge similar to the way they are constructed in Grays Harbor, landward of the area typically fished for crab, after the crab season has ended for the year, and with mitigation for disposal impacts on softshell crab that may be in the area.
10. Do not designate the deep water disposal site, retain site F for any very limited deep water disposal needs.
11. If the deep water site is designated anyway to satisfy EPA mandates, do not use it.
12. Continue using site C and site E for material disposal beyond that used on Benson Beach.

## Corps of Engineers Response

S-132. Responses are provided to your numbered paragraphs.

1. Once the information from the entrainment study is available and the crab abundance versus salinity model is completed we will develop a dredging schedule that will minimize impacts. This information will be developed in concert with the state agencies.

2. This information has been gathered in the summer and fall of 2002. Though not all bars where sampled the bars sampled bracketed the range where crabs would be expected to found. Sampling was conducted during low flow when salinities were high enough for crabs to be present. This information can be extrapolated to the other intermediate bars.

3. Concur. Walt Pearson of Pacific NW Laboratories is doing this action under contract to Portland District. For minimization measures see response S-117 to S-119.

4. Mechanical dredges cannot be used effectively or safely in the lower Columbia River main navigation channel because they must be anchored or fixed in a given location. Adverse weather and wave conditions and vessel traffic make it extremely difficult and unreliable to mechanically dredge in this type of area. A hopper dredge is much more effective since it is fairly easy for the dredge to accommodate large vessel traffic because of its mobility. In addition there is no information to support the conclusion that a mechanical dredge would entrain less fish and crabs in this habitat than a hydraulic dredge.

5. See responses S-117 to S-119.

6. The Corps and USEPA have conducted baseline crab studies of the ocean disposal sites using an otter trawl. The USEPA, Corps, and its contractor (Jack Word, MEC Analytical Services) believe that this method provides comparable results to a plumb staff beam trawl.

7. See response S-124.

8. See responses S-121-123.

9. This suggestion is outside the scope of the channel improvement project. If the State of Washington is willing to sponsor and pay for incremental costs, the Corps will consider your experimental concepts.

10. Under the preferred plan in the Final SEIS, the Corps does not intend to use ocean disposal for the channel improvement project during construction and for the first 20 years of maintenance. With regard to Site F, the Corps does not have the authority to designate ocean dredged material disposal sites except under limited Section 103 selection authority. By 2003, disposal options for the MCR project will revert to the USEPA designated 1,800 by 1,800-foot portion of Site F. This specific area is too small, is already mounded, and has not been used for a number of years. Further use of Site F was determined to be not in compliance with the ocean dumping criteria.

**Corps of Engineers Response**

13. Commit to pursuit of beneficial use of all sand from channel construction or maintenance activities that is proposed to be barged to the ocean, including but not limited to direct placement on Benson Beach or immediately offshore, nearshore placement off Washaway Beach, nearshore placement in Willapa Bay at the Shoalwater Indian Reservation Beneficial Use Site, onshore placement at the SR 105 project, nearshore or onshore placement at Westport, nearshore or onshore placement at Ocean Shores, and nearshore placement on Whitcomb Flats in Grays Harbor.

S-133 The bottom line for WDFW is that the project by law has to meet the requirements of no net loss of productive capacity of fish and shellfish habitat. The key to accomplishing this is to develop and work within the framework of a crab mitigation strategy. Conservation of sand in the littoral system is also essential - offshore disposal of sediment as proposed in the EIS would exacerbate erosion problems due to sediment starvation along the Washington coast, to the tune of multi-millions of dollars in habitat loss for fish, wildlife, and humans. In the past 10 years nearly 100 million dollars has been spent by the Federal government to control erosion and mitigate damages to the jetty system and public infrastructure in Grays Harbor and Pacific Counties, all caused by starvation of sediment as identified in the coastal erosion study. We encourage the Portland Corps to take all necessary steps to avoid, minimize, and mitigate these impacts.

S-134 Thank you for the opportunity to provide these comments and recommendations. WDFW appreciates the efforts made by the project sponsors and COE to address resource concerns, and we look forward to working with you to bring resolution to these issues. Please feel free to Regional Habitat Program Manager Steve Manlow at (360) 906-6731 if you have any questions regarding upland disposal, smelt, sturgeon and fish stranding issues. To discuss issues in the marine area of this project, please contact Bob Burkle, Assistant Region 6 Habitat Program Manager, at (360) 249-1217, e-mail burkblb@dfw.wa.gov.

Sincerely,

Lee Van Tussenbrook  
Regional Director Regional Habitat Program Manager

Cc: Peter Birch, WDFW  
Sue Patmude, WDFW  
Loree Randall, DOE  
Patty Snow, ODFW  
Kathi Larson, USFWS Portland  
Ben Meyer, NMFS

S-132 (con't).

10 (con't). Disposal in recent years has been in the 103-expanded site F originally selected in 1993. As explained to the Working Group during the designation studies, to the taskforce following completion of the 1999 Final IFR/EIS, and to WDFW staff and management several times over the years, the authorized 10-year allowance of the 103 sites expanded in 1993 will expire and no further extension is allowed under federal law. The USEPA intends to de-designate the four existing 102 sites and designate the Deep Water Site and Shallow Water Site.

11. See previous response. Designation does not mandate use. If the Deep Water Site is used, it will be used in accordance with the final SMMP.

12. See responses to 8 and 10 above (S-121-123). With regards to your comment, there is no Site C associated with the Columbia River.

13. See response 8 and 10 above (S-121-123). Dredged material from the project, including construction and maintenance, has been identified for beneficial use within the Columbia River estuary. The Corps and USEPA are committed to the pursuit of beneficial uses whenever possible. If new beneficial uses are identified that require environmental review and permit not previously covered the non-federal entity will be responsible for all incremental costs for planning and construction.

S-133. The analyses conducted for the channel improvement project (smelt, sturgeon, juvenile salmon stranding, and crabs) supports the conclusions that construction of the project will not result in a net-loss of productive habitat. As noted in responses S-111 to S-115, the project, including its restoration components, adds productive habitat capacity for salmonids. The analysis of dredge entrainment indicates that impacts to the crab population are small and will be further minimized by management decisions. Crab entrainment research has shown that crabs reoccupy dredged areas soon after dredging, indicating that there is no change in the suitability of the habitat. This fact supports the conclusion that dredging does not affect productive capacity of the habitat.

S-134. Comment noted.



September 12, 2002

US Army Corps of Engineers, Portland District  
CENWP-PM-E ATTN: Robert Willis  
P.O. Box 2946  
Portland, Oregon 97208-2946

Port of Longview (SEPA)  
ATTN: Judy Grigg  
P.O. Box 1258  
Longview, Washington 98632-7739

RE: Washington Department of Natural Resources Comments on the Columbia River Channel Improvement Project, Draft Supplemental Integrated Feasibility Report and Environmental Statement

Dear Ms. Grigg and Mr. Willis:

The Washington State Department of Natural Resources (DNR) appreciates the willingness of the Corps of Engineers (Corps) and the sponsors of the proposed Columbia River deepening to maintain a productive dialogue on the issues surrounding this proposal. We understand that a proposal of this scale requires coordination and communication with a highly diverse constellation of stakeholders.

DNR has identified elements of the deepening proposal that have the potential to adversely impact state owned aquatic lands (SOAL). As stewards of the land, we are obligated to ensure that any proposal is designed and implemented in a manner that causes the least impact. By statute, however, the DNR's management authority of SOAL is primarily proprietary - rather than regulatory - in nature. In essence, our agency is charged with a fiduciary responsibility to act on behalf of the citizens of Washington to ensure that their SOAL is being put to its highest and best use, consistent with capturing and maximizing economic benefits derived from the use of those lands. But, DNR also recognizes that the long-term economic viability of SOAL is intrinsically tied to the long-term environmental sustainability of those same lands. Lands that are not protected from environmental damage represent not only a loss to all of us who find that environmental protection has its own intrinsic value, but also a loss in terms of their economic value.

Historically, Columbia River dredging practices have had a very significant adverse impact on Washington's SOAL. The deposit of dredge materials on our Columbia River tidelands has in many places along the river completely buried them and converted them into uplands. Not only has this affected the ecology of the River, it has caused significant management problems to DNR. Ownership boundaries for SOAL were determined at the time of statehood in 1889, and those boundaries are more or less fixed (with some exceptions). When SOAL is inundated by dredge materials it becomes extremely difficult for our agency to determine our ownership boundaries. Moreover, private property owners, real estate agents, and local governments are often not aware that

S-135. The Federal Government appreciates your agency's efforts to thoroughly review the Draft SEIS for the proposed project. The Corps and USEPA also appreciate your taking the time to meet to clarify your comments and to work through the issues and concerns that arose regarding project use of state owned lands and resources.

S-135

the land with upland characteristics that they are building houses on, selling, or platting, is actually SOAL that has been buried beneath dredge material. Two examples of this are Puget Island, and Willow Grove. Both of these areas are now so extensively developed with properties that are in essence trespassing on SOAL that it will require enormous expense to resolve our boundaries, to negotiate leases, and to develop public use and access plans.

S-135

We expect that any new proposals for dredging in the Columbia River will be sensitive to the impacts that such proposals have on SOAL and upon the agencies who manage them. Unless the Corps and the project sponsors are committed to providing timely information to DNR when dredging activities are being conducted, we believe that SOAL will continue to be adversely impacted. We appreciate the efforts that have been extended thus far to develop a Technical Memorandum that will clarify the duties of the Corps, the sponsors, dredging contractors, and recipients of dredge materials. It is our expectation that the implementation of the Technical Memorandum will provide real time information when and where specific dredging activities are occurring, the volume of material being dredged, and who the recipient of the material is. We also expect that the Technical Memorandum will be incorporated into any new dredging contracts so that there can be no confusion about DNR's expectations concerning the placement and subsequent use of dredge materials.

An important component of the deepening proposal is the Corps' reliance on the authority provided by The Navigational Servitude. DNR recognizes that since this proposal is intended to aid in commerce and navigation and has federal backing that The Navigational Servitude does apply. However, DNR's position is that The Navigational Servitude does not provide a blanket exemption from this agency's rules and procedures, insofar as they are reasonable and capable of being accomplished. For this reason, as this deepening proposal is further developed, we expect that DNR's statutory authority to enter into agreements for the use of SOAL will be honored, and that the design of the proposal as well as the funding to implement the proposal, will anticipate the requirements of our agency.

S-136

Following are the specific concerns of DNR that we believe should be addressed as this proposal is developed:

1. DNR requires a use authorization for mitigation projects that either use state-owned dredge materials for private projects, or which encumber SOAL. Mitigation projects require a lease from DNR. The annual payment on the lease is determined by the value of the materials being used, or the value of the land being encumbered, whichever is more appropriate. We expect that the cost of such mitigation proposals will be taken into account.

S-137

2. While the SEIS distinguishes between "restoration" projects and "mitigation" projects, by DNR's standards all the proposed projects are mitigation projects. Since each of the projects has been proposed in connection with obtaining approval of the deepening proposal as a whole, and since each of the projects has been incorporated into the review of NMFS, Ecology, and other reviewing agencies, we consider these proposed projects to be mitigation. Therefore, any of the restoration or mitigation proposals that either use or encumber SOAL will be required to obtain a use authorization from DNR.

S-138

S-136. The Corps is committed to working closely with WDNR as this project moves forward. We will find a mutually agreeable way to use the state owned aquatic lands identified in the project. As the Corps advances further into plans and specifications for the proposed project features, we will be in regular contact with WDNR regarding those features that involve your property, including state owned aquatic lands, royalties for dredged material, and fees and or easements pertaining to the use of WDNR property.

S-137. The Corps discussed mitigation actions and ecosystem restoration features with representatives from WDNR. The Corps views mitigation and restoration as distinctly different actions. Mitigation actions are required to compensate for project related impacts. They are cost shared 75%-25% with the sponsor ports. The mitigation lands must be purchased in fee title and secured for perpetuity. If the mitigation properties are not available through a willing seller arrangement, the ports will be directed by the Corps to condemn the property. The navigation portion of the channel improvement project contains a wildlife mitigation plan that incorporates mitigation for wetland impacts that will result from upland disposal activities. The mitigation sites identified in the State of Washington occur at Martin Island and Woodland Bottoms. Wetlands mitigation at Martin Island will involve use of materials dredged as part of the channel improvement project for fill in the embayment. While Martin Island is currently privately owned, it will, at the time mitigation is conducted, be owned by the non-federal sponsors. Because the mitigation is necessary for implementation of the channel improvement project, use of the dredged materials for mitigation is use for a public purpose and no royalty should be charged for such use. RCW 79.90.150.

The Federal Government respectfully disagreed with WDNR's characterization of the proposed restoration actions as "mitigation" and believes that this definitional matter has been resolved.

Restoration actions are not related to project impacts and are being undertaken voluntarily under existing Corps' authorities. The Corps' intent is to restore partially those ecosystem elements subject to substantial historical habitat losses and/or to aid in the recover of ESA species, including various salmonid ESUs. These actions are cost shared 65%-35% with the non-federal sponsors. Restoration lands do not need to be purchased in fee title. Restoration projects do not need to be in place for perpetuity although they are envisioned to be in place long-term. Property for ecosystem restoration features will not be condemned in order to achieve the restoration.

S-138. Based upon our interagency meeting and discussions of the proposed project with your staff, we believe that WDNR understands the difference in the Corps' use of mitigation and restoration. We will be working closely with your staff to define each location where the state has ownership and will jointly decide the proper real estate instrument to encumber your land for each location.

Corps of Engineers Response

S-139 3. DNR would like to see what plans are in place in case any of the restoration or mitigation proposals is not implemented. Presumably, the biological opinion from NMFS was based upon the actual implementation of all the mitigation proposals.

S-140 4. DNR believes that the Corps and the project sponsors should attempt to find more opportunities to put the dredge materials to beneficial uses. Flow lane disposal should only be used when there are beneficial effects on the river system. In some stretches of the river flow lane disposal appears to have been proposed simply as a least cost method of disposal, in spite of the fact that the same materials must be dredged over and over again as they migrate downriver. The short-term higher cost of upland disposal must be weighed against the repeated costs associated with flow lane disposal.

S-141 5. Page 3 -16, Section 3.4 (revised) Future Port Development - Port of Vancouver, Gateway development. A statement is made that dredged material from this project is one potential, cost effective source of material for the development, but that other sources are also available in sufficient quantities and at acceptable costs to accomplish the Gateway development objectives.

The Department has not been asked to approve the use of any dredged material for the development of the Gateway project, nor have we been given any information on how much material will be needed or where it will be used. The Revised Code of Washington (RCW) Chapter 79.90 Section 150 requires that the user obtain prior written approval for removal and use. It further states that material used for another use or moved off the disposal site may require the payment of a royalty to the State. Since the Port of Vancouver has not discussed this matter with the Department, and therefore doesn't know whether they will have to pay a royalty or not, it seems presumptuous to say they can find a like amount of material at acceptable costs. What figures and volumes were used to determine this? Where would the other material come from?

S-142 Additionally, the size of Gateway 3, W-101.0 varies. Table 1 on page 2 of Exhibit K in the Technical Memorandum for Consistency with Local Critical Areas Ordinances lists a disposal volume of 2.8 million cubic yards on 64.5 acres. Table S4-7, Page 4-37 lists no volume and 39.7 acres. Page 6-14, Section 6.2.3.1 (revised) Upland Disposal states that "About 17 acres of riparian habitat was protected from loss and agricultural land at Gateway 3 (W-101.0) was reduced from 69 to 40 acres." Page 8-4, Section 8.7.1 (new) Disposal Plan Modifications, states "Disposal Site W- 101. 0, Gateway Parcel 3 requires modification so as to reflect a reduced acreage requirement change from 97.0 to 52.0 acres."

The department feels that there needs to be a list or table showing an accurate, final acreage of each disposal site and the volume expected to be placed there.

S-143 6. Page 4-24, Section 4.8.6.2 (new) Purple Loosestrife Control Program states that the herbicide Rodeo will be used during the active growing season (June to October) not during the suggested in water period of Nov 1 to Feb 28.

S-139. The mitigation actions will be implemented even if it requires condemnation of the property involved. Changes to the ecosystem restoration features will be coordinated with USFWS, NOAA Fisheries, and the USEPA.

S-140. The Corps has thoroughly examined disposal requirements for the channel improvement project and proposes to use a combination of upland, in-water (including two restoration features and one wildlife mitigation action) and shoreline disposal sites to accomplish the action. Upland disposal is the primary disposal practice used during construction. In-water (flowlane) disposal is sparingly used. Approximately 6.2 mcy of construction material dredged between CRM 3-30 would be beneficially used at Lois Island embayment for ecosystem restoration purposes. Only one shoreline disposal site (Sand Island; O-86.2) would be used during construction.

The Corps and USEPA have made a concerted effort during the feasibility phase for this project to minimize the re-handling of dredged material in the navigation channel. The use of upland disposal sites was emphasized as reflected in the proposed disposal plan. The ESA consultation and interagency discussions led to reemphasis of the use of dredged material in a beneficial manner for ecosystem restoration features at Lois Island embayment and Miller/Pillar. Some flowlane disposal will occur with project implementation. The Corps and USEPA also notes that flowlane disposal is consistent with the State of Washington's strong encouragement to keep sand in the river system.

S-141. The Gateway project referenced in your letter is not related to the federal action. The Corps has requested the Port of Vancouver to send you all information regarding the Gateway 3 proposal.

S-142. The Final SEIS contains a table with the proposed final acreages and heights of disposal sites.

S-143. The application of Rodeo within the State of Washington is covered by the WDOE General NPDES permit and approved for use in the estuary. Application of Rodeo to purple loosestrife will be per label instructions. Specifically, application will be during or immediately after flowering is initiated and continue to early fall. Mix ratios and other application factors will comply with the label requirements for aquatic application. The non-federal sponsors will comply with the provisions of the General NPDES permit including the procedural requirement pertaining to notice of application. A specific permit application for purple loosestrife control will be made to the State of Washington in order to comply with the general NPDES permit already issued by the WDOE. Compliance with the terms of the state's NPDES permit should "insure no damage for contamination of state-owned aquatic lands." This restoration feature, therefore, should result in no significant impact to the environment. This combined NEPA/SEPA Final SEIS constitutes SEPA compliance regarding the purple loosestrife program and other restoration features.

**Corps of Engineers Response**

Although it makes sense to apply the herbicide during the purple loosestrife growing season is this an approved time and use according to the label? If so, will the program be reviewed through the Washington SEPA process and/or other environmental review to ensure no damage or contamination of state owned aquatic lands occurs?

S-144 7. Page 8-7, Section 8.7.3.5 (*new*) Cottonwood-Howard Islands White-tailed Deer Introduction. There are numerous ownership questions on this site. How will ownership boundaries in this area be determined? Will there be a legal survey?

S-145 There is also a statement that “one of the private ownerships also owns 60 acres of adjacent tidelands to Howard Island and good real estate practice will require purchase of “fee title” interest in those tidelands in conjunction with the acquisition of the upland acreage.” Are these true tidelands or are they accretions with upland characteristics to the tidelands sold by the State? If so RCW 79.94.3 10 states that any accretions to sold tidelands remain in state ownership. If this were the case this area would need to be treated as the other areas owned by the State of Washington.

S-146 Why does the Corps consider placing White-tailed deer on the island to be restoration and what criteria does the Corps use to determine mitigation vs. restoration? Was this species on the island in the past or is this an expansion? Is there a population of Black-tailed deer on the island and if so what will be done with them? The Department feels that placing white-tailed deer on the island fits the state criteria for mitigation and our policy is we must charge for any mitigation using state aquatic resources or land.

S-147 8. Page 8-8, Section 8.7.3.6 (*new*) Bachelor Slough Restoration. In Section 4.8.6 a statement is made that this restoration project is being implemented under Section 7(a) (1) of the ESA. Within Section 8.7.3.6 a statement is made that this project will only happen if the sediment sampling does not show contamination. If there is contamination is an alternative site required?

S-148 A statement is also made that the Corps will exercise navigational servitude for all R/W below the ordinary high water mark needed for dredging the slough. Why work with the State of Washington in other areas they own but use this method for dredging the slough and then in the same section state that a “no cost Cooperative Agreement” can be used for restoration within the 6 acres of state owned land along the slough? Additionally, the Corps states that a “short term dredged material disposal easement can be used for disposal on the 17 acre state owned site and that after disposal is complete US Fish and Wildlife Service can use that site to plant trees, etc for riparian restoration. What type agreement will be used for this and how does the Corps or Sponsors know this is an approved use for the site? Again, the Department would consider this use and the sites on USFWS land to be mitigation and be required to charge for the use.

S-149 Last, where will material from any maintenance dredging be placed if the other planned disposal sites are used for riparian restoration?

S-144. Ownership boundaries on Howard/Cottonwood Island will be obtained through a survey to establish property ownership. The Corps, in conjunction with the sponsor ports, will share all necessary information obtained on these islands with WDNR to assist in defining state owned properties. The sponsor ports are required to obtain lands, easements, rights-of-way, relocations and disposal sites for the entire proposed action. They must conduct and complete thorough legal surveys, title searches and other real estate legal requirements to establish ownerships and property boundaries.

S-145. The Corps will be working in cooperation with your agency to define the ownership on Howard Island. The Corps understands the issue of accreted lands and the implication it has regarding state ownership. As surveys are conducted and completed, the Corps will share the information with WDNR staff to sort out the precise ownership on the island.

The sponsor ports will be tasked with determining the true property owners and property boundaries for lands required for project purposes. The Corps, in cooperation with the sponsor ports, will share this information with WDNR. Cooperatively, we will come to a consensus on property ownerships and ensure that the proper real estate instruments are established and implemented.

S-146. The Corps views placing Columbian white-tailed deer (CWTD) on Howard/Cottonwood Island to be an element of a bigger restoration action resulting from the ESA consultation and in cooperation with USFWS. If the CWTD is delisted, then the main flood control dikes around Tenasillahee Island could be breached allowing for natural restoration of tidal marsh habitat beneficial to a diverse array of fish and wildlife resources. CWTD were historically distributed along the Columbia River from near Astoria to The Dalles, Oregon (USFWS, 1976, Columbian White-tailed Deer Recovery Plan). This would have included Howard/Cottonwood Island. There are Columbian black-tailed deer on these islands presently. No management action by the Corps or sponsor ports is proposed for Columbian black-tailed deer.

The restoration feature for CWTD reintroduction at Cottonwood/Howard Island was derived during the ESA consultation. It is an action the Corps will undertake under Section 7(a)(1) of the ESA. Implementation of restoration features is not mandatory, but voluntary and thus is distinctly different from mitigation efforts which are mandatory. The restoration features are not linked to our wildlife mitigation efforts which were derived in a separate process and address direct impacts to wildlife and their habitat, including wetland habitat, from upland disposal actions.

Historically, CWTD inhabited riparian habitat along the Columbia River with animals reported as far upstream as The Dalles (USFWS, 1976, Columbian White-tailed Deer Recovery Plan). Thus, translocation of CWTD to Cottonwood/Howard Island is considered a reintroduction. Black-tailed deer are present on the island. Management of black-tailed deer on Cottonwood/Howard Island will be left to the USFWS and WDFW who are working cooperatively on a similar reintroduction downstream of Longview at Fisher Island. The Corps and sponsor ports will fund specific elements of the reintroduction effort at Howard/Cottonwood Island but will not participate in a management capacity.

**Corps of Engineers Response**

S-150 9. Page 8, Exhibit J, 43 ft. Channel Deepening Sedimentation Impacts. Paragraph 2 mentions degradation of riverbed near deeper dredge cuts as bedload is deflected down the cut slopes and into the navigation channel. Paragraph 3 states that "sideslope adjustments may extend to the shoreline around RM's 22, 42-46, 72, 76, 86, and 99." Given the complaints already voiced by some landowners and users in these areas, especially RM 42-46, how will the Corps and Sponsors handle future complaints, how will property damage be handled, and how will the States of Oregon and Washington be protected if lawsuits are filed concerning this erosion?

S-151 Although these sites have been used in the past for dredged material disposal, some of them haven't been used in a number of years. Have these erosion areas been characterized and/or tested for contamination?

These impacts and questions need to be addressed in more depth in Section 6.2.2.4 (*new*) Accretion/Erosion also.

Thank you again for the opportunity to comment, and we look forward to working with the Corps and the project sponsors. If you have any questions, please contact me at (360) 767-7005 or by e-mail at [gary.cooper@wadnr.gov](mailto:gary.cooper@wadnr.gov).

Sincerely,



Gary Cooper  
Assistant Region Manager  
South/Central District

cc: Channel Improvement Project file  
Dianne Perry, Oregon, Washington Ports  
Laura Hicks, Project Manager, Army Corps of Engineers, Portland District  
Ken O'Holleran, Port of Longview  
Lanny Cawley, Port of Kalama  
Brendan McFarland, Washington Department of Ecology  
Bill Jolly, Washington Department of State Parks  
Bob Burkle, Washington Department of Fish & Wildlife  
Steve Manlow, Washington Department of Fish & Wildlife  
Larry Paulson, Executive Director, Port of Vancouver  
Fran McNair, Aquatics Region Manager  
Loren Stem, Aquatic Division Manager  
Robert Brenner, DMMP Coordinator, Aquatic Resources Division  
Nancy Lopez, South/Central Aquatic Coordinator

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S-147. The Bachelor Slough restoration feature is contingent upon the sediment to be dredged from the slough testing clean of contaminants. If the sediments do not pass contaminant screening criteria, the restoration action will be dropped and no alternative will replace it. Because this is a restoration action and not a mitigation action it is not necessary to off set project impacts.

No alternative site or action is required if sediments in Bachelor Slough are determined to be too contaminated for dredging and/or disposal based upon existing federal/state criteria established for sediments.

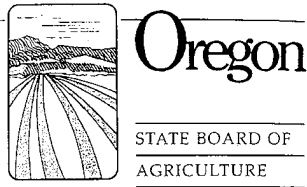
S-148. After meeting and discussing the proposed project with your staff, the Corps believes that WDNr understands the difference in the Corps' definitions of mitigation and restoration. The Corps will work closely with WDNr staff to jointly decide the proper real estate instrument for your property at Bachelor Slough.

S-149. There is no additional dredging proposed at Bachelor Slough in conjunction with the Corps proposed ecosystem restoration plan.

For the Bachelor Slough restoration feature, the Corps and ports will only conduct the initial dredging action and associated riparian forest development. Future O&M dredging of Bachelor Slough, if required, will be the responsibility of the USFWS.

S-150. The side slope adjustment is anticipated to occur in discrete localized areas. These areas were created by dredged material and are not part the historic natural bank line.

S-151. The material has been tested following the procedures in the DMEF (to which the WDNr is a signatory agency) and the material from the navigation channel is clean, medium grained sand with some fine and coarse grain sand. The material placed on shoreline disposal sites originated from the navigation channel, and therefore is also clean sand. Thousands of sediment samples have been collected and tested from a number of locations in the river for various reasons and projects. Some of these studies may be located in the areas described. There are no plans to conduct additional testing in these areas unless specific information can be provided that would establish a reason to believe that contamination may be present. As a member of the Regional Management Team for the DMEF, WDNr would be participating in any re-characterizations.



September 23, 2002

Bill Wyatt, Executive Director  
Port of Portland  
P.O. Box 3529  
Portland, OR 97208

Dear Director Wyatt:

S-152 | The State Board of Agriculture is writing for two purposes. First, we want to reiterate our support for the channel deepening of the Columbia River necessary to maintain Oregon's competitive shipping ability through our port system. A copy of a resolution passed by the Board last year stating this official position is enclosed.

S-153 | Second, we would like to seek your response regarding issues related to dredge materials that will arise from this project. At a recent Board meeting we were provided information from Matt Van Ess, Director of the Columbia River Estuary Task Force, about the impacts of depositing dredge materials around the mouth of the Columbia River near Astoria. The concerns, as explained to the Board, include potential impacts on drift net fishing of salmon and other species in a location where recovery efforts are on-going through net-pen raised and released fish, as well as potential impacts on crab habitat. This group isn't directly opposed to the channel deepening, but they do continue to have deep concerns about where the dredging material is placed. Further, we heard concerns about "least cost disposal" that mandates dredge sand be dumped back into the river, which will simply continue to wash back into the channel and increase the cost of future channel maintenance.

S-154 | We would be interested in knowing the Port's position and actions to minimize such impacts on the fishing industry around the mouth of the Columbia River and the long-term costs of river channel maintenance from in-river depositing of dredge materials.

Thank you for your response.

Sincerely,

A handwritten signature in cursive script that reads "Clint Smith".

Clint Smith, Chair  
Oregon State Board of Agriculture

Cc: Dave Hunt, Executive Director, Columbia River Channel Coalition  
Col. Richard W. Hobernicht, Army Corps of Engineers



635 Capitol Street NE  
Salem, OR 97310-0110

S-152. Your agency support is acknowledged.

S-153. See responses S-9 to S-11.

S-154. The Port of Portland discussed these issues with the Board of Agriculture at their December 11, 2002 meeting.



State Department of Agriculture  
Hermiston, Oregon

State Board of Agriculture  
September 12 & 13, 2001

ACTION ITEM: COLUMBIA RIVER DREDGING

RESOLUTION NO.: 222  
Therefore, be it resolved that the Oregon Board of Agriculture supports the Port of Portland's proposal to dredge a section of the lower Columbia River.

Be it further resolved that the Board encourages the Port's continued efforts to work with local landowners on land use issues.

ACTION: Moved By: Rick Gustafson

Seconded By: Reid Saito

Action Taken: Motion passed unanimously by roll call vote.

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# **LETTERS FROM COUNTIES**

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**Clatsop County**

**Corps of Engineers Response**

September 16, 2002



Commander USAED  
Army Corps of Engineers  
Attn: CENWP PMF CRCIP  
P.O. Box 2946  
Portland, OR 97208

2001 Marine Drive, Rm. 253  
Astoria, Oregon 97103

Clatsop Economic Development Council Fisheries Project (CEDC Fisheries) has reviewed the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the Columbia River Channel Improvement Project (DSEIS). The following represents CEDC Fisheries' concerns with aspects of the project but is not inclusive of those issues identified by the County Commissioners of Clatsop County in previous correspondence. This letter will only address those immediate issues that are perceived to directly impact the Select Area Fisheries Evaluation (SAFE) program and related research and production projects involving release of salmon smolts and the resulting sport and commercial harvest.

Economic Development  
Council  
Fisheries Project  
Phone (503) 325-6452  
Fax (503) 325-2753

C-1. See the Corps' responses to state comments S-7 and S-9. The Corps has tried to arrange a meeting with Clatsop County and the affected fisherman on several occasions to discuss the placement of material so that a plan could be developed to minimize impacts to this select area fishery. This effort has met with minimal success. The Corps disagrees that this site will not provide any useable habitat for juvenile salmonids, since tidal marsh habitats are priority habitats to restore in the estuary for listed salmon stocks. Both the NOAA Fisheries and USFWS have evaluated the proposal and support its benefit to salmonids. The Corps also disagrees with your tens of millions (June 14, 2002 letter) and then millions of dollars of annual benefits (September 16, 2002 letter) to the local community from this project. As noted in responses S-7 and S-9, the revised project is over 3,000 feet from the net pen site, and will less than 20% of the area base for the select area fishery at Tongue Point. A large, open embayment comprising over 80% of the acreage base for the select area fishery would remain for use by fishers post-restoration. The Corps would be interested in any data that indicates the value of this fishery to the local economy. Available information suggests that it is a small-scale operation. As noted, the restoration has been reconfigured to minimize any impacts.

C-1

In its 1993 Strategy For Salmon, the Northwest Power Planning Council recommended that terminal fishing sites be identified and developed to harvest abundant fish stocks while minimizing the incidental harvest of weak stocks. The Council called on the Bonneville Power Administration (BPA) to "fund a study to evaluate potential terminal fishery sites and opportunities. This study should include: general requirements for developing these sites (e.g., construction of acclimation/release facilities for hatchery smolts so that adult salmon would return to the area for harvest); the potential number of harvesters that might be accommodated; type of gear to be used; and other relevant information needed to determine the feasibility and magnitude of the program."

Beginning in 1993 BPA initiated the Columbia River Terminal Fisheries Project, a 10-year comprehensive program to investigate the feasibility of terminal fisheries in Youngs Bay and other sites in Oregon and Washington (BPA, 1993). Project sponsors are the Washington Department of Fish and Wildlife (WDFW), Oregon Department of Fish and Wildlife (ODFW) and Clatsop County Economic Development Council's (CEDC) Fisheries Project. Included in the sites to be studied and eventually fully exploited is the Tongue Point, Cathlamet Bay area presently under consideration for use as a dredge disposal site by your agency. These terminal fisheries are being explored as a means to increase

the sport and commercial harvest of hatchery fish while providing greater protection for the weak wild stocks, specifically those presently listed under the Endangered Species Act as “threatened” or “endangered”. The project is being conducted in three distinct stages: an initial two-year research phase to investigate potential sites, salmon stocks, and methodologies; a second three-year phase of expansion in Youngs Bay and introduction into areas of greatest potential as shown from the initial stage; and a final five-year phase of establishment of terminal fisheries at full capacity at all acceptable sites.

C-1

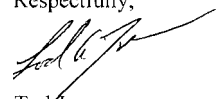
The area targeted by the Army Corps of Engineers between Mott Island and Lois Island deepened to allow for anchorage of military and commercial vessels is an integral part of the Tongue Point terminal fisheries, and as such is one of those deemed most effective in providing select fisheries as envisioned by the Power Planning Council. Significant research is ongoing at that location funded by BPA and the State of Oregon, as well as production releases of fish both from Oregon Department of Fisheries facilities upriver and those of Federal origin funded by Mitchell Act moneys. Next to Youngs Bay, the Tongue Point area represents the site with the greatest potential for terminal harvest by sport and commercial fishers of any in the Lower Columbia River.

We concur with the findings of Oregon Department of Fish and Wildlife that creating a shallow water environment in Cathlamet Bay will result in a major loss to these fisheries. In addition, no credible data is presented to demonstrate that listed stocks transiting the area in their outmigration will be benefited. In fact, with the nearby artificial rookeries created by previous disposal of dredge material (i.e. Rice Island, et al), creating a shallow water environment from existing deep water is likely to increase avian predation on all salmonids transiting the area, including those that are listed. We see the labeling of filling Cathlamet Bay as “restoration” as evidence of short-sited and unprofessional opportunism.

To reiterate, loss of a well-documented terminal fisheries representing potentially millions of dollars per year to the regional economy and the likelihood of exposing transiting smolts to heavier avian predation represents more than sufficient reason to seek other uses of the dredge material. While it is not the purview of our agency to provide solutions to the Corps of Engineers, we are well aware of the State of Oregon’s investigations into beneficial uses of the material that will remove it from the aquatic environment entirely.

We strongly urge those options be investigated rather than seeking quick and dirty solutions that only benefit the proposing agency.

Respectfully,



Tod Jones  
Project Manager

- cc Bill Arnold, Clatsop County Community Development
- Matt VanEss, Columbia River Estuary Study Taskforce
- Larry Potter, State of Oregon, Division of Lands
- Tom Byler, State of Oregon, Governor's Office
- Pat Frazier, Oregon Department of Fish & Wildlife
- Patricia Snow, Oregon Department of Fish & Wildlife,  
        Habitat Division

June 13, 2002

Laura Hicks, Project Manager  
US Army Corps of Engineers  
Portland District  
333 SW First Avenue  
PO Box 2946  
Portland, OR 97208-2946

Dear Ms. Hicks:

I appreciate having the opportunity to personally convey to you and Kim Larson concerns that the Clatsop Economic Development Council Fisheries Project (CEDC) have with the Corps proposal to use the turning basin near Lois Island at Tongue Point as a disposal sight for dredging materials produced by the proposed channel deepening project. That the latest terminology for the action is dressed up to be "habitat restoration" is an issue I chose not to address at this time, there still remains issues of economic opportunity loss that are significant and cannot be ignored.

CEDC has been funded for over ten years by Bonneville Power Administration to conduct research on the efficacy of using certain select areas in the Lower Columbia for the rearing and release of salmon smolts intended to be completely harvested by the sport and commercial fisheries. These studies have identified three sites on the Oregon side of the river, that with close management by Oregon Department of Fish & Wildlife, the resulting adult fish returning to those locations can be harvested without significant impact on listed upriver stocks. One of those sites is Tongue Point. The site is conducive to a major harvest by the gillnet fishermen and is frequented heavily by sport fishers who launch their boats at the John Day boat ramp and can be on the fishing grounds in minutes, even in the most inclement of weather.

Our present permitted level of releases at Tongue Point is two million smolts. Depending on the mix of species, their ocean survival, and the rate of interception by the Buoy 10 sport catch and the ocean troll fleet, we can have tens of thousands of catchable fish return to this select area. We are continuing to investigate methods of rearing and release strategies at this location to eventually maximize production, which in the future is likely to be double the present level. We need to conduct trials of various kinds to fully understand the constraints and limiting factors before we increase production. All of this takes many years of trials and monitoring.

**Clatsop County**



2001 Marine Drive, Rm. 253  
Astoria, Oregon 97103

Economic Development  
Council  
Fisheries Project  
Phone (503) 325-6452  
Fax (503) 325-2753

**Corps of Engineers Response**

C-2. See response to comment C-1. For clarification purposes, the area proposed for restoration is the embayment constructed for WW II Liberty vessel moorage. The Lois Island ecosystem restoration feature will not impact the Federal Tongue Point Navigation Channel and associated turning basin.

Corps of Engineers Response

page 2 Laura Hicks June 14, 2002

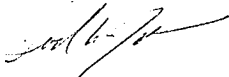
If the project, of which you are manager, proceeds with using the turning basin to dispose of seven million cubic yards of spoils it will eliminate the opportunity for the sport, and especially the commercial fleet to harvest the returning coho and chinook salmon. In addition to Youngs Bay the Tongue Point harvest area, which is fishable by all 603 licensed Oregon and Washington gillnetters and thousands of sport fishers, is the only off-channel body of water capable of providing sufficient space for major select area fisheries. Although other sites have been considered none have the acreage and channel depth that is found at the turning basin at Tongue Point.

C-2

The resulting opportunity loss will be in the tens of millions of dollars to the fishers, the community of Astoria, and the regional economy. Other issues of lost opportunity for the fishers include the development of the area in question as a nursery for juvenile sturgeon. In the last decade this area has become colonized by white sturgeon and supports many sport fishers including several charter boats. Incidental catches of sturgeon in the salmon gillnet fishery at Tongue Point also add to the value of this area as a significant economic driver.

Thank you again for taking the time to come to Astoria and meet with me over these vital issues.

Sincerely,



Tod A. Jones  
Project Manager

cc CREST  
Bill Arnold  
Salmon for All  
Larry Potter

**COWLITZ COUNTY**  
**DEPARTMENT OF BUILDING AND PLANNING**

207 FOURTH AVENUE NORTH, KELSO, WASHINGTON 98626

[www.co.cowlitz.wa.us/buildplan](http://www.co.cowlitz.wa.us/buildplan)

TELEPHONE: (360) 577-3052  
FAX: (360) 414-6550  
TDD: (360) 577-3061

COUNTY COMMISSIONERS  
DISTRICT NO. 1 J. BILL LEHNING  
DISTRICT NO. 2 GEORGE RAITER  
DISTRICT NO. 3 JEFF M. RASMUSSEN

Corps of Engineers Response

September 12, 2002

Port of Longview  
Attn: Judy Grigg  
PO Box 1258  
Longview, WA 98632-7739

US Army Corps of Engineers, Portland District  
CENWP - PM - E Attn: Robert Willis  
P.O. Box 2946  
Portland, OR 97208-2946

RE: Columbia River, Channel Deepening Project  
Comments on the Draft Supplemental Integrated Feasibility Report and EIS

Dear Ms. Grigg and Mr. Willis:

C-3 | Thank you for the opportunity to comment on the Supplemental IFR/EIS prepared for the Columbia River, Channel Deepening Project. The County supports the dredge improvement project on the Columbia River. Our comments regard the proposed mitigation for this project and its impacts relating to Washington's Shoreline Management Act.

**Martin Island:**

C-4 | Washington's Shoreline Management Act, enacted in 1971 to protect, restore and preserve the natural resources of the State's shorelines, contains seven major goals. Goals 5 and 6, coming after the goals of protecting and preserving the natural character, resources and ecology of shorelines, direct local governments to "increase public access to publicly owned areas of the shorelines" and to "increase recreational opportunities for the public in the shoreline" (RCW 90.58.020). The County's Shorelines Management Master Program incorporates these goals within its guidelines for development projects.

The Mitigation Plan for the Channel Deepening Project will require shoreline approval and must go through the shoreline permit process. The Plan proposes to fill the man-made embayment in Martin Island to create an emergent wetland. However, the water of the Martin Island embayment is a public resource used for recreational purposes. The boating

C-3. Your support is acknowledged.

C-4. As noted in the opening sentence of the comment, Washington's Shoreline Management Act was enacted in 1971 to protect, restore and preserve the natural resources of the State's shorelines. It also directs local governments to "increase public access to publicly owned areas of the shorelines" and to "increase recreational opportunities for the public in the shoreline." This language indicates that the SMA seeks to further a number of objectives that at times may be mutually exclusive. The intent of the fill in the artificially constructed, privately owned Martin Island embayment is to develop intertidal marsh habitat to benefit both fish and wildlife resources, ESA listed salmonids and bald eagles, which reflects the SMA's intent to protect, restore, and preserve the natural resources of the state. This action, along with riparian forest restoration on Martin Island, would constitute a restoration of natural resources of the state that have been severely impacted by diking and development in Cowlitz County and elsewhere in the lower Columbia River. Recreational fishermen, such as those who intensively use the mouth of the Cowlitz in spring and fall fisheries, would benefit from restoration of fisheries habitat in the lower Columbia River. The Corps acknowledges that furthering this restoration objective may affect recreational use, but note the following.



**Corps of Engineers Response**

public use the embayment for both daytime and overnight moorage. On weekends, staff has counted more than 20 boats moored there. During the week, there are usually three more boats moored in the embayment. The embayment provides a fairly safe and secure area for these recreationists. There is no other similar feature anywhere in Cowlitz County that could be readily substituted or created to serve the same purpose as the Martin Island embayment.

C-4

Over the past several years, County staff has met with representatives from the US Army Corps of Engineers, Port officials, various consultants, and Washington State Department of Ecology staff at several meetings to discuss issues of concern regarding this project. At each of these meetings, County staff has suggested that the Martin Island mitigation plan is flawed because it calls for filling the embayment and thereby decreasing public access and recreational opportunities on the Columbia River in Cowlitz County. The proposal is inconsistent with the goals and policies of both the Shoreline Management Act and the County's own Shorelines Management Master Program.

However, staff has proposed an alternative at the meetings referenced above. The alternative involves the Woodland Bottoms mitigation site.

**Woodland Bottoms:**

The Woodland Bottoms mitigation plan requires the constant supervision and interaction of human beings to be successful. The required human activity involves constant monitoring and management of the flow of water into the proposed mitigation site. No firm agreements have been-reached among the various agencies for the long-term commitment that will be required to manage the proposed wetland. It would be far better to create a wetland that is self-sustaining. The County suggests that the design be altered to make the proposed wetland self-sustaining and eliminate the need for human intervention for the lifetime of the project, which is 50 years. It may be possible that the flood control dike adjacent to the site be breached to allow the natural flow from the Columbia River to inundate the site.

C-5

The purpose of the existing dike is to protect farmland on the inside of the dike from Columbia River floods. This existing flood control dike could be relocated to the proposed levee site in the Mitigation Plan, thereby continuing the protection of adjacent farmlands, but allowing the proposed new wetland area to become self-sustaining. Dredge material could be used in the construction of the replacement levee. Water from Burriss Creek would no longer have to be pumped into or out of the site. Water would simply flow naturally into the designated wetland area from the Columbia River.

Further, the dredge material currently proposed for placement in the Martin Island embayment could be placed in the Woodland Bottoms site instead. The Woodland Bottoms site is well below the ordinary high water mark of the Columbia River and would require substantial quantities of fill material to bring it high enough to create the emergent wetland conditions described in the Mitigation Plan. These changes would accomplish three goals: maintaining public access to an existing recreation site; providing a large area to receive dredge spoils; and, eliminating a costly and time

C-4 (con't). The shoreline of Martin Island is privately, not publicly owned. The land underlying the embayment is also privately owned although the water is a public resource. Information we have gathered from conversations with resource agency personnel, Bernie Bills (formerly with Port of Vancouver), and numerous trips on Interstate 5 past the site indicate that recreational boating use of the embayment occurs primarily between Memorial Day and Labor Day. Use is incidental in nature (0-3 boats) most days except for Memorial Day, the Fourth of July and Labor Day weekends when use can apparently be fairly intensive. The Corps' anecdotal information also suggests that the majority of boaters that utilize Martin Island embayment embark from the Portland-Vancouver area and then return. While the Corps recognizes that this individual action would not restore the fishery in and of itself, it is the cumulative nature of the restoration actions that would ultimately accomplish this objective.

Martin Island supports a bald eagle nest near the embayment. Recreational boating activities in the embayment, particularly fireworks over the Fourth of July, could compromise this nesting effort and does not represent a good protection effort. The restoration of wildlife and wildlife habitat at Martin Island also could be compromised in the future due to trespass and vandalism associated with retention of recreational boating in the embayment.

In response to the County's comments, the Corps, in consultation with attending members of the interagency mitigation team and the county, has revised the proposed mitigation action at Martin Island. The current proposed action is consistent with the Washington Shorelines Management Act and the County's Shoreline Master Program.

C-5. Cowlitz County's proposal to set back the main flood control dikes at Woodland Bottoms does represent an optimum restoration plan for this location. The Corps previously investigated this proposal. However, it became apparent that construction of approximately 7,000 lineal feet of main flood control levee at an estimated cost of \$1,000/lineal foot (\$7,000,000 for that element alone) did not represent a cost effective approach.

The Corps disagrees that the mitigation plan presented will require "constant supervision and interaction of human beings to be successful." It is not significantly different than management practices at other wildlife management areas such as Ridgefield National Wildlife Refuge. The Corps is prepared to offer an alternate proposal to the interagency wildlife mitigation group for the Woodland Bottoms site that would setback the levees encompassing Burriss Creek (not the main flood control dikes) and allow for the stream to disperse its waters across the mitigation site. Additionally, through provision of a tidegate for Burriss Creek within the mitigation area (a proposed ecosystem restoration feature), Columbia River waters could be allowed to enter and exit the mitigation site except when the river exceeds certain predetermined elevations that could exceed the capacity of the setback dikes. This would accomplish the objective of a more self-sustaining wetland while still maintaining flood protection to adjacent private property.

Disposal of dredged material will not occur on Woodland Bottoms.

consuming plan for human interaction at a wetland mitigation site.

**Ecosystem Restoration Plan: Hump-Fisher Islands**

The County has some concerns regarding the Hump-Fisher Ecosystem Restoration Plan. This Plan identifies the embayment between Hump Island and Fisher Island as containing warm water that may negatively impact salmonids and other threatened aquatic species. The Plan proposes to open the area at the upstream end of the embayment so that the river can flow between the islands rather than backing up between them. This new flow is to provide improved habitat for threatened and endangered fish. Our review of this Plan did not disclose any discussion of the impacts to Fisher Island and the wildlife it contains from this proposal. Although the Draft EIS disclosed that placement of dredge spoils on Hump Island should have no negative impact to any of the Fisher Island wildlife, there is no discussion regarding the impacts of flowing water of the south side of Fisher Island. What is the potential for erosion to occur on the south side of Fisher Island and to the South Side of Willow Grove due to the proposed flow? Could erosion from the proposed flow endanger the habitat of existing Osprey and Bald Eagle nests, or the Heron rookery? Could opening up this area have any impacts to the existing channels in the area, such as Fisher Slough?

Thank you for providing this opportunity to comment. We look forward to your response.

Sincerely,



Kenneth C. Stone, P.E.  
Acting Building and Planning Director

\\central-server1\BuldPlan\Carol\Planning Staff\KATHY\scorspo\channel deepening eis commentaires.doc

C-6. We do not anticipate any impacts to Fisher Island wildlife habitats from provision of a small, open channel where Fisher and Hump Island connect. Historically, Hump Island did not exist and the Columbia River would have run a substantially greater volume of water past Fisher Island. Islands comprised of native soils are less prone to erosion than islands formed from dredged material. Flows through the constructed channel would enter the embayment which has a significantly greater cross-section than the channel and thus the velocity is dissipated which also reduces the potential for erosion at Fisher Island or Willow Grove.

Some erosion may occur at the immediate channel post-construction. We will monitor the situation to determine if erosion that may occur poses a problem to either Hump or Fisher Island or other areas of concern. The material that may erode is former dredged material comprised of medium to coarse-grained sands. This material would settle immediately downstream of the mouth of the constructed channel and would not extend downstream to Willow Grove. A natural breach of the dredged material formed isthmus connecting Lord and Walker Islands immediately upstream of the proposed channel at Fisher-Hump Islands exhibits a slight outwash of material from the shoreline downstream of the opening there. A similar channel that separates Miller Sands Island from Miller Sands Spit in the Columbia River estuary also exhibits some sediment collection downstream of the opening, presumably from erosion in the channel, upon which intertidal marsh habitat has colonized. The channel at Miller Sands has not appreciably changed in width since formation in 1976 although there is evidence of some erosion horizontally and vertically of the channel. Similar channels between small islands in the Lord-Walker Island complex have not resulted in erosion of other parts of the islands downstream of their mouths based upon review of a 1996 aerial photograph.

The constructed channel will have no effect on Fisher Slough, as the proposed action will not significantly alter the hydraulics of the area.

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**LETTERS FROM STAKEHOLDERS/  
SPECIAL INTEREST GROUPS**

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From: shirleyjdoug@netscape.net [mailto:shirleyjdoug@netscape.net]  
Sent: Thursday, July 18, 2002 6:49 AM  
To: Cenwp-DE  
Subject: Columbia River dredging

## Corps of Engineers Response

Dear COL Butler,

My name is Doug Walker and I am Vice President of the Columbia River Yachting Association, representing several thousand boaters (and voters) in Washington and Oregon.

There is a proposal on the table to deepen the Columbia River channel from 40 feet to 43 feet in order to accommodate the current/future fleet of container ships and maintain Kalama/Vancouver/Portland as a viable seaports. I support this proposal as vital to the economy of the region.

SS-1

However, the currently circulated proposal specifies that some of the dredge spoils will be dumped into an old borrow pit known as Martin Slough on Martin Island, a few miles upstream from Kalama, WA. This I oppose for the following reasons:  
...This island, including the borrow pit, are in private ownership and have for years been used as a safe and protected anchorage by pleasure boaters who ply the waters of the Columbia. Recently, Tyee Yacht Club, of Portland, made arrangements with the owners to secure a floating dock within this harbor for the safe and convenient use of all boaters. NOTE that this has NOT involved one single taxpayer dollar!  
...The owners of Martin Island would prefer to continue this use of the harbor by boaters. They have offered other acreage in the area for the deposit of dredge spoils at \$0 cost to the Corps of Engineers. They even offered to pay for the permitting process to use these other areas.  
...So far the CoE is ignoring this offer which would free up money to be used to purchase other sites for mitigation and spoils deposit.

Please help us keep this safe harbor for the use of boaters and not fill it with spoils.

Thank you for your time and support.

Doug Walker  
VP CRYA

SS-1. The analysis and ultimate selection of dredged material disposal sites for the channel improvement project was a multi-year, multi-criteria effort entailing substantial interagency (state, federal, local) coordination plus public involvement through meetings and review of documents (EIS). Similarly, the selection of mitigation sites requires extensive interagency coordination and analyses to determine their suitability for mitigation purposes. The Corps' rationale for placement of dredged material in the embayment is to attain the proper elevation for intertidal marsh development. Marsh development in the embayment is just one element of the entire wildlife mitigation effort at Martin Island. The Martin Island site was selected according to these criteria.

The Corps cannot change the site based solely on a private landowner volunteering property. However, as a result of comments received on the Draft SEIS and further coordination with the resource agencies, the Corps has revised the proposal at Martin Island Embayment by reducing the acreage from 32 acres to 16 acres for the conversion of intertidal marsh. The remaining 16 acres within the embayment would be unchanged and available for recreational use.

**Peter Huhtala**  
**Executive Director**  
**Columbia Deepening Opposition Group**  
**PO Box 682**  
**Astoria, Oregon 97103**

**Corps of Engineers Response**

U.S. Army Corps of Engineers  
Portland District, CENWP-EM-E  
Attention: Robert Willis  
PO Box 2946  
Portland, Oregon 97208-2946

September 2, 2002

**Comments on the Columbia River Channel Improvement Project**

Dear Mr. Willis,

Thank you for the opportunity to comment on the *Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (DEIS)* for the proposed deepening of the Columbia and Lower Willamette federal navigation channels and six turning basins, as well as the designation of new upland, estuary, and ocean disposal sites. I will also comment on certain ecosystem restoration actions associated with this project.

SS-2

The limited evaluation review offered in the DEIS takes an unacceptably narrow view of the impacts of this project and the Corps projects with which it is closely associated, specifically maintenance of the existing navigation channels and of the entrance channel at the mouth of the Columbia River.

I am, however, encouraged that the DEIS and the related Biological Assessment do consider impacts to a portion of the Columbia River plume out to 12 miles off the mouth of the river. This is necessary and proper partly because of references to Appendix H of the *Final Integrated Feasibility Report and Environmental Impact Statement (FEIS), 1999*, for this project. Since the Corps arranged with the Environmental Protection Agency to use this National Environmental Policy Act (NEPA) process to prepare for designation of ocean dredged material disposal sites, the Corps has the responsibility to assess the impacts of using these sites. Alternatives should be fully explored, including evaluating cumulative impacts of each in association with existing projects and the proposed deepening. Although estuary disposal sites are proposed in the DEIS as alternatives that may delay use of the ocean sites, these are of limited capacity. River sediments are ultimately bound for the ocean under all DEIS plans. The only alternative offered for ocean disposal of these sediments is the yet to be designated Deep Water Site.

SS-3

The DEIS and previous documents associated with this project, including Appendix H of the FEIS, have not presented a reasonable range of options for ocean disposal and have

SS-2. The Corps and USEPA disagrees with the characterization of the Draft SEIS as a "limited" evaluation. The Draft SEIS focuses on new information on impacts from the channel improvement project and analysis of changes to the project since the 1999 Final IFR/EIS (see response to F-2). The 1999 Final IFR/EIS and the Final SEIS look at impacts from the project, including maintenance dredging, as well as the cumulative effects of dredging in the mouth of the Columbia River.

SS-3. The Final SEIS has been revised to not use ocean disposal for construction and the first 20 years of maintenance for the channel deepening project. In the event the ecosystem restoration projects identified in the Final SEIS as the preferred alternative are not implemented, the material would go to a 102 designated or 103 selected ocean site. The 1999 Final IFR/EIS, Appendix H, analyzed a detailed and extensive set of options for ocean disposal. Designation of ocean disposal sites will be conducted in accordance with the requirements of the Ocean Dumping Act. Regarding whether the Coastal Zone Management Act would require a consistency analysis at the Deep Water Site (which would be located south of Cape Disappointment), the State of Washington has explicitly limited ocean provisions of the Washington Coastal Zone Management Act to activities occurring north of Cape Disappointment and has not developed enforceable policies that would be applicable to the Deep Water Site should the Deep Water Site be designated.

The ocean dumping component is consistent with NEPA requirements. Based on the analysis in the 1999 Final IFR/EIS, Appendix H, and subsequent analysis in the Final SEIS, the USEPA anticipates that it will propose to designate the Shallow Water and Deep Water Sites. The EIS process has identified these sites as preferred alternatives based on inputs from federal, state, county and interested parties for long-term MCR disposal needs and for use, as necessary, for the channel improvement project.

Columbia Deepening Opposition Group Comments

failed to analyze cumulative impacts. For these and other reasons this part of the documentation fails to comply with NEPA requirements. The Deep Water Site also has serious problems achieving compliance with the Marine Protection, Research and Sanctuaries Act (MPRSA) and consistency with state and local ordinances and planning goals under the Coastal Zone Management Act (CZMA).

**Question 1: Where would the sediments from the deepening project, which are scheduled to either be initially disposed of in the ocean (because one of the estuary sites is not used or sediment volumes have been underestimated) or eventually disposed of offshore (in the course of maintaining the new channel as described in the DEIS), be dumped if the Deep Water Site is not designated? Explain how the public process for determining such an alternative fits within the NEPA process for this channel improvement proposal.**

This project was pre-authorized by Congress in the Water Resources and Development Act (WRDA) of 1999, contingent upon preparation of an environmentally acceptable plan by December 31, 1999. Although the Chief of Engineers issued a report certifying that this contingency was met in December 1999, I believe that the Chief's Report should properly be withdrawn. Over three years have passed since President Clinton signed WRDA 1999, and the project still lacks needed environmental approvals. The states of Washington and Oregon each denied Section 401 Water Quality Certifications for the Columbia River portion of the project under the Clean Water Act in September 2000, for substantive reasons. With the issuance of this DEIS we are presented with a project that has not changed substantively since that time.

SS-4

The Willamette River section has yet to go under the scrutiny of the Clean Water Act, although it is still part of the authorized project. The direct and cumulative impacts of the authorized work in this reach must be considered. This includes the downstream impacts of the Superfund cleanup of contaminated sediment in the Portland Harbor area. This portion of the authorized project was placed on the National Priorities List after the issuance of the Chief's Report. It is beyond my comprehension how the Corps could now claim the existence of an environmentally sound plan to dredge and blast through this Superfund site.

**Question 2: Does the Portland District intend to inform the Chief of Engineers that the contingency mandated by Congress in 1999 was not met, and that consideration should be given to withdrawing the Chief's Report of December 1999? If not, please explain.**

The economic underpinnings of this channel improvement project are inextricably flawed. The reality is that we could not expect a net national benefit. One of the fundamental problems is that benefits are projected that would be solely realized by foreign-based carriers. These carriers are allowed under a legislated exception to set prices and operate as a cartel. Yet the presentation in the DEIS would have us believe that all foreign-based carriers would pass 100% of any cost savings back to United States interests. This is unlikely.

SS-5

Columbia Deepening Opposition Group Comments

## Corps of Engineers Response

SS-4. The December 1999 report of the Chief of Engineers accurately assessed the channel improvement project and will not be withdrawn. The report acknowledges potential concerns that had been raised by the states of Washington and Oregon, and by federal resource agencies, as of the date of issuance. The report also recognizes cleanup issues associated with the Willamette River and indicates that further work on the Willamette would be deferred until after remedial investigation and remedial decisions are complete. Taking all available information into account, the report concludes that the project is "technically sound, economically justified, and environmentally and socially responsible" (Chief's Report at Page 7).

In order to address the potential concerns identified by the state and federal resource agencies, the report calls for continued studies and continued "extensive coordination" with the state and Federal resource agencies. The Corps and Sponsor Ports have worked with the states to address issues that were identified in the 1999 letters from Oregon and Washington on 401 Certification. The Corps has reapplied for certification. It is inaccurate to state that the 1999 letters are binding in any way. The unprecedented ESA reconsultation process and intensive coordination with Oregon and Washington resource agencies implements the directives of the Chief's report. The Corps decided to supplement the 1999 Final IFR/EIS after reconsulting on endangered species with NOAA Fisheries and the USFWS. As a result of that consultation, additional ecosystem restoration features, compliance measures, and monitoring and research actions were added to the overall project. The Corps then took the opportunity to update the public on the additional work performed since the 1999 Final IFR/EIS and on newly available information, including the listing of areas of Portland Harbor on the National Priorities List. In addition, the Corps revised the benefits and costs to 2002 levels. These actions and updates to the analysis of project effects do not jeopardize or substantially change the authorized project from that presented and authorized in 1999.

The Corps has made clear that any deepening of the Willamette River will be deferred until the completion of the remediation investigation and remediation decisions related to contaminated sediments in Portland Harbor. Concerns over sediment contamination and uncertainty regarding the scope and timing of remedial investigations and actions in the Willamette River led the Sponsor Ports to ask that the Corps delay deepening work on the Willamette channel. Subsequent to the issuance of the 1999 Final SEIS and Chief's Report to Congress, USEPA designated Portland Harbor, which includes a 5.5-mile portion of the navigation channel, as a federal Superfund cleanup site. The Superfund listing creates uncertainty surrounding the timing and details of any channel improvements in the Willamette River.

Cleanup under the Superfund program will involve extensive study of the area, evaluation of alternatives, and public involvement in the selection of a final cleanup plan. The final cleanup plan selected by USEPA may result in changes to the previously proposed channel improvements for the Willamette River – changes that cannot be anticipated at this time. Any improvements to the channel in the Willamette River will therefore take place under conditions different from those found today – i.e., conditions reflecting the Superfund cleanup. Accordingly, the Sponsor Ports and the Corps will not move forward on deepening in the Willamette River channel until plans are fully in place for any necessary remediation. See Final SEIS, Section 1 (explaining deferral of Willamette River plans).

SS-5 In addition, it appears that savings for cargo with no United States ownership interest whatsoever has been added to the benefit column. This is improper under Corps guidelines.

**Question 3: Does the Corps intend to include in a revised benefit analysis only those cost savings that would directly accrue to U.S. businesses?**

**Question 3a: How does the Corps extrapolate a benefit to U.S. interests in providing cost savings to foreign-based carriers? Please explain your reasons for expecting savings to be passed on, if this is your position.**

The economic analysis assumes a steady increase in container ship calls at the Port of Portland, with deeper draft ships becoming more predominant, at least for the next few decades. What is not clear is if this increase in traffic results from new exports and imports on a national basis, or involves a shift from other ports. It is not reasonable to expect predictably steady growth in a volatile market, nor is the potential marketing advantage of Portland clear.

SS-6 **Question 4: What information do you have from discussions with carriers that would lead you to believe that these carriers intend to increase service with larger container vessels calling on Portland? If you did not have such discussions, please explain why you chose not to avail yourself of this information.**

**Question 4a: Would a carrier have incentive to reduce service to Portland if more cargo could be loaded in fewer calls? Explain why this was not initially considered in your analysis.**

I suggest that it would be wise to conduct a full investigation of regional shipping trends, including extensive interviews with those who make decisions on behalf of carriers, before offering conclusions on such a large and expensive public works project. To some degree, I suspect that carriers are encouraging channel deepening projects such as this in order to increase their competitive advantages. These companies often play one U.S. port against another, while actually the projects offer no real national benefits to this country. The Corps should use caution in evaluating these projects so that U.S. interests, financial and environmental, are protected. In this case even the regional interests, who had thought that the project would assure the future vitality of their ports, may be put at a disadvantage should the project proceed. This would be a tragic oversight.

SS-7 **Question 5: In seeking to achieve a net national benefit by improving commercial shipping on the Pacific Coast, was the alternative of superior regional port planning among the ports of the western states considered? If so, please provide your conclusions. If not, please explain why increased cooperation among U.S. ports was not considered as an appropriate subject for this study.**

## Corps of Engineers Response

SS-4 (con't). Further, once remediation plans are in place, the Corps plans on re-evaluating the costs and benefits of the Willamette River reach to ensure that deepening it is still justified. Finally, at such time as the Sponsor Ports and the Corps may proceed with channel improvement activities for the Willamette River, the Corps will conduct appropriate additional NEPA review. For these reasons, as previously mentioned, the Final SEIS economic analysis does not include any benefits based on Willamette River deepening. A discussion of the cumulative impacts of reasonably foreseeable actions on the Willamette River is included in the Final SEIS. Final SEIS Section 6.12. The Corps and USEPA are coordinating separately on investigations leading to a remedy under Superfund in the Willamette River.

SS-5. The analysis is consistent with the principles and guidelines that govern water resource development analyses. Non-US cargo from Canada has been excluded from the benefit analysis. The methodology used to calculate the benefits for the proposed project complies with Corps policies and regulations. The benefits calculations developed for the benefit to cost analysis are in accordance with Corps' policy and regulations.

SS-6. The Corps' analysis predicts that vessels will essentially continue to be the same as they are today, with eventual elimination of the smallest class of vessels serving the westbound transpacific market. This assumption was based on a number of factors, including conversations with the line using that smallest class of vessel.

It is unlikely that a carrier would choose to reduce their service to Portland if additional capacity (in the form of channel deepening) is provided. The fundamental issue is capacity to transport cargo, not the number of ships calling the river. Carriers that are profitably calling on Portland in the without-project condition are unlikely to become less profitable when given additional capacity.

SS-7. The 1999 FEIS looked at a range of potential viable alternatives, a superior regional port among the western states was not one of them. The vague concept presented in the comment as 'cooperation' is unclear. The comment does not explain the concept of "superior regional port planning" among western ports sufficiently to respond to the comment. The Final IFR and Supplemental IFR evaluate the benefits and the costs of the project consistent with Corps requirements. The benefit analysis concludes that this project has a net benefit to the nation.

## Corps of Engineers Response

SS-8 In examining the history of large dredging projects it is clear that projects such as this (should they go to a Record of Decision and receive authorization) find federal appropriations arriving incrementally, sporadically over several years. It is extremely unlikely, based on realistic historical patterns (and the \$50 billion backlog of authorized Corps projects), that this project would receive full federal appropriation for construction over a two-year period. Yet, part of the rationale for constructing the project in as short a time as possible is to keep costs down. If the project can't be built in two years, the costs increase accordingly.

**Question 6: Was the real-world financial feasibility, given the political history of federal appropriations as unlikely to be available in the planned two-year construction period, taken into account when calculating the costs of construction? If not, please explain.**

Certain other costs of the project as proposed were either overlooked or deliberately avoided. These include costs to fisheries, to estuary economies, and to tribes whose members fish for Columbia River salmon, lamprey and sturgeon. The Corps often makes a policy decision not to look at local costs associated with agency actions. In fact, these local costs must be mitigated if they are unavoidable.

Some of these costs are obvious, if not precisely quantified, in reading the DEIS. The use of Lois Embayment as a disposal site would remove salmon fishing opportunities afforded by an adjacent terminal net-pen-based project operated by the Clatsop County Economic Development Council fisheries program, with funding through the Bonneville Power Administration. The value of this fishery to the local economy is in the range of several million dollars per year.

SS-9 Similarly, the landings from over a dozen historic gillnet drifts in "The Shoot" would be lost if the Millar-Pillar pile dike field was built. Compensatory mitigation for fishing families and their communities must be provided if these elements remain in the project.

The use of the Lois Embayment dumpsite would also preclude the use of the area as a moorage. This would inconvenience those who use the protected site as a recreational moorage, but it would also inhibit future use in connection with the piers and industrial property at nearby Tongue Point. This is hard to put a number on, but the current zoning of the embayment as Aquatic Development indicates that planners expect that such a use might be reasonably expected.

**Question 7: Does the Corps intend to provide compensatory mitigation if disposal sites at Lois Embayment and Miller-Pillar are used? If not, please explain.**

SS-10 The disposal/ecosystem restorations at Lois Embayment and Miller-Pillar, to continue with these examples, "are likely to adversely affect" salmonids listed under the Endangered Species Act and their Critical Habitat, according to the National Marine Fisheries Service (NMFS). NMFS states that the construction of the pile dike field and

SS-8. Conjecture regarding congressional priorities is outside the scope of the principles and guidelines that govern water resource development analyses. Congress has asked the Corps to provide an analysis that displays the benefits of a project compared to the costs required to achieve those benefits. The principles and guidelines that govern the work performed by the Corps establish a way to evenly compare the benefits and costs of all Corps projects across the nation. When the Corps completes the record of decision, the President will decide whether or not to include the funding for the project in his budget, which is submitted to the Congress. It would not be appropriate for the Corps to presuppose what the President or the Congress will do with funding future appropriations. Congress will make funding decisions according to various national priorities; the Corps does not speculate on congressional funding decisions, and Corps policy prevents such speculation from being implemented in the cost estimating process.

SS-9. Impacts to sturgeon, lamprey, and salmon are not anticipated to have a measurable economic impact. Per your comment, we have reviewed information on the economics of the Select Area Fishery (SAF) at all locations in the Columbia River estuary and compared them to the Tongue Point SAF. The overall value of the fishery to the regional commercial and recreational fisheries in 2002 was \$1,588,990 (SAF Evaluation Project Economic Review 10/21/2002). The table presented below illustrates the direct return (ex-vessel value, which is pounds landed times average weekly price per pound) from the Tongue Point fishery. This amount is substantially less than stated in your comment although the comment was extended to the "local economy." The value of the SAF to the regional fisheries and local economy is predicated upon inputs from all six SAF locations, not just Tongue Point. The same number of fish can be released and would be available in the ocean and SAF fishing areas. Only the acreage available to commercial fishing at Tongue Point is reduced. Given only a 19% reduction in acreage at the Tongue Point SAF associated with the restoration feature, we have concluded that the reduction in fishing area for the SAF at Tongue Point would negligibly affect the regional fisheries and local economy.

Only 14% of the area encompassed by the Miller Sands Drift fishing site would be precluded from future use by drift fishermen with implementation of the Miller-Pillar feature. There is no evidence that a dozen drifts as alleged in your comments would be lost with implementation of this feature. Consideration of compensatory mitigation is not warranted because commercial fishing will not be precluded at Tongue Point SAF or Miller Sands Drift due to implementation of these two restoration features. Commercial fishing can continue at either location.

Little moorage activity occurs in Lois Island embayment. Most recreationists in the Tongue Point area are day users that launch and haul out of the nearby John Day boat ramp. The original restoration feature at 357 acres would have left adequate moorage space in the embayment for the occasional user. The revised feature, at 191 acres, would provide substantial moorage area for small boats.

The actual zoning for the Lois Island embayment is aquatic conservation, not aquatic development. Thus, industrial/port development is not a compatible use or the use "expected" by local planners. Further, the Corps constructed a deep draft navigation channel and turning basin at Tongue Point in 1986. No commercial use of the Tongue Point piers associated with deep draft navigation has occurred since construction of this navigation feature. Also, we cannot discern from your comment how the ecosystem restoration feature in the embayment would inhibit future use of the Tongue Point piers and associated industrial property. The Tongue Point piers are located 3,200 feet from the ecosystem restoration feature as revised.



**Corps of Engineers Response**

SS-9 (con't).

Landings and ex-vessel values by species at Tongue Point select area commercial fishery, 1996-2002. Data presented was provided by the Oregon Department of Fish and Wildlife.

Year	Spp	Tongue Point		Price per lb	Ex-vessel Value \$ <sup>a</sup>
		Number	Pounds		
1996	CHS			\$1.88	
	CHF	50	752	\$0.90	\$677
	COH	1,955	16,376	\$0.62	\$10,153
		2,005	17,128		\$10,830
1997	CHS			\$2.36	
	CHF	180	2,615	\$0.89	\$2,327
	COH	861	6,481	\$0.73	\$4,731
		1,041	9,096		\$7,058
1998	CHS	31	484	\$2.56	\$1,239
	CHF	431	6,341	\$0.92	\$5,834
	COH	3,374	27,715	\$0.63	\$17,460
		3,836	34,540		\$24,533
1999	CHS	199	2,836	\$2.80	\$7,941
	CHF	339	5,002	\$1.39	\$6,953
	COH	3,659	31,737	\$0.84	\$26,659
		4,197	39,575		\$41,553
2000	CHS	947	12,310	\$2.51	\$30,898
	CHF	252	3,764	\$1.25	\$4,705
	COH	10,731	97,104	\$0.55	\$53,407
		11,930	113,178		\$89,010
2001	CHS	1,631	24,410	\$2.06	\$50,285
	CHF	62	677	\$0.70	\$474
	COH	1,368	11,172	\$0.27	\$3,016
		3,061	36,259		\$53,775
2002 <sup>b</sup>	CHS	2,778	38,438	\$2.50	\$96,095
	CHF	1,672	27,313	\$0.50	\$13,657
	COH	13,806	137,650	\$0.31	\$42,672
		18,256	203,401		\$152,423

<sup>a</sup> Ex-vessel value (pounds landed \* average weekly price per pound)

<sup>b</sup> Preliminary landings and prices through 10/04/02

the disposal operations will likely cause short-term harm, including takings of endangered salmon.

Established benthic productivity at both sites would be sacrificed to an uncertain outcome. The coarse sand proposed to be dumped is nearly devoid of organic content and would provide extremely poor substrate for biological colonization. The double handling of sediment at Lois Embayment, through the preliminary use of a sump, assures that most finer material will be washed away. Contaminants would be suspended and distributed, while organic habitat forming materials would be lost. This is not the best way to build a swamp.

SS-10

The type of habitat (shallow water flats) created by constructing Miller-Pillar and filling Lois Embayment has increased over the past 100 years in the Columbia River estuary. There is not a lack of this habitat near the sites, nor a shortage in the estuary. There is no certain benefit to salmon from these projects, but there are clear detriments.

It would be worthwhile to experiment on a small scale (say 40,000 cubic yards, similar to the experiment at Benson Beach) with using dredge spoils for habitat creation. But the Lois Embayment and Miller-Pillar sites are not appropriate locations for such an experiment. These can only be considered dumpsites at this point, environmentally and economically harmful dumpsites.

\*

The Columbia and Lower Willamette River Channel Improvement Project, as proposed, violates numerous state and federal laws. The mandates of the National Environmental Policy Act were not followed in numerous instances of impropriety and omission. The Clean Water Act violations have been partially itemized by the September 2000, rejections of the Section 401 Water Quality Certifications by Oregon's Department of Environmental Quality (DEQ) and Washington's Department of Ecology (Ecology). Most of the inconsistencies with state ordinances and planning goals, including those documented in December 1999, by Oregon's Department of Land Conservation and Development (DLCD), and in September 2000, by Washington's Ecology still remain. The proposed ocean disposal at the Deep Water Site is contrary to numerous provisions of the Marine Protection, Research and Sanctuaries Act.

SS-11

Columbia Deepening Opposition Group (CDOG) and others have pointed out these and many additional ways in which the proposed dredging, blasting and disposal actions are illegal. Our previous comments to the FEIS still apply and are incorporated into these comments by reference, as are the FEIS comments by Northwest Environmental Advocates, Columbia River Crab Fishermen's Association, Columbia River Inter-Tribal Fish Commission, Boyce Thorne-Miller, and Columbia River Estuary Study Taskforce. There are many other worthwhile comments to revisit, but these should provide a pretty good idea of some of the major environmental and legal deficiencies of this deepening project.

Columbia Deepening Opposition Group Comments

## Corps of Engineers Response

SS-10. The determinations of "may adversely affect listed salmonids" made for the Lois Island Ecosystem Restoration Feature and the Miller-Pillar Ecosystem Restoration Feature were made by the Corps in the December 28, 2001 Biological Assessment (BA) for the project (reference Section 8.4.1.1, page 8-14). The determination is based on the potential for short term adverse effects associated with implementation of the restoration features [2001 BA, Section 8.4.1.1; NOAA Fisheries 2002 Biological Opinion (BO), Section 6.7.2, 6.7.2.1 and 6.7.2.3]. Incidental take will occur (NOAA Fisheries 2002 BO, Section 12.2) and NOAA Fisheries determined that the level of anticipated and unquantifiable take is not likely to result in jeopardy to the species (NOAA Fisheries 2002 BO, Section 12.3). Most importantly, the NOAA Fisheries Service and the Corps concluded that over the long-term, these restoration features would provide benefits to listed ESUs (2001 BA, Section 8.4.1.1; NOAA Fisheries 2002 BO, Section 6.7.2, 6.7.2.1 and 6.7.2.3).

Established benthic productivity at both locations would be temporarily lost during construction. For Miller/Pillar, the NOAA Fisheries study (Hinton et al. 1995) documented the relatively low benthic productivity of the eroded area. Their results are presented in more detail in Section 4.8.6.3 of the Final SEIS. Temporary placement of material in a sump adjacent to the navigation channel (encompassing approximately 145 acres in a 600-foot wide by 2 mile long area) would result in the short-term reduction (2-year construction period) of benthic productivity associated with the site. Water depths are approximately 35 to 60 feet, thus benthic productivity associated with the location is relatively low compared to shallower, less energetic areas in the estuary.

The material to be dredged from the navigation channel and ultimately placed at Lois Island Embayment and Miller-Pillar Restoration Feature is medium grained sand, with some fine and coarse-grained sand, rather than coarse-grained sand as stated in the comment. Dredged material from the navigation channel proposed for the Lois Island and Miller-Pillar restoration features is suitable for in-water disposal and is not an issue relative to these ecosystem restoration features (1999 Final IFR/EIS, Section 2.5.1 and 6.4.1; 2001 BA, Sections 6.1.5 and 8.4.1.1). For Lois Island and Miller-Pillar, our revised restoration action will focus on development of tidal marsh habitat rather than shallow subtidal and intertidal habitat as originally proposed. This addresses the issue brought up by several commentators of there being more shallow water flat habitat currently than historically in the Columbia River estuary.

The Corps believes there is no need to conduct experiments to develop tidal marsh habitat. One needs to only look at the shorelines of Lois and Mott Islands, South Tongue Point, Miller Sands Island, and Spit and Pillar Rock Island to observe tidal marsh habitat that has established on dredged material. The extensive tidal marshes of Cathlamet Bay, which lie upstream of Lois Island embayment, will provide an abundant source of plant propagules and benthic invertebrates for colonization of the restoration feature. Lois Island embayment is a relatively quiescent environment with limited wind fetch afforded by protection from Tongue Point, the Oregon shore, and Lois and Mott Islands. River currents are not substantial. Thus, the Corps anticipates that silty sediments will continue to accumulate in the embayment naturally, including on the restoration feature, which should further enhance tidal marsh development and benthic invertebrate establishment. Similar marsh habitat development in protected environments in the estuary, including some on dredged material, can be observed at Miller Sands embayment and Pillar Rock Island. Sediment accumulation at Miller Sands embayment has occurred since completion of the Miller Sands Spit in 1976, which has led to the development of additional tidal marsh habitat. Concentrations of migrant and wintering shorebirds that feed on benthic invertebrates at Miller Sands embayment attest to the benthic invertebrate abundance in that environment and the likely benefit of the proposed action.

**Corps of Engineers Response**

SS-11 CDOG has also complained of the extreme inequity of the project design. Those who do not benefit in any way from this project are compelled to pay for it by suffering degradation of their environment, their livelihood and their health. Many of these disproportionately impacted individuals are members of low-income or minority populations. This is not only unfair, but it is contrary to Executive Order 12898, Environmental Justice. The Corps opinion in the FEIS is that “no low-income or minority populations would be adversely affected” by this action.

The fact is that the communities of the Columbia River estuary include a higher proportion of low-income individuals than most of the rest of the Northwest. The direct losses to salmon and crab fisheries caused by this project would ripple through these already stressed local economies.

SS-12 Actions that, even in the short term, harm endangered salmon would likely result in lower harvest opportunities for commercial, recreational and tribal fishers. An unfair burden would be placed on those who would not benefit.

SS-13 Distribution of toxic contaminants in river sediments would result from disturbance by dredging and blasting, and from flow-lane and open-water disposal, as well as from suspension during side-slope adjustment to the deeper channel. Even the outrageously inadequate chemical characterization of sediments offered in the project documentation indicates the presence of dangerous chemicals. Some degree of distribution of toxics resulting from actions taken while building this project is undeniable. The settling of these chemicals in shallows and broadly in the estuary increases their availability for uptake through the food chain, ultimately threatening aquatic life and human health. The people of the estuary and members of Columbia River tribes are among those most likely to suffer from greater incidence of cancers, developmental abnormality and endocrine disruption.

SS-14 **Question 8: Does the Corps plan to complete a Disparate Impact Analysis of the economic, environmental and health effects of the proposed deepening project, considering if certain populations may disproportionately suffer adverse consequences? If not, please explain.**

\*

SS-15 There are numerous additional problems with this project that the Corps seems predisposed to minimize in the DEIS. This is an unfortunate attitude, because stakeholders and decision makers deserve an unbiased presentation.

For example, the DEIS predicts “as much as a 4.5% increase in the total suspended sediment load in the lower Columbia River as a result of the project.” (DEIS, page 6-32) Is this a good thing, perhaps providing material to help build habitat, as suggested? Or will much of this suspended sediment be composed of fine materials with DDT, PCBs, and dioxins attached? I can’t tell from the document, but a 4.5% increase seems significant enough to demand further analysis.

SS-11. The comment provides only generalized allegations concerning compliance with various federal and state laws. The Federal Government’s compliance with NEPA is addressed elsewhere through detailed responses to comments on specific aspects of the NEPA evaluation of the project. The Corps’ continued coordination with Washington and Oregon resource agencies, its recently filed applications for Section 401 certification, and its revised 404(b) evaluation and CZMA consistency determination, all demonstrate compliance with the Clean Water Act, CZMA and underlying state policies for the channel improvement project. The Corps and USEPA believe that compliance with the Ocean Dumping Act has been demonstrated and will be completed by USEPA’s designation of new ocean disposal sites.

The Corps disagrees with the comment’s allegations regarding compliance with Executive Order 12898. As detailed in response to specific comments on potential impacts to crab, salmon and other aquatic resources, the project is not anticipated to have significant adverse effects on commercial fisheries or other aquatic resources. Further, contrary to the comment’s allegations, economic benefits associated with the project would accrue to the entire region, including the communities of the Columbia River estuary.

The analysis of entrainment of crab forecasts an incremental impact of from approximately 3,000 to 26,000 harvestable crab during construction, and a total impact of from approximately 4,000 to 9,000 harvestable crab annually during maintenance. This compares to an annual harvest of approximately 5.3 million crabs from the Washington and Oregon crab fisheries proximate to the Columbia River. This analysis is based on a new statistical model developed by the University of Washington College of Fisheries that Pacific Northwest National Laboratories applied to actual samples of maintenance dredging.

SS-12. While there would be some displacement of fishing grounds in part of the Lois Island embayment and at the Miller-Pillar ecosystem restoration feature, these areas comprise a small portion of available fishing grounds and are not projected to have significant effects on fishing opportunity. The analysis of impacts to salmon does not indicate that there will be lower harvest opportunities for commercial, recreational and tribal fishers, as the comment suggests.

SS-13. The Corps and EPA disagree with the comment. Both agencies partnered in developing and conducting sediment characterization studies and concurred in the interpretation of the characterization results presented in the 1999 Final IFR/EIS. The biological assessment and biological opinions examine the issue of contaminants in detail and concluded that the sediments involved in the dredging are not likely to raise issues regarding contaminants. Several thousand samples of sediments were included in this analysis. Sediment characterization has been adequate for the project proposed except for the Astoria turning basin. During the ESA consultation, the sediment quality information presented in the 1999 Final IFR/EIS and from other sources, including the Corps’ database with thousands of samples collected in and adjacent to the channel, was reviewed in detail. The information was compared with the DMEF screening levels as well as the threshold limits used by the NOAA Fisheries. Two areas outside the channel exceed the DMEF and/or NOAA Fisheries concern levels, specifically, PAHs exceed NOAA Fisheries values at Skipannon Channel and PCBs exceed both the DMEF and the NOAA Fisheries values at Vanalco on the Columbia River. However, since these areas are outside the dredging prism for this project, they will not be impacted by the project. These two locations are noted and identified in the information contained in the Corps’ amendment letter to the Biological Assessment and available on the Corps website.

**Corps of Engineers Response**

On the same page there is a discussion of side-slope adjustments over a period of 5-10 years. Not only are the shallower areas that would slough more likely to harbor contaminants, but also this process “may cause erosion at some previous beach nourishment sites.” Well, people live near some of these sites, like at Stella or on Puget Island. Ship wake erosion is already threatening some of their homes, now a deeper channel could make things worse.

SS-15

**Question 9: Does the Corps plan to mitigate for erosion caused by this project that directly or indirectly damages private property? If not, please explain.**

I haven’t seen a discussion of the Clean Air Act in relation to this project. A plan to operate diesel dredges 24-7 for at least two years would have a substantial effect on air quality, especially near the Portland metropolitan area and Longview. I’m not sure how much of an effect.

SS-16

**Question 10: What quantity of particulate emissions, and other air pollution, can we expect from two years of continuous diesel dredge operations excavating and disposing in excess of 15 million cubic yards of sediment? Please consider the concurrent maintenance dredging impacts to air quality when formulating your answer.**

Timing windows to allow for salmon migration are not included for most of the work contemplated during construction of the deeper channel. The DEIS states on page 6-34 that “dredging occurs in areas where salmon are not present at depths greater than 20 feet.” To begin with this is not a true statement, but I’m curious about the impacts to habitat shallower than 20 feet when upland disposal occurs.

SS-17

**Question 11: Will the in-water work window of November 1 through February 28 be observed when pipelines are extended through areas shallower than 20 feet for the purpose of upland disposal? If not, please explain why this would not have an adverse impact on salmon.**

Some runs of salmon and steelhead in the Columbia River Basin are so depleted that they simply can’t take additional stresses; the likelihood of extinction is too great. Yet on page 6-49 of the DEIS I read: “Direct impacts to listed fish could occur during dredging, disposal, and blasting activities. Fish could be pumped into dredges, thereby causing injury or death. Fish could be harmed by dumping of dredged sediments, as these materials could smother food items, create turbidity in the water, or release contaminants into the ecosystem. Removal of a single, deep-water rock formation would require underwater blasting, which could kill or injure fish.” This certainly sounds serious, though the Corps and NMFS negotiated some actions that might reduce some of these effects. Impacts are still expected, however, and these are impacts that many of the listed species cannot afford.

SS-18

SS-14. The analysis of environmental impacts does not indicate that there will be a disproportionate effect on certain populations. Specifically, the analysis of impacts to the crab population indicates very small impacts on the population available for harvest. Similarly, the conclusions of the consultation with NOAA Fisheries and the USFWS do not indicate an impact on salmon populations likely to result in adverse consequences to certain populations.

SS-15. The potential impacts due to increased suspended sediment (SS) and contaminant movement were also raised by NOAA Fisheries during consultation on endangered salmonids. The referenced text is a summary of information from the 2001 BA. These issues were thoroughly addressed during the SEI workshops and more complete discussions are presented in the 2001 BA. The 4.5% increase in SS would increase low flow SS concentrations by about 2 mg/l, raising them to about 12 mg/l. During high flows the background SS is 20-50 mg/l and the increase would be less than 1 mg/l. The increased SS would only increase estuary deposition by an average of less than 1 mm. Also see the response to state comment S-154.

SS-16. Section 6.8.3 of the 1999 Final IFR/EIS discusses impacts of the deepening the channel on air quality based on the estimated dredging time for channel deepening.

SS-17. The statement you refer to should read that migrating juvenile salmon are not abundant at depths greater than 20 feet in the main navigation channel. The Final SEIS will be changed accordingly. The only potential impact from the outfall pipes in less than 20 feet of water during upland disposal operations would be the disturbance of juvenile salmon during downstream migration. Studies (Carlson et al. 2001) done on the behavior of juvenile salmon in the vicinity of the upland disposal site out fall pipe have indicated that they easily avoided the pipe and continued their migration downstream without any significant delay. Similarly, during disposal, juvenile salmon are expected to move under the temporary pipeline for the short period of time that it is in place. Consequently, the federal agencies through the ESA consultation have not restricted upland disposal operations to the in-water work period.

SS-18. The list of impacts referred to are those identified as potential impacts from the project prior to any actions to minimize adverse impacts. As indicated in the Final SEIS and Biological Opinions, the minimization actions are such that the agencies no longer believe that the risk to listed species warrants any mitigation. Mitigation for impacts at the ocean disposal sites is being addressed in the EIS through the consideration of the placement of site alternatives. The locations of the sites that will be considered for proposal as 102 sites are based on minimizing impacts to the marine environment and fisheries. In addition, under the preferred alternative for the channel improvement project, the Corps intends to further avoid impacts at the Deep Water Site by using dredge materials to construct restoration features. With regard to crab impacts from dredging, the analysis of entrainment impacts indicates that impacts to the crab fishery are small. The Corps has used mitigation sequencing to avoid, reduce and minimize adverse impacts. Given the small level of impact, compensatory mitigation is not warranted. There is a potential to impact crabs with O&M flowlane disposal downstream of CRM 5. This flowlane area is small compared to the estuarine area (CRM 15 to mouth, bank to bank) inhabited by Dungeness crab. The project flowlane disposal increment compared to the existing condition is small. See also responses to F-2, S-6 through 14, and S-17.

## Corps of Engineers Response

On page 6-55 of the DEIS the Corps acknowledges, “Deepening the navigation channel would impact benthic and fisheries habitats not previously disturbed by dredging,” and, “Ocean disposal would occur at the Deep Water Ocean Disposal Site about 10 years after construction, which would adversely affect marine resources at that location.” (Actually ocean disposal may occur during construction if sediment volumes were underestimated or the Lois Embayment disposal site is not used.)

SS-18

**Question 12: Are mitigation actions, or compensatory mitigation, planned to offset the stated “Unavoidable Adverse Impacts” to benthic and fisheries habitat in the Columbia River, and marine resources at the Deep Water Site? If so, please describe. If not, please explain why there should not be mitigation for acknowledged unavoidable adverse impacts.**

On page 3 of the Section 404 Evaluation, in Volume 2 of the DEIS, flowlane disposal is proposed “in areas over 65 feet deep in five specific areas: downstream of CRM 5; CRMs 29 to 40; CRMs 54 to 56.3 on the Oregon side of the channel; and CRMs 72.2 to 73.2 on the Washington side.” As you are aware, such disposal in areas covered by the Columbia River Estuary Dredged Material Management Plan would constitute a violation. I would like to ascertain if such violations have previously occurred, as other violations of local ordinance during Corps maintenance disposal have been documented at Miller Sands and Welch Island. This would help to demonstrate the commitment of the Portland District to respect local jurisdictions.

SS-19

**Question 13: Has flowlane disposal in estuary areas over 65 feet deep occurred at the above locations or at any other estuary site during the past five years? Please itemize. If these actions were in violation of the Columbia River Estuary Dredged Material Management Plan, please explain why this happened.**

I’d like to return briefly to the issue of chemical contamination of Columbia River sediments. In rhetoric the proponents of this project often claim that the sediments of the navigation channel are 100% clean, coarse sand. I wish this were true, but we all know that it is not. The revised Section 404 Evaluation, in Volume 2 of the DEIS, although providing only a brief summary offers some insight into the contamination problems.

Ninety grab samples from the Columbia River shipping channel were selected for physical analysis. Four of these exceeded 20% fines and had greater than 5% total volatile solids. This is far from the false claims that have circulated.

SS-20

Twenty-three samples were analyzed for certain chemicals. Pesticides were found in four, PCBs in one, polynuclear aromatic hydrocarbons in all, and dioxins or furans seem to have been indicated in three samples. This is enough cause for alarm to investigate further.

Of course, relying on a handful of grab samples is ridiculous. We need testing to the full depth of proposed dredging and a much larger pool of chemically analyzed samples. Perhaps even more important we need samples from the shallower areas to the side of the

SS-19. In general, maintenance activity within the last five years has targeted flowlane disposal at depths of 45 to 65 feet. The 1998 Dredged Material Management Plan (DMMP) specifically identifies areas where the Corps proposed to exceed the 65-foot depth restriction. The Corps proposes flowlane disposal below 65 feet at selected locations as part of the channel improvement project. The Corps has applied to Clatsop County for approval of this request.

SS-20. All physical and chemical information resulting from the 1997 sediment quality evaluations are presented in Appendix B of the August 1999 Final IFR/EIS. In addition 34 plates are provided indicating sample locations. Further, the main report of the 1999 Final IFR/EIS, Section 7.0 on page B-8 and 9 discusses four “samples of interest” which contain fines and had detectable contaminants. Three are not within the proposed navigation channel and will not be dredged. The remaining sample is material dredged the previous year from the Willamette River and placed at Morgan’s Bar and is not representative of the Columbia River sediments. Contaminates when detected in these samples are well below DMEF screening levels. These four samples do not represent the material to be dredged from the navigation channel, which is clean, well-washed sand. The one exception to this is the material in the turning basin in Astoria, which will require additional testing per the DMEF, if dredged.

Additional testing has been conducted in the Columbia River. Sediment quality reports are posted on the web at <https://www.nwp.usace.army.mil/ec/h/hr/>. Much of the Corps data and data from other sources such as dredged material disposal permits and USEPA or state clean-up actions are available in a regional GIS linked database managed by the WDOE called SEDQUAL. SEDQUAL is provided free of charge by WDOE. Sediment testing throughout the navigation channel has shown that the material is clean sand. Over 100 separate Corps studies representing more than 4,000 samples on the Columbia River have been identified. This information was analyzed as part of the Corps’ amendment to the Biological Assessment. This information continues to be updated. The Corps is actively populating the SEDQUAL Database to include these identified Corps studies.

Corps of Engineers Response

channel; here potential pockets of contamination will be released during side-slope adjustment.

There are several other studies and permit processes that have addressed contamination of Columbia River sediments. Bringing the data from various agencies and private groups together and processing it in such a way that it can be depicted spatially seems like a good project for the Corps to support. In addition to helping us understand the implications of channel deepening, this would be useful for improving on-going maintenance dredging practices and informing port improvement projects.

SS-20

To date, the Corps, in relation to evaluation of this proposed action, has provided only inadequate information regarding chemical contamination of Columbia River sediments. This improperly shifts the burden of proof to the reviewer. In order for the public and the state resource agencies to make informed decisions, the burden of proof must be shifted back to the Corps and the project sponsors.

**Question 14: Has the Corps conducted any additional chemical analysis of samples in or near the Columbia River navigation channel since the 1997 sampling for this project? If so, please provide this information in a comparable format to that in the FEIS, or at least in a format in which locations can easily be connected with results.**

\*

As required by the Magnuson-Stevens Fishery Conservation and Management Act (MSA) the Corps has at least begun to consult with NMFS regarding the impact of these proposed actions on Essential Fish Habitat (EFH). NMFS has already indicated that they believe the project “likely to adversely impact” EFH for coho and chinook salmon. There also appear to be substantial adverse effects on groundfish and coastal pelagic EFH, both from dredging in the estuary and disposal at the Deep Water Site.

SS-21

NMFS and the Corps should consult with the Pacific Fishery Management Council, as required under the EFH Final Rule, before completing Conservation Recommendations.

\*

Impacts to non-listed species must be fully evaluated. The studies on eulachon and especially white sturgeon are decidedly unsatisfactory. It appears that this dredging and disposal have a very strong likelihood of harming sturgeon, yet no mitigation is offered.

SS-22

Although Dungeness crab have long had a spotlight in this process, very little has changed that might protect this ecologically and commercially important species.

SS-23

River lamprey has been added to Oregon’s protected species list. These fish, as adults, are closely associated with shipping channels and are often entrained during dredging. They were identified as recently as this summer in the Columbia River estuary area.

SS-24

SS-21. The EFH assessment for coastal pelagics and groundfish was submitted along with the revised EFH assessment for coho, during the ESA consultation. NOAA Fisheries has provided conservation recommendations for coho in their biological opinion. Revisions to the coastal pelagics and groundfish EFH assessment were made as a result of comments received from the Pacific Fisheries Management Council on the Draft SEIS. The revised EFH assessment for coastal pelagics and groundfish is included in the Final SEIS.

SS-22. The Corps disagrees with the unsupported claim that the studies done are unsatisfactory. The studies were designed and carried out by state agency researchers that have been involved in smelt and sturgeon research for several years and are recognized experts in this field. The research being done on sturgeon behavior in deep holes will be used to manage disposal to minimize impacts to sturgeon during disposal operations.

SS-23. Substantial additional analysis of impacts of entrainment to Dungeness crab has occurred since the 1999 Final IFR/EIS. This analysis confirms the earlier conclusion that entrainment is not likely to have a significant adverse impact to Dungeness crab populations in the Washington and Oregon region around the Columbia River. The project has also been changed since 1999 to minimize to the extent practicable the use of ocean disposal under the preferred option (see Final SEIS, Exhibit K-4.).

SS-24. The project is not expected to have any impact on river lamprey. Contrary to your statement, river lamprey have never been collected in any entrainment sampling done in the lower Columbia River. River lamprey spawn in upriver tributaries as adults. The larvae remain in the bottom sediment in the tributaries for one to two years and then migrate back to the ocean as sub-adults. They use the lower river only as a migratory corridor. Lamprey tend to be pelagic swimmers and apparently are not found near the bottom since none have been collected in the dredge entrainment samples. This project has been coordinated with the States of Oregon and Washington Departments of Fish and Wildlife since its beginning and impacts to river lamprey have never been raised by either agency. The comment does not explain what situation requires a protocol. Therefore, the Corps cannot respond to that part of the comment.

**Question 15: How does the Corps intend to coordinate with the state of Oregon to protect river lamprey (*Lampetra ayresi*)? If you have no plans, please explain the protocol when situations like this arise.**

Finally, I'll return to the economics of this project. The Corps expects that the number of transits of ships on the Columbia River will remain about the same with or without deepening. The technical review panel that examined the benefits of this action suggested a high probability that fewer container ships would call on Portland if the channel were deepened. I'd like to understand what this project would mean for jobs.

Fewer transits, I presume, would reduce longshore jobs. On the other hand, if we were to see increased tonnage moved as result of this project then some increase in jobs handling this material might be expected. We are all aware that there are thousands of jobs that relate to maritime commerce, although almost all of these jobs would not be affected by channel deepening. It would be useful if we could refine the expected impact of this action.

SS-25

Of course, many jobs would be lost due to environmental degradation and reduced fishing opportunities. The impacts to the salmon and crab industries would not only hurt the fishers but would reduce employment in processing, supply and other related services.

**Question 15: Does the Corps have any projections as to whether proceeding with this deepening project would result in a net gain or loss of jobs? If so, please break out your estimates on both a national and Columbia River-specific basis. Be sure to allow for the loss of employment opportunities expected in natural resource dependent coastal economies.**

\*

I could continue for many more pages, but I think that I've made some useful points. I expect answers to my questions, and I hope that I've asked them respectfully. I certainly intend no disrespect.

Many people have worked for ten, twelve, even fourteen years trying to make this project a reality. I suppose that most people now realize that it probably isn't going to happen. It's nobody's fault. Lots of good work has been done, much of which can be used to improve the ecology and utility of the Columbia River estuary.

SS-26

The Columbia will continue to be a gateway of international trade. Its ports can be proud as they roll with the dynamic changes of commerce. But this is not the river of one industry. Some love it for recreation, others for its electricity. Some drink the spirit of its views; others make a living pulling its fish.

Welcome to a paradigm shift. Americans value special places like the Columbia River estuary. This is no longer the Northwest Passage with a waterfall. It is Critical Habitat for salmon and people alike.

## Corps of Engineers Response

SS-25. The comment misrepresents the panel's findings. The panel was concerned about the apparent assumption in the Corps' analysis that there would be fewer vessels with a deeper channel, and that reduced service could have a negative impact on local shippers. Further, the Corps' analysis focuses on benefits to the nation, rather than the region, and changes in local employment are not included in the benefit estimate. The project is not anticipated to reduce fishing opportunities in a manner that would have significant economic impacts. The Corps' analysis by regulation evaluates national economic development benefits. It does not look at projections for jobs.

SS-26. The Corps concurs with your statement that, "lots of good work has been done, much of which can be used to improve the ecology and utility of the Columbia River Estuary." The Corps further believes this good work has been used to further advance the channel improvement project and the estuary. The project will improve the navigational efficiency of the Columbia River while restoring ecosystem functions and values. The Corps maintains that the project reflects the proper balance and complies with all applicable law.

**Corps of Engineers Response**

This channel improvement project cannot pass economic muster and it would irreparably harm the ecosystem of a special place. Further, it's simply not fair to hard-working, sincere people who happened to be a bit under-represented. This is a national example of a Corps project that should never proceed.

It shouldn't have made it this far. It wouldn't have without some powerful, well-meaning political influence. Now it is exposed and our political leaders have a few questions.

It's time to join in the paradigm shift. We will look first to improve the health of the Columbia River estuary. We need to make the best attempts we can at restoration, while first fighting to conserve this priceless ecosystem.

We will find superior ways of maintaining the channel for safe and productive navigation. Already some exciting progress has been made discovering beneficial uses for dredged material.

SS-26

A very real challenge is to implement some meaningful mitigation to offset the environmental and economic damage done every year by Columbia River navigation channel maintenance and the mouth of the Columbia River project. For decades these major projects have proceeded without mitigation. It is time to be honest about their adverse impacts, including unintended consequences like encouraging vast settlements of avian predators. We've learned a lot about the problems with maintenance dredging while studying channel deepening. Let's put this good work to use and start making up for the damage we've caused while maintaining a vitally important navigation pathway.

If we coordinate this long-overdue dredging mitigation with the estuary-related reasonable and prudent actions of the Federal Columbia River Power System Biological Opinion (Actions 158-163 and 194-197), then we might begin to make some real progress towards salmon recovery on this end of the river.

Thank you again for providing a chance to comment on your proposal.

Sincerely,



Peter Huhtala  
Executive Director



**From:** Peter Huhtala [mailto:huhtala@teleport.com]  
**Sent:** Monday, September 16, 2002 10:18 AM  
**To:** Bob Willis; jgrigg@portoflongview.com  
**Subject:** Columbia River CIP comments for DEIS and SEPA

Dear Mr. Willis and Ms. Grigg,

Please accept this note and the attached Word document as additional comments to the Draft Supplemental Environmental Impact Statement for the Columbia River Channel Improvement Project. The document is a copy of comments submitted in February of 2002 relative to the Mouth of the Columbia River maintenance project. They have a direct relation to this DEIS, especially concerning ocean disposal options, including the possible designation of the "Deep Water Site" as described in Appendix H of the 1999 Final Environmental Impact Statement for the channel deepening project.

Regards,

Peter Huhtala  
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PO Box 682  
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**Comments regarding Mouth of the Columbia River  
Dredging and Disposal  
Corps of Engineers Public Notice NWPOP-CRA-F02-001**

**Submitted Jointly with:**

**Ocean Advocates  
Clean Ocean Action  
Coast Alliance  
Friends of the Earth**

February 20, 2002

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The following comments are submitted by CDOG, the Columbia Deepening Opposition Group, a public benefit non-profit corporation based in Astoria, Oregon, and Ocean Advocates, a national non-profit organization based in suburban Washington, DC, (Maryland) and Seattle, Washington, and also on behalf of Coast Alliance, a national non-profit organization in Washington, DC; the Northwest (Seattle) office of Friends of the Earth, a national non-profit organization; and Clean Ocean Action, a non-profit organization in Sandy Hook, New Jersey. These comments are pertinent to the maintenance dredging and disposal of dredged materials at the mouth of the Columbia River as described in the Army Corps of Engineers, Portland District, Public Notice NWPOP-CRA-F02-001. We address issues in the Public Notice and relevant to the Marine Protection, Resource and Sanctuaries Act (MPRSA) provisions for the designation of ocean dumping sites. We have several concerns about the overall process in addition to specific concerns about the information provided and decisions relevant to MPRSA criteria for disposal sites for the dredged materials.

The Notice of the public hearing suggests that the purpose was to acquire information or evidence that will be considered in evaluating the proposed maintenance dredging in conjunction with the Mouth of the Columbia River Federal navigation project, and it refers specifically to the Public Notice identified above. Yet the Public Notice is framed as a “done deal” – i.e. a description of the District’s “plans to perform work.” There is no mention of a decision yet to be made or, for that matter, permits yet to be granted. We protest this approach, since it is essential that the public be part of the decision-making process regarding the designation and use of ocean disposal sites as prescribed in section 103 of the MPRSA. The hearing notice acknowledges this requirement, but it should be made clear that no final decision has been made about the ocean disposal sites or the dredging project itself.

SS-27

Both the hearing and public notices refer primarily to MPRSA section 103 and Regulation 33 CFR (parts 335-338). However, under MPRSA section 103, it is clear that decisions under that authority should refer to section 102 and Regulation 40 CFR (parts 225, 227,228), which set the criteria for evaluation of materials for ocean disposal and designation of ocean disposal sites for dredged materials. The need to meet these criteria is only briefly acknowledged on page 8 of the public notice, which we believe underplays their importance to the entire process.

The Public Notice does reference Appendix H of Vol. I of the Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement, which considers the criteria set out in CFR 40. However that document examines the designation of ocean disposal sites in the context of the Columbia River Deepening Project. First, we believe combining formal EPA ocean dumping site designations with dredging project approval is uncommon, unjustified, and contrary to the process prescribed by MPRSA regulations. Furthermore, evaluations made exclusively within that context are not sufficient for the present situation in which temporary site designations are proposed for a different dredging project. The Corps must separately address the need for the particular disposal sites proposed for designation – especially the Deep Water Site. You must directly

## Corps of Engineers Response

SS-27. This letter was originally submitted as a comment on the Corps public notice regarding the Mouth of the Columbia River (MCR) maintenance project. Congress has authorized the MCR maintenance project as a separate project. The Corps has already considered the comments in this letter in conjunction with its action on the MCR project.

CDOG did not raise these issues in commenting on the 1999 Final IFR/EIS. The Draft SEIS does not have new information regarding these issues (see response to F-2).

The language used in the Public Notice for the MCR project is taken directly from language established under Federal Regulation, particularly 33 CFR Parts 335-338, “Final Rule for Operation and Maintenance of Army Corps of Engineers Civil Works projects involving the Discharge of Dredged Material into Waters of the U.S., or Ocean Waters.” Maintenance of Federal projects, such as the Mouth of the Columbia River, has already been determined by Congress to be in the public interest. The Corps analysis for maintenance of the MCR channel therefore was directed at evaluation of how the work can most reasonably be accomplished in compliance with applicable environmental laws and regulation, and minimizing associated impacts, rather than a basic decision of whether the work should proceed.

Beginning with the 1983 EIS prepared for deepening and maintenance of the MCR entrance channel, ocean disposal site evaluations have been conducted in compliance with the Ocean Disposal Act (ODA) and included public coordination. The USEPA concurrently issued formal rulemaking and prepared an Environmental Impact Statement for designation of the selected sites. Over time, the size of these sites proved inadequate for the quantities dredged from maintenance of the entrance channel. Interim site expansions were implemented in 1993 and 1997, with USEPA concurrence, to provide adequate disposal capacity while site designation studies were completed.

The 1999 Final IFR/EIS for the Columbia River Channel Improvement Project was scoped to include investigation of the Columbia River offshore area for ocean disposal sites to adequately meet the needs for anticipated quantities from deepening the Columbia River channel and *maintenance of the MCR entrance channel* (see also responses to F-2 and S-12). The USEPA was a cooperating agency in a lengthy and detailed process that involved agencies, stakeholders and the public to identify sites to propose for site designation. Over this entire timeframe spanning nearly 20 years (1983-2002), numerous public notices, public meetings, workshops, draft and final NEPA document reviews and public and agency review meetings have been conducted to address the issues related to ocean disposal and maintenance of the MCR project.

evaluate the proposed disposal and site selections, applying the criteria of MPRSA sec. 102 (as set forth in CFR 40) in the context of this particular project.

We believe the absence of an Environmental Assessment is a breach of procedure prescribed in CFR 40. An official Environmental Assessment for the project should be available before the public comment period begins and that should inform the preparation of a Draft Environmental Impact Statement to be issued and open for public comment no later than the issuance of a proposed rulemaking on the project with temporary dump site designations:

SS-28

**The results of a disposal site evaluation and/or designation study based on the criteria stated in paragraphs (a)(1) through (11) of this section will be presented in support of the site designation promulgation as an environmental assessment of the impact of the use of the site for disposal, and will be used in the preparation of an environmental impact statement for each site where such a statement is required by EPA policy. By publication of a notice in accordance with this part of 228, an environmental impact statement, in draft form, will be made available for public comment not later than the time of publication of the site designation as proposed rulemaking, and a final EIS will be made available at the time of final rulemaking. (CFR 40, 228.6(b))**

We believe an Environmental Impact Statement should be developed for the Mouth of the Columbia River Federal navigation project, and, as required by law, for EPA's permanent designation of ocean disposal sites.

Perhaps the most important breach of the MPRSA is the requirement mentioned on page 9 of the Public Notice that "the least costly alternative, consistent with sound guidelines on ocean disposal criteria, will be designated the Federal standard for the proposed project." While this is indeed one of the many provisions in CFR 33 part 336.1(c)(1), it is in direct conflict with numerous other provisions of both CFR 33 and 40. "Least costly" cannot be used as the over-riding factor in decisions regarding the disposal of dredged materials in the ocean. Cost is not mentioned in sections 102 or 103 of the MPRSA nor in CFR 40. In CFR 33 Part 335.3, the policy of the Army Corps of Engineers is stated as follows:

SS-29

**The Corps of Engineers undertakes operations and maintenance activities where appropriate and environmentally acceptable. All practicable and reasonable alternatives are fully considered on an equal basis. This includes the discharge of dredged or fill material into waters of the US or ocean waters in the least costly manner, at the least costly and most practicable location, and consistent with engineering and environmental requirements.**

We read this to mean that the least costly option must be considered equally with other options. It does not say that the least costly option must be chosen. In fact, to set that requirement or "standard" is contrary to the provisions and authority of MPRSA section 103. It would mean that other factors -- environmental impacts, interference with other uses, etc. -- carry no weight in the face of cost considerations, which, to put it simply, is contrary to the MPRSA.

## Corps of Engineers Response

SS-27 (con't). Section 103 of the ODA provides the authority, with USEPA concurrence, for the Corps to select and use sites when USEPA-designated sites are not available. The history of use and availability of the four existing USEPA-designated sites is documented in the 1999 Final IFR/EIS, Appendix H. The selection and use of any 103 sites are evaluated using the criteria (5 general and 11 specific criteria) established under Section 102 of the Act for site designation.

The Corps and USEPA disagree with the assertion that combining formal USEPA Ocean Dumping Site designations with dredging project approval is contrary to the process prescribed by MPRSA regulations.

As noted previously, the preferred alternative to the channel improvement project, which is detailed in this Final SEIS, does not currently propose any ocean disposal for construction or the first 20 years of maintenance after the deeper channel is constructed. However, if such disposal should become necessary (e.g., the ecosystem restoration elements are not implemented), the Corps anticipates doing so only after USEPA has designated the new ocean disposal sites under Section 102 of the ODA and anticipated that the material would be directed to the Deep Water Site. Such disposal would require the independent evaluation and concurrence of USEPA.

SS-28. SS-28. The first part of the comment, relating solely to the MCR project, is outside of the scope of the channel improvement project Draft SEIS. For ocean site designations, USEPA has been a cooperating partner in the development of the 1999 Final IFR/EIS and intends to adopt relevant portions of that document in the rulemaking under the MPRSA for future site designations. The USEPA also intends to adopt portions of this Final SEIS which disclose new information (e.g. baseline studies) collected since the 1999 Final IFR/EIS. See Final SEIS, Exhibit N.

SS-29. The comment pertaining to development of an EIS relates solely to the MCR project and is therefore, outside of the scope of the channel improvement project as reviewed in the SEIS. The 1999 Final IFR/EIS for the channel improvement project addresses all factors required by law and regulation. An EIS for the MCR project was prepared in 1983. The dredging component of the EIS has not substantially changed. The 1999 Final IFR/EIS was scoped to include investigation of the Columbia River offshore area for ocean disposal sites to adequately meet the needs for anticipated quantities from deepening the Columbia River channel *and maintenance of the MCR entrance channel* (see also responses to F-2, S-12, and SS-28).

## Designation of two Ocean Dump Sites

## Corps of Engineers Response

The Public Notice suggests that EPA's ongoing designation process for the two ocean dumping sites – the Shallow Water Site (E), which has been used historically, and the Deep Water Site, which has not been used previously – should argue in favor of the Corps' temporary designation of these disposal sites for the disposal of dredged materials from maintenance dredging in the Columbia River. We disagree.

SS-30. See responses to F-2, S-12 through S-14, and SS-27 through SS-29.

SS-30

The unused Deep Water Site must remain unused until the full EPA process has been completed. There should be no supposition that designation will be the outcome of the process, since a full evaluation has not been completed. We believe that an updated Environmental Impact Statement should be developed as part of that process, and the decision whether to designate the site should be made independent of decisions regarding particular dredging activities, such as the proposed channel deepening project. The site designation decision should be made on the basis of existing conditions relevant to the requirements of the Marine Protection, Research, and Sanctuaries Act (MPRSA) and its implementing regulations. One of the provisions of the Act is that sites previously used should be given precedence in the site designation process. Consequently, it is imperative that environmental conditions at the unused site remain unaltered by disposal activities until the designation has been made, with full public participation. Therefore it is unacceptable for the Corps' to designate an area within this site for short-term disposal of dredged materials.

Furthermore, it has not been demonstrated that the Deep Water Site is even needed for the described project, given the numerous other options that are to be fully used first. The needs assessment has been based on the assessment of hardship if the dredging is not done. That may argue the need for the dredging and for disposal provisions. However, it does not imply that any particular site is indeed needed. As stated further on, we believe that the full potential of the more desirable Benson's Beach placement option is not being pursued.

SS-31

The Corps' use of the Shallow Water Ocean Disposal Site (Site E) should be based on the effects of past dumping at that site, not on the supposition that it will receive permanent designation by EPA. The Public Notice does not indicate whether that site has been well monitored nor what conflicts have arisen over its use, though it does imply that management has not been what it should be and will be changed. Appendix H of the Integrated Feasibility Report is clearer -- there have been serious conflicts with the crab fishery at Site E. Additional detailed information about the appropriateness of the site for these particular dredged materials is needed and no decision about its designation and use should be made until the revised management plan is available for public review.

SS-31. The Federal Government disagrees with the comment. Please see the response to previous comment, including cross-references. Additional data have been collected for the Shallow Water Site (Expanded Site E) during the past two years. The Corps and USEPA have collected physical and biological information relevant to issues of concern expressed over the use of this site. Additional baseline information is included in the Final SEIS, Exhibit N.

## Corps of Engineers Response

The Corps' authority to designate these two sites for the specific purpose of receiving dredged sediments from maintenance dredging of the mouth of the Columbia River is based on section 103 of the MPRSA that gives the Corps the authority to issue permits to dispose of dredged materials at specified sites applying criteria established in section 102, and using wherever possible, dump sites that have been designated (not proposed for designation) by EPA. If undesignated sites are to be used, the criteria for EPA designation still apply:

SS-32. The selection of 103 sites for ocean disposal by the Corps is not part of this EIS process. The USEPA and the Corps disagree with the conclusion that the analysis under 40 CFR Part 228 is inadequate. See responses to F-2, S-12 through S-14, and SS-27 through SS-31.

SS-32

**In any case in which the use of a designated site is not feasible, the Secretary may, with the concurrence of the Administrator, select an alternative site. The criteria and factors established in section 102(a) relating to site selection shall be used in selecting the alternative site in a manner consistent with the application of such factors and criteria pursuant to section 102(c).** (sec. 103 (b))

We do not believe the two sites proposed for temporary designation for this dredging project have been adequately reviewed in the context of the criteria in Regulation 40 CFR part 228. The Corps is obliged to do so before making the decision and this review should be part of the documentation for public review. While these were reviewed in Appendix H of the Integrated Feasibility Report issued in 1999, we believe the Corps should review them again in 2002 in light of the particular project proposed and additional disposal options. To this end, we believe an Environmental Assessment is essential, as already specified. We also believe that the conclusions that the two proposed ocean disposal sites (the Deep Water Site and the Shallow Water Site E) are acceptable with respect to the provisions of the CFR 40 criteria have not been supported either by the documentation in that volume or by the Public Notice.

A review of these two sites relative to the criteria (**40 CFR Ch. 1, parts 228.5 and 228.6**) must address the following concerns:

### General criteria for selection of sites.

- **Sites should be selected to minimize the interference of disposal activities with other activities in the marine environment, particularly avoiding areas of existing fisheries or shellfisheries, and regions of heavy commercial or recreational navigation.**

SS-33. The USEPA and the Corps considered these factors and documented their deliberations in the 1999 Final IFR/EIS, Appendix H. Additionally, the comment includes factually inaccurate statements. The Corps and USEPA disagree that the Deep Water Site is an important component of the fishery or that its use constitutes a significant effect to that fishery. The Deep Water Site was specifically located to reduce the impact to the fishery. The site selection process included significant coordination with the crab fishermen.

SS-33

Area fishermen, especially crab fishermen, have made it abundantly clear that the Deep Water Site is in an important fishery area and dumping activities at Site E have interfered with their fishery in the past. It is suggested that a revised management plan will address the concerns at Site E, but without that plan, no such determination should be made.

- **Locations and boundaries of disposal sites will be so chosen that temporary perturbations in water quality or other environmental conditions during initial mixing caused by disposal operations anywhere within the site can be expected to be reduced to normal ambient seawater levels or to undetectable contaminant concentrations or effects before reaching any beach, shoreline, marine sanctuary, or known geographically limited fishery or shellfishery.**

**Corps of Engineers Response**

SS-34 | As long as the sediments are coarse sand substantially free of contamination, this provision is met. However, the Public Notice is remiss in not fully characterizing all the sediments for the entire project. Until that is done, the disposal requirements are unclear.

SS-34. See previous response.

**- Termination of site utilization**

SS-35 | The monitoring proposed for this project will not be adequate to determine whether biological impacts justify the alteration in terms or the termination of site utilization. Because of concerns raised in Appendix H, biological effects monitoring would be imperative for both proposed ocean disposal sites.

SS-35. See response to SS-33. A Site a Management and Monitoring Plan (SMMP) is required for sites designated under Section 102. The Corps and USEPA have routinely prepared SMMPs for 103 Sites in this region. The USEPA is the agency responsible for any “alteration in terms or the termination of site utilization.”

**- The sizes of ocean disposal sites will be limited in order to localize for identification and control any immediate adverse impacts and permit the implementation of effective monitoring and surveillance programs to prevent adverse long-range impacts. The size, configuration and location of any disposal site will be determined as a part of the disposal site evaluation or designation study.**

SS-36 | While not a direct topic of this hearing, the unjustifiably large size of the Deep Water Site proposed for EPA designation is of great concern to us. Since the smaller site proposed for deep water disposal lies within that area and has been justified by the Corps by virtue of EPA’s consideration, we feel it is worth mentioning that we adamantly oppose the eventual designation of the Deep Water site by EPA – because of both its unjustifiably large size and its location in a biologically rich area. Further, we adamantly oppose any temporary or permanent designation of any size portion of that site.

SS-36. See responses to S-12, S-13, and SS-33. The Deep Water Site was originally sized to take all of the material from the MCR project and the channel improvement project for a 50-year period. The Corps and USEPA disagree with the comment that the Deep Water Site is located in a biologically unique area. As documented in the 1999 Final IFR/EIS, Appendix H, the Deep Water Site was selected in part because it did not represent biologically unique or critical areas. Recent sampling has confirmed the earlier assessments in Appendix H.

**- EPA will, wherever feasible, designate ocean dumping sites beyond the edge of the continental shelf and other such sites that have been historically used.**

SS-37 | We agree with the assessment that carrying the Columbia River dredged sediments beyond the continental shelf is not desirable because of cost and safety issues. The provision that historical sites be preferred is the very reason we cannot accept the use of any part of the Deep Water Site for disposal prior to final action on its permanent designation by EPA. It would constitute an *ex post facto* establishment of historical use, and would thereby unfairly influence the designation process.

SS-37. See response to SS-33. The comment regarding disposal beyond the continental shelf is noted.

**228.6 Specific criteria for site selection.**

**(1) Geographical position, depth of water, bottom topography and distance from coast;**

SS-38 | While not always the case in locating acceptable disposal sites for dredged materials, this project seems to suggest a preference for highly dispersive sites, if it can be shown that sand placed in these locations is likely to enter the littoral drift. The State of Washington is eager for clean sand to be made available for replenishment of its southern beaches. The sediments from the mouth of the Columbia River would be carried in that direction by natural current patterns if it were not for the interference of man-made structures blocking that flow. Therefore, disposal of dredged sediments composed of clean sand into the long-shore current system would be a desirable imitation of natural processes. Creative means of very-near-shore (i.e., less than one-quarter mile in some cases)

SS-38. See response to comment F-2, SS-33 and S-97.

**Corps of Engineers Response**

placement through methods such as broadcast spraying should be explored. The option of disposal along the 40-foot contour, as originally suggested in the Public Notice, is unacceptable due to interference with a productive fishery. The 40-foot contour is also approximately one mile from shore at the proposed location, and we suggest that experimental placement nearer shore may have a greater chance of success.

**(2) Location in relation to breeding, spawning, nursery, feeding, or passage areas of living resources in adult or juvenile phases;**

SS-39

In Appendix H of Vol. I of the Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement it is made clear that the entire plume area outside the mouth of the Columbia River is characterized by fine sediments that support an abundance and diversity of marine life, some of which is unique or characteristic to that area. In addition to smothering benthic life at the particular site of disposal, depositing coarse sand will interrupt the diverse ecosystem by changing its physical nature. Impacts are difficult to predict. No ocean disposal site should be designated anywhere within the Columbia River plume.

**(3) Location in relation to beaches and other amenity areas;**

SS-40

If all the sediment from the Mouth of the Columbia River is clean coarse sand, as seems to be agreed, the proximity to beaches is desirable in this case.

**(4) Types and quantities of wastes proposed to be disposed of, and proposed methods of release, including methods of packing the waste, if any;**

SS-41

Given the desirability of alternatives to the ocean disposal sites -- onshore placement and creative nourishment of beaches along the coast north of the river mouth -- the proposed project has not adequately provided for the best methods of disposal to achieve the desired goals. As discussed in the context of beneficial use, the cost of such disposal should not be a limiting factor, given the anticipated benefits. Furthermore, options that establish technologies for dredging and deposition that may have high up-front costs may be economical when factoring in the long-term benefits and reductions in economic losses due to beach erosion.

**(5) Feasibility of surveillance and monitoring;**

SS-42

The proposed monitoring for both the Deep Water and Shallow Water (E) sites is not adequate. Simple bathymetry only identifies whether the sediments landed within the site and if mounding is occurring. They do not address biological effects and interference with fishing activities. Site E could be adequately monitored and should have an appropriate monitoring plan proposed as part of the revised management plan (which must be available before final action on this project). The Deep Water Site cannot be adequately monitored due to size, depth, and the likelihood of undesirable conditions for monitoring activities. This is yet another argument against designating any portion of that site at any time.

SS-39. See responses to SS-33 and F-2. The comment inaccurately states that the "entire plume area outside the mouth of the Columbia River is characterized by fine sediments." While there is an area of fine-grained sediments associated with the plume, it is located 1-10 miles northwest of ODMDS Site B, which is itself north of the Deep Water Site. Final IFR/EIS (1999), Appendix H, Exhibit B, p. 80. As reported in the 1999 Final IFR/EIS, Appendix H,, the site selection process evaluated environmental effects in the zone of siting feasibility, which included areas both inside and outside of the plume. After applying the siting criteria, which include consideration of unique geographic and biological features, to this entire area, the Deep Water Site was selected as a preferred alternative. The consensus of the Working Group for the site selection process was that the Deep Water Site did not contain any unique organisms or features.

SS-40. Comment noted.

SS-41. See response to SS-33. This factor doesn't address the location or alternative locations or uses of material. The factor addresses the types and quantities of waste, proposed method of release, and methods of packing the waste. The site selection process did consider the types, quantities and release of material to be disposed in the ocean (1999 Final IFR/EIS, Appendix H, Volume I, page H-77).

SS-42. See response to SS-33. The Corps and USEPA disagree with the statement regarding the monitoring of the Deep Water Site. During 2002, data were collected at the Deep Water Site, suggesting monitoring is not constrained by water depth, size, or other factors. A SMMP is required for sites designated under Section 102.

**Corps of Engineers Response**

SS-43. See response to SS-33. An evaluation of Benson Beach as an alternative ocean disposal was included in the 1999 Final IFR/EIS. Benson Beach was used by the Corps for the MCR Project in 2002 as a demonstration project through a Congressional add-on and under a Section 404/10 permit issued to Pacific County. Further, the 2003 public notice for MCR has included Benson Beach as a potential site, if Congressional funding is available.

SS-44. See response for SS-33.

SS-45. Baseline studies have been conducted at the Deep Water Site for the second of two seasons in 2002 and are included in the Final SEIS, Exhibit N. See the response for SS-39.

**(6) Dispersal, horizontal transport and vertical mixing characteristics of the area, including prevailing current direction and velocity, if any;**

Better understanding of these factors could inform the potential value of continued use of Site E, as well as alternate means of replenishing beaches at eroding locations along the coast north of the river mouth. Effort should be made to utilize the safest and most effective ways to replenish eroding beaches while refraining from interference with fisheries. The Public Notice lacks information to support the notion that there will be too much dredged material to be fully used in this manner. Furthermore, Benson Beach is only proposed as a test site. There seems to be enough information to warrant its full use for the disposal of clean dredged sand, at least for a limited period of time. An adequate monitoring program and management plan will permit the re-evaluation of this option once it has been implemented at full scale for a period of time.

SS-43

**(7) Existence and effects of current and previous discharges and dumping in the area (including cumulative effects);**

Pertinent information for Site E has been used to suggest that a better site management plan will correct the problems faced to date. Without that management plan in hand, no decision should be made regarding the use of this site.

**(8) Interference with shipping, fishing, recreation, mineral extraction, desalination, fish and shellfish culture, areas of special scientific importance and other legitimate uses of the ocean'**

The potential for serious interference with the Columbia River crab fishery has been well supported for the Deep Water Site and should be grounds enough for non-designation. There is agreement that an appropriate management plan could avoid the problems previously experienced in the context of the crab fishery at expanded Site E. However, it is essential that the plan be available for public review before designation of the site.

SS-44

**(9) The existing water quality and ecology of the site as determined by available data or by trend assessment or baseline surveys;**

This provision is of particular concern for the designation of a Deep Water Site. There have been no baseline surveys for the proposed site. The ecological information that exists for the greater plume area indicates a rich and diverse fauna, including several endangered or threatened species. In other words, this is an area that should remain undisturbed by such activities as disposal of dredged materials.

SS-45



SS-46 | **(10) Potentiality for the development or recruitment of nuisance species in the disposal site;**

At the Deep Water Site, it is hard to predict whether the disposed dredged materials would create an environment that encouraged the proliferation of nuisance species due to the removal of the natural fauna. Because the sediments are not expected to be organically rich, it is most likely not a serious threat (though disturbance of the natural fauna is not acceptable).

SS-47 | **(11) Existence at or in close proximity to the site of any significant natural or cultural features of historical importance.**

This does not appear to be an issue of concern.

***Other issues***

SS-48 | Beneficial Use The US delegation to the Scientific Group of the London (Dumping) Convention, under the leadership of the Army Corps of Engineers, has aggressively promoted beneficial use of dredged sediments as the preferred option in all cases where dredged materials are clean and there is a need for them. Maintenance dredging of the Mouth of the Columbia River appears to be a potential poster child for this policy. It is remarkable that the Portland District does not see the options such as Benson Beach and the replenishment of other beaches of the southern Washington coast as the most attractive options of all, and is not forward looking enough to see the value of investing in technologies for facilitating the rapid and effective transfer of sediments from the mouth of the Columbia to the desired locations.

SS-49 | Cost-Benefit Assessment In evaluating the Benson Beach placement alternative for disposal, the Corps has given full attention to cost and almost no attention to benefit. It has followed the flawed Corps standard prescribing the “least costly option.” If this model were followed to its logical conclusion, the decision would have to be made not to dredge the Columbia River ever again, because dredging simply costs more than not dredging. By your own formula, you cannot take into account the benefits accrued from dredging, just as you have not taken into account the economic and aesthetic benefits that would be accrued from supplying clean sediments to the beaches of the southern Washington coast. If you truly have a cost ceiling for this project, it is essential that you assess the option of downsizing the project so that the most environmentally sound disposal options can be afforded.

SS-50 | Essential Fish Habitat Consultation. We call upon NOAA, the Corps, and EPA to recognize the need for an EFH Consultation with respect to the proposed dredging project. There is no mention of this in the Public Notice, but we believe there are strong grounds for demanding such a Consultation.

**Corps of Engineers Response**

SS-46. See response to SS-33. The Corps and USEPA agree that disposal of dredged materials would not likely pose a risk of encouraging nuisance species at the Deep Water Site.

SS-47. Concur.

SS-48. Both the USEPA and the Corps seeks beneficial uses of dredged material whenever feasible, and several of the alternatives proposed in the MCR project public notice are beneficial uses. These sites will be the first priority for use. When beneficial use of dredged material costs significantly more than other available alternatives, or could impair the ability to maintain the navigation channel (e.g. increased haul distance/time requirement) the Corps can use them only if there is a cost sharing sponsor or additional funding is provided. The Benson Beach demonstration project is intended to determine the feasibility, costs, and effectiveness of this alternative as a beneficial use of dredged material at the MCR. This is possible because additional funds were appropriated by Congress and were contributed by the Port of Kalama to cover the expected costs above in-water disposal. See also response to S-52.

SS-49. We acknowledge the potential benefit from placement of dredged material at Benson Beach. However, in addition to keeping costs at a reasonable level, the Corps’ primary concern is to assure that the navigation channel can be adequately maintained with the allowable dredging season and equipment limitations (see the 1999 Final IFR/EIS, Appendix H). The demonstration project at Benson Beach will help answer questions as to engineering feasibility, timeliness of disposal activity, site capacity, public acceptability, environmental effects and costs. Similar benefits may be achievable at lower costs and using less time through other alternative disposal methods. Downsizing the navigation project is not compatible with providing safe navigation for commercial shipping traffic. See response to SS-34.

SS-50. The EFH consultation for coastal pelagics and groundfish is underway. See response to SS-21.

**Conclusion**

As mentioned in the testimony above, we ask that crucial missing documents be supplied for public review before finalizing any decisions regarding the proposed dredging of the Mouth of the Columbia River:

- An Environmental Assessment of the dredging project and the proposed disposal options.
- A Draft EIS informed by the EA
- A Biological Assessment of impacts to species protected under the Endangered Species Act, as described on page 8 of the Notice
- A revised management plan for Site E
- A management plan and long-term cost-benefit analysis for the Benson Beach placement option

SS-51

We also expect you to retract the requirement for selecting the least costly disposal option, or provide clarification if we have misinterpreted your intent regarding that preference. If you decide that the Benson Beach and beach replenishment options are not economically feasible, we respectfully suggest that you consider downsizing the project until they are feasible.

Respectfully submitted,

Peter Huhtala, Executive Director  
Columbia Deepening Opposition Group  
Astoria, Oregon

Boyce Thorne-Miller, Science Director  
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Jackie Savitz, Executive Director  
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Shawn Cantrell, Northwest Regional Director  
Friends of the Earth  
Seattle, Washington

**Corps of Engineers Response**

SS-51. This comment relates exclusively to the MCR project and is outside the scope of the channel improvement project as reviewed in the Final SEIS. See response to F-1 and SS-29.

SEIS related to ocean disposal is a discredit to this public process to the point of being scandalous

SS-52

- 1) Responsible public and agencies concerns have not been addressed -
- 2) In response to an SEIS on ocean disposal in June of 2000 the Corps assured Fred and Nancy Holmes, owners of a local eating establishment that the ocean disposal task force was currently reviewing all of the ocean disposal issues and final decisions on the ocean sites will incorporate the concerns of that group. Fred and Nancy are still waiting for that review. The public has been grossly mislead and this needs to be corrected.
- 3) Public health and safety issues at site E are still not resolved since excessive wave amplification over the 10% agreement still exist
- 4) Adverse impacts to commercial resources that support coastal communities have not been properly evaluated and factored into the overall designation process.
- 5) The deepwater site is too large for the demonstrated capacity needs and spills over into highly productive fishing areas
- 6) The M word has not been addressed, mitigation for damaged habitat, resources, and use to a level of "NO net loss of productive capacity.
- 7) Thanks to the Washington Coastal Communities and the Up River Washington Ports alternative beneficial use of a portion of the MCR, maintenance dredging is closer to reality with a highly successful beach placement by NATCO dredge company and needs to become part of the Corps own alternative disposal for the Mouth of the Columbia. CRCFA would like to thank all those that worked on making the Benson Beach Project a reality.

In short, the SEIS related to ocean disposal is SOS - same old stuff, not even repackaged. How the Corps and EPA think this insufficient material can pass CZMA requirements baffles me. I've heard a rumor that some more ocean studies even involving crab are in the works but they cannot legitimize a public process that will not be heard since the official dead line is 15<sup>th</sup> of September. This appears to be the new tactic, have the hearing and then dribble out a little more material, that's also what happened after the February hearing.

SS-52. The Corps and USEPA disagree with the generalized criticisms of the Draft SEIS. Detailed responses to CRCFA's comments are provided at SS-53 to SS-89. Under the revised plan, no ocean disposal is proposed as part of this project for construction and the first 20 years of maintenance if the ecosystem restoration projects at Lois Island and Miller-Pillar are implemented. This is a modification to the original project and is addressed in the Final SEIS. In the event dredge material from the channel was disposed in the ocean, it would be in accordance with the SMMP that would be developed for a site that would be designated for ocean disposal under Section 102 of the ODA. In general, see responses to F-2, S-6, S-12 through S-14, and S-17.



Reply to  
Attention of

Planning, Programs and Project Management Division

DEPARTMENT OF THE ARMY  
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P.O. BOX 2946  
PORTLAND, OREGON 97208-2946

JUN 8 2000

Fred and Nancy Holmes  
Portside Café  
PO Box 145  
Long Beach, WA 98631

Dear Mr. And Mrs. Holmes:

Thank you for your letter commenting on the proposed ocean disposal sites off the mouth of the Columbia River. We have considered your request for a Supplemental EIS for this action and determined that it would not be warranted in view of the extensive public and agency review of the Columbia River Channel Deepening EIS. As you may be aware, the ocean disposal site designation proposed in that EIS received a number of comments from fishing industry representatives, particularly from the State of Washington. We recognized early on in the Channel Deepening study that new and larger ocean disposal sites were of particular concern to agencies and local groups. As a result, we formed the Ocean Disposal Task Force Advisory Group, composed of representatives of Federal, state and local agencies, and commercial fishing groups. This task force is currently reviewing all of the ocean disposal issues and final decisions on the ocean sites will incorporate the concerns of that group.

Again, thank you for your comment letter. If you have any questions regarding our response, please contact Steve Stevens of my staff at (503) 808-4768.

Sincerely,

Robert E. Willis  
Chief, Environmental Resources  
Branch

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15 September 2002

Corps of Engineers Response

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SS-53 RE: Columbia River Channel Improvement Project: Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (SEIS).

**OCEAN DISPOSAL SITE DESIGNATION**

1. FAILS to provide adequate response to public concerns expressed in the FEIS
2. FAILS to provide citizens with ability to adequately participate in the process by holding hearings before ALL necessary information is presented (ocean crab abundance study)
3. FAILS to present sufficient information to make a well reasoned decision
4. FAILS to adequately protect mariners health and safety
5. FAILS to assess economic damages to coastal communities
6. FAILS to limit the size of disposal sites to a "reasonable" level
7. FAILS to account for cumulative effects both biologically and geologically
8. FAILS to link reasonably foreseeable effects of habitat degradation to carrying capacity for the coast's most valuable commercial resource, crab
9. FAILS to adequately incorporate CZMA into process including required mitigation to NO net loss of productive capacity
10. FAILS to address habitat fragmentation
11. **FAILS to adequately protect the CRAB industry** from the negative aspects of dredging and disposal in the lower Columbia River and near shore ocean.

This response is prepared by CRCFA on behalf of "ALL" MCR mariners safety and resource dependant seafood harvesters. The response is limited to the range of Dungeness crab and supporting ecosystem requirements. We appreciate the opportunity to help find and participate in a better solution for the final SEIS.

SS-54 CRCFA is using this opportunity to present responsible public concern for the consequences of dredging and dumping of dredge spoils at the Mouth of the Columbia River. The SEIS determination of insignificant impact on the marine environment is arbitrary and capricious with no substantial basis in fact. No new information related to navigational safety, impacts to aquatic resource habitat, impacts to the coastal economy, or impacts to coastal erosion are presented. There is NO new ocean supplemental information related to designation of disposal sites to reverse state agency CZMA inconsistency determinations issues at the time of the FEIS.

SS-53. The Federal Government disagrees with the generalized criticisms of the Draft SEIS. Detailed responses to CRCFA's comments are provided below and following from SS-53 to SS-89. In general, please see responses to F-2, S-6 through S-14 and S-17. The following is in response to items #1 through #11.

#1. Responses to agency and public comments from the 1999 Final IFR/EIS are contained in Volume II of the final report, titled "Draft EIS Comments and Responses."

#2. Extensive citizen participation has been provided throughout the entire process. As the process has progressed, additional information has been utilized and made available as readily as possible. The crab abundance study conducted at the Deep Water Site is part of the biological baseline study described in the 1999 Final IFR/EIS Appendix H, Exhibit H, under Baseline Studies (see comment SS-18). The Federal Government is providing the public access to all data as it is collected and made available, by posting it to the Corps website. All available information from the recent data collection has been included into the Final SEIS, Exhibit N.

#3. The Federal Government disagrees. Sufficient information through the series of historical information, site designation and baseline studies are available for USEPA to designate new ocean disposal sites as concluded in the 1999 Final IFR/EIS, Appendix H. This information has been presented both in the NEPA documents and to the public directly. As necessary, the Final SEIS includes additional information, such as the crab abundance study, to ensure that a well-reasoned decision can be made with respect to the designation of ocean disposal sites.

#4. This issue appears to pertain only to the Shallow Water Site, which is not part of the channel improvement project but is included in the 1999 Final IFR/EIS, Appendix H. Safety consideration for small craft was included in the site designation process.

SS-55 On 8 June 2000 the Corps of Engineers wrote to Mr. & Mrs. Holmes in response to their SEIS request assuring them that the Ocean Disposal Task Force was “currently reviewing all of the ocean disposal issues and the final decisions on the ocean sites will incorporate the concerns of that group.” That Task Force review and incorporation of concerns has not occurred. No new information related to impacts to the ocean aquatic resources is presented for public comment related to ocean disposal site designation. Assurances and inaction do not equate to new ocean sites even in the face of disposal capacity crisis, created by that inaction.

SS-56 The SEIS states ocean studies are in progress. CRCFA cannot comment on future presentations of information. Until those studies are presented and adequate time provided to respond, this public process related to ocean disposal sites designation must remain open for comment. This appears to be the NEW tactic in advancing ocean disposal – have the public hearing, continue to dribble more information that never gets appropriate comment, and then move ahead claiming the process is legitimate. The current insignificant aquatic impact determination of the EPA & Corps is currently not supported by the facts presented. There has never been any baseline data to quantify commercial resource (Dungeness crab) abundance at the proposed sites. Without knowing what habitat and resources are in the area of the disposal sites it is impossible to make any credible statement about significance.

SS-57 This ocean disposal site designation process cannot continue to ignore public and agency comments, comments which time and time again state that the information presented is inadequate to make a reasonable determination related to ocean disposal site designation. CRCFA again requests that the Ocean Disposal Task Force be used as the proper format to address concerns previous expressed related to ocean disposal and lower river dredging.

SS-58 According to MPRSA assessment of negative impact to economic potential must be expressed in a quantitative terms specifically, dollars lost in the commercial fishery and real costs to the coastal communities both in the short term (crab mortality) and long term (lost habitat carrying capacity). To date NO relevant studies or information of any kind has been presented to delineate potential damage to the crab resource in either the deep or shallow water sites. CRCFA has asked for this to be done repeatedly. On numerous occasions we have asked for an RFA relating to dredge entrainment and ocean disposal impacts on small fishing businesses from EPA/COE. No one knows for certain if 1 or a billion or more crab will be impacted each and every year of dredging and ocean dumping. The current information base as presented in the SEIS is insufficient and invalid to make a reasoned determination of insignificance impact to aquatic resources at the MCR. The only outside review of the impacts to the small businesses dependant upon Dungeness crab by a credible agency, the Small Business Administration, ended up in a request of EPA to begin an initial screening for a Regulatory Flexibility Analysis (RFA) to determine the impacts on the fishing industry. A request that was not only ignored, but fought. This behavior undermines and makes a mockery of the laws of the land.

SS-59 At a minimum there is substantial risk and uncertainty concerning environmental impacts associated with dredging entrainment and disposal of dredge material spoils in the ocean disposal sites causing significant degradation of the Dungeness crab resource and habitat that supports the various life stages of the crab. Accurate scientific analysis is essential to implementing NEPA and that material presented to date is insufficient to remove the scientific uncertainty regarding environmental effects associated with the proposed actions. The only additional information offered to reduce scientific uncertainty beyond what was offered in the unsuccessful 1997 temporary expansions of site B was the so-called Scripps & Battelle soft-shelled crab burial studies which did not answer the natural mortality question or address adverse impacts to crab food sources, burial of juvenile protective cover, or other serious consequences of the dredging operation that impact economic contribution to the crab industry and coastal communities. In fact the COE/EPA has not conducted any quantitative assessment of potential effects on the marine environment or commercial fishing at or beyond the sites. CRCFA would request that the quantification of negative crab impacts be expressed in dollars of profit lost to the fishery and coastal communities as a result

SS-53 (con't).

#5. The Federal Government disagrees. Relevant Specific Factors and General Criteria regarding the commercial fishery have been sufficiently considered during the process to select site alternatives (see 1999 Final IFR/EIS, Appendix H, Table 14 and Table 15). The Deep Water Site was particularly selected as an alternative in order to avoid areas utilized by the Dungeness crab fishery. Management of new sites may include restrictions on placement of disposal materials including location and amount of placement, as well as the timing of placement.

#6. The Federal Government disagrees. The sizing of the deep water site is discussed in detail in Appendix H, Exhibit B and under General Criteria d (Size of Sites). See also responses to S-12 through S-19.

#7. The Federal Government disagrees. Biological and geological information is presented in Appendix H, Exhibits A “Living Resources” and Exhibit B “Physical Processes and Geological Resources.” Also see the discussions under Area of Consideration in Tables 14 and 15. Additional information on cumulative effects has been added to the Final SEIS, Section 6.12.

#8. The Federal Government disagrees. See response SS-53, #5.

#9. The Corps disagrees. The Corps is seeking CZMA determination concurrence for both the channel improvement project and the MCR Project from the States of Oregon and Washington. The CZMA does not impose a “no net loss” standard; nor does it include a mitigation requirement, as this comment suggests.

#10. Disposal from the MCR or channel improvement projects will not cause habitat fragmentation. Site use would occur on an annual basis with limited impacts on habitat. The commenter assumes the entire site would be impacted simultaneously over the entire footprint of the Deep Water Site, which is not the case. Portions of the Deep Water Site could be used in any dredging season based upon the approved SMMP and subject to concurrence by USEPA. This strategy would reduce overall impacts in the entire geographic location of the Deep Water Site. Species would then have the ability to adapt to the physical change in their habitat and recolonize over time.

#11. The site selection process specifically addressed the concerns of the commercial crab industry and is documented in the 1999 Final IFR/EIS, Appendix H. The crab industry had great influence particularly through the participation of the Columbia River Crab Fisherman’s Association on the location and configuration of the proposed sites. Additional research conducted in Summer 2002 has demonstrated that the channel improvement project’s dredge entrainment impacts on the crab fishery would be minimal. The Corps’ preferred alternative for the channel improvement project includes construction of ecosystem restoration elements (with materials previously planned for ocean disposal) that avoid direct adverse effects to Dungeness crabs.

of the dredging operation including entrainment and disposal. This assessment can not be accurately determined without a baseline study of natural commercial resources (i.e. Dungeness crab) found at the sites throughout the year including but not limited to the December – January time frame when the majority of mature male crab are available for harvest. Mature male crab may represent less than 10% of the crabs over 50mm found at the site.

NEPA Sec. 1507.2(b)

SS-60 Identify methods and procedures required by section 102(2)(B) to insure that presently unquantified environmental amenities and values may be given appropriate consideration.

This appropriate consideration has been circumvented by an unsubstantiated determination of insignificance which has an extremely deficient information base presented in the SEIS related to ocean disposal at the Columbia River. This type of narrow action leads to cumulative negative impacts effects, which are never fully evaluated. Much of the determination is based on unsubstantiated staff assumption, which CRCFA challenged as early as the original DEIS. Our comments deserve response. The unsubstantiated opinions carried on into the SEIS as if the public and agency comments were not even raised. CRCFA comments to both the DEIS and FEIS are here included by reference and deserve appropriate response.

SS-61 CZMA requirements of inventory and mitigation have been completely ignored. Clearly comprehensive data and information to support a consistency statement is inadequate to move ahead on site designation. The replacement mitigation of lost habitat, resources, and use has not been addressed.

SS-62 The current inappropriate determination of insignificance related to ocean disposal must be re-evaluated after appropriate long-term studies are complete and peer reviewed. The information base must be broad enough and scientifically defensible to actually support a proper significance determination prior to designation of the deep-water site.

SS-63 In reviewing Sec. 1508.27 of the CEQ - NEPA regulation there is substantial environmental controversy concerning the proposed action based on a determination of insignificance by your agency. The cumulative impacts to the commercial crab industry over the life of the sites will be extremely detrimental and highly significant to the coastal communities, which rely almost exclusively on crab for economic survival. Clearly, quantification of negative impacts to the profits of crab industry is warranted.

SS-64 The determination of significance or insignificance is the prime event upon which all relevant actions related to ocean disposal proceed. It is extremely important that the information base upon which the determination is made is based on the integrity and quantity of the scientific information presented and not just based on a staff opinion. The Paul King type argument that the Corps does not have to defend the integrity or scientific credibility of their presentation will not suffice and is affront to the process of site designation.

NEPA Sec. 1508.27(a)

SS-65 “Significance as used in NEPA requires consideration of both context and intensity.” Significance varies with the setting of the proposed action; in the case of site-specific action (i.e. ocean disposal site designation) the significance usually depends upon the effects in the locale rather than the world as a whole. In this case EPA/COE has taken the significances determination out of context and related the overall damages of the sites to the entire Pacific Coast without looking at the specific negative environmental impacts to the local area.

NEPA Sec. 1508.27(b)

SS-54 and SS-55. Please see responses to F-2, S-6, and S-12 through S-19. As the commenter knows, the Corps is in the process of potentially reconfiguring the Ocean Disposal Taskforce and evaluating its roles and responsibilities.

SS-56. With regard to the studies in progress at the proposed ODMDSSs, the SEIS is merely providing a status report of special and baseline studies called for in the 1999 Final IFR/EIS (see Appendix H, Exhibit H, Pre and Post Construction Assessment Studies and Baseline Studies). The scope of these studies was influenced by input from the Ocean Disposal Task Force. For example, actual crab pot data was collected based on input from CRCFA. The 2002 MEC work included crab pot sampling. CRCFA and the State of Washington also asked about the fate of material after placement in the Shallow Water Site (Expanded Site E). A sediment trend analysis was conducted to address this issue. Finally, the pilot study for crab burial in Sequim, Washington was expanded to include juvenile flatfish at the request of taskforce members. These studies are included in the Final SEIS, Exhibit N.

SS-57. See response to S-30. The Corps and USEPA during the ODMDSS selection process have actively solicited and made extensive use of public and agency input. The site selection process for the two new sites selected for designation solicited more participation in the discussion leading to site selection than all previous site selections along the Pacific Northwest coast. The Corps and USEPA have taken into consideration these comments during the site selection process and public review described in the 1999 Final IFR/EIS, Appendix H, Volumes I through III and Volume II: Draft EIS Comments and Responses.

SS-58. Appendix H of the Final IFR/EIS fully analyzed the impacts of potential site alternatives, including economic impacts. The USEPA considered positive, as well as negative, economic impacts to understand the potential effects of ocean site designation. Based on known and ongoing concerns of the commenter, the USEPA and the Corps evaluated the potential impacts of the alternatives on the Dungeness crab resource and the fishery and discussed their evaluation of those impacts in the Draft IFR/EIS, which considered the North and South sites. As was documented in Appendix H of the 1999 Final IFR/EIS, the USEPA and the Corps undertook extensive facilitated negotiations following publication of the Draft IFR/EIS. That process led to the consensus selection of the Deep Water Site and Shallow Water Site as sites to propose for designation and to the removal of the North and South sites from consideration. The CRCFA was a supporter of consideration of the Deep Water Site. The conclusions of the USEPA and the Corps with regard to the impacts on the Dungeness crab resource and the crab fishery as presented in the Final IFR/EIS have not altered. The conclusions have been confirmed by baseline studies completed during the past two years. This additional information has been included in the Final SEIS regarding the assessment of potential impacts to crabs.

### Corps of Engineers Response

SS-58 (con't). With respect to the question raised as to whether the Regulatory Flexibility Act (RFA), as amended, requires an economic assessment of the impact to crabbers, the RFA requires federal agencies to evaluate and disclose economic impacts on small businesses that would be directly regulated by the regulations. The USEPA's selection of the Deep Water and Shallow Water sites in Appendix H of the Final IFR/EIS as sites to propose for designation as ocean disposal sites is not a proposed site designation itself, nor would any such proposed site designation involve direct regulation of crabbers. While a site designation rulemaking would address the location of sites that would be available to permittees who meet the regulatory criteria for ocean dumping permits, the proposed standard or regulation would not regulate crabbers harvesting the resource.

SS-59. The Corps and USEPA have conducted detailed analysis of the effects of dredging associated with the channel improvement project and MCR project on crab. This includes a quantitative analysis of entrainment associated with dredging. The results of this analysis are provided in the Final SEIS, Exhibit K-4. As reported there, entrainment and disposal are not anticipated to have a significant adverse effect on either crab populations or the crab fishery in the Washington and Oregon region around the Columbia River. See also response SS-11.

SS-60. The Corps and USEPA have responded to all earlier CRCFA comments in the 1999 Final IFR/EIS. Additional discussion of cumulative effects has been added to the Final SEIS.

SS-61. The CZMA requires activities of federal agencies within or outside the coastal zone that affect any land or water use or natural resource of the coastal zone to be carried out in a manner consistent to maximum extent practicable with the enforceable policies of approved State management programs. Review of the Washington State and Pacific County SMPs indicates that the provisions of these state and local plans do not apply to activities occurring south of Cape Disappointment, which is where the selected ocean disposal sites to be proposed for designation are located.

SS-62. As noted above, under the preferred alternative for the channel improvement project, the Corps does not intend to use the ocean for disposal for construction and the first 20 years of maintenance. The Corps and USEPA, however, disagree with the comment that there is insufficient information to select the Deep Water Site.

SS-63. Additional information regarding cumulative impacts has been added to the Final SEIS. This analysis concludes that impacts to the crab resource and fishery in the Washington and Oregon region around the Columbia River are not significant.

SS-64. See responses F-2, S-6, S-12 through S-19, and particularly S-16 and SS-53, # 2 and #3 regarding the scientific information used for selecting the Deep Water Site. The Corps and USEPA stand behind the integrity and scientific credibility of the work that has been done to select the site.



SS-66 Intensity refers to the severity of impact. Responsible officials must evaluate intensity in such a manner as to fulfill their responsibly as trustee of the environment for present and future generations' health, safety, economic & social well-being, further must act as stewards to protect, preserve, and improve environmental health and diversity of all species in the Pacific Northwest, and uphold the relevant law of the nation including total implications of the CZMA down to the local level. The EPA/COE have failed their fiduciary duties to disposal site designation.

- SS-67 1) Adverse impacts to the ocean environment are reasonably foreseeable and will occur. The crab industry has continually notified responsible officials for years that ocean **disposal sterilizes the area for commercial crab production**. The sterilization is lost carrying capacity and must be addressed.
- SS-68 2) Safety is a concern at Site E as wave height has been increased past the 10% wave change standard for at least the last three years. COE is beginning to establish criteria to control wave amplification and has a reasonable start, but improvement is still necessary. CRCFA will continue to monitor the wave amplification in and around the area to insure safety of the historic small vessel navigation routes. After reviewing six years of information developed by the COE we believe the active area of review should be increased on the northern edge of the bathymetric survey area. There is approximately 8 feet of infill just north of the area presently covered. Not only will this give better navigational safety protection, but may help indicate fate of spoils deposited at the shallow water site.
- SS-69 3) The deep-water site is in a unique area of the Columbia River Plume, which contributes significantly more to the ocean productively than areas not affected by the plume. This unique and irreplaceable area also is designated EFH for bottom fish by the Pacific Fisheries Management Council and must have a NMFS consultation and effects analysis related to EFH before site designation. The deep-water site is a unique and irreplaceable area for prime nursery, rearing, and feeding for Dungeness crab (and bottom fish). The area is not strongly fished because most of the deep-water site is located in the towlane where tug and barge traffic destroys most crab fishing gear. The slight of hand method by which the deep water site came into existence, box in a box game, extended the outer dimensions of the site into prime fishing ground south and west of the CR buoy. The FEIS allows for filling of the buffer area by deposition occurring in the active disposal area of the inter box. For future generations this is of extreme concern of CRCFA. Every generation should have the right to speak for themselves. Additionally, the percentage of income overlay developed by the COE & crab industry illustrates only 3% of income coming from the area encompassed by the deep-water site. This percentage is not what the area actually contributes to the overall income of the fishery. If the overlay is thoroughly reviewed it is obvious that 65.3 % of income is derived from areas surrounding the deep-water site location. Crab from the deep-water site, even though not aggressively fished in the site, migrate to other catch areas including areas within 3 miles and CZMA authority and contribute for a prolonged period of time into the season. The impact of disposal at the deep-water site is significant. ODFW has done independent analysis related to catch rates and this new information may indicate more significance associated with areas near the deep-water site than presently indicated.
- SS-70 4) The ocean disposal process has been highly controversial and challenged continually by many state agencies and the fishing community. The FEIS at the Columbia was controversial enough to solicit over 200 comments from agencies and the public. This degree of controversy should indicate to EPA something is wrong and needs correcting before actions are taken. The most common statement from those that commented objecting to the FEIS process is that inadequate evidence was provided to support conclusions drawn by EPA / COE and that the impacts were either inaccurately assess or not assessed at all. Considering the number of comments, it is incumbent on EPA / COE to re-evaluate and further support their determination of insignificant impacts to aquatic resources in general and more specifically Dungeness crab. Presently the facts presented do not support an unreasonable conclusion.

SS-65. The Corps and USEPA did consider impacts to the local environment including impacts to the local crab fishery, safety considerations for small craft, and the potential for conflicts within the towboat lanes, among others.

SS-66. The Federal Government disagrees with the conclusion. The specific points regarding intensity of impact are reviewed below in response to comments SS-67 through SS-75.

SS-67. The Federal Government disagrees that disposal areas are "sterilized" as a result of disposal. Crab populations are still expected to use both the Deep Water and Shallow Water Sites. Data collected by MEC at the proposed Shallow Water Site (which has been used for several years) immediately following disposal indicated high numbers of crab within the disposal area. We understand that soft, shifting substrate and mounds are not conducive to harvest by crab pots. These conditions can occur as the result of dredged material placement. However, such conditions also occur naturally off the mouth of the Columbia River because of its highly dynamic nature. Commercial crab harvesting in the Deep Water Site is routinely avoided because of conflicts between ocean-going vessels and crab gear. Commercial crab harvesting inside and in the vicinity of the Shallow Water Site has occurred routinely for many years. There is no intention to exclude fishermen from either site during active disposal, when conflicts between the dredges and other vessels would be a safety concern; it is expected that fishermen would follow normal boater safety rules to avoid possible safety hazards. Notices to mariners are routinely published to inform the boating public of dredging and disposal activities.

SS-68. Navigational safety has been analyzed in the Final IFR/EIS, Appendix H. The comment pertaining to active area of review appears to pertain to the Federal Government's past and ongoing monitoring of Expanded Site E under the MCR project. The information provided has been forwarded to the Corps MCR project manager and EPA ocean dumping coordinator.

SS-69. For the part of the comment pertaining to the plume, see response SS-39. The Columbia River plume covers a much broader area than the Deep Water Site. EFH consultation is underway for coastal pelagics and groundfish for the Deep Water Site. Research to date does not indicate that the Deep Water Site is "unique and irreplaceable" as a prime nursery, rearing or feeding habitat. Most of the Deep Water Site, including the buffer, is located within the towboat lanes. The Corps and USEPA have received no information documenting that 65.3% of the income is derived from areas surrounding the deep water site location. The Corps and USEPA are aware of information provided by ODFW during the site selection process. The Corps and USEPA are not aware of any new information as indicated by the commenter.

SS-70. The Federal Government does not agree that the findings and conclusions documented in the 1999 Final IFR/EIS, Appendix H, Volume III, are "unreasonable." Consensus was reached on the selection of the ocean disposal sites USEPA is currently considering for designation.

- 5) Overall effects of dumping on commercial resources at both the deep and shallow water sites are unknown. In fact the FEIS related to ocean disposal does not indicate if 1 or a billion crab will be impacted. Fact is, NO determination of impact has been established, therefore, the degree of impact is uncertain at best and highly suspect of significant impact by state fish agencies from both Washington and Oregon. Further the EPA/COE submitted false and unsubstantiated evidence in the Dan'l Hancock benthic synopsis. Hancock's synopsis erroneously states that crab comeback stronger within a year after disposal than prior to disposal. CRCFA asked that this either be removed from the DEIS or substantiated. Neither has been done. The unsubstantiated statement remained in the FEIS and again CRCFA asked that it be removed. Our removal request was completely ignored. The most recent information available, CRCFA research done under Washington and Oregon Department's of Fish and Wildlife research permits, verifies sterilization of commercial crab production associated with ocean disposal dump site B, last used and only slightly in 1997. CRCFA has found that legal crab only represent 10 % or less of the crab in the area of study of crab 50mm and over in size. Further manipulation of the information submitted in determining significance rests in a soft-shelled crab studies done by Battelle NW and Scripps Institute. We would not challenge the integrity of either of these institutions, but we will challenge the presentation of the material by the COE/EPA. The Scripps burial study was not done on soft-shelled crab; therefore, no conclusion can be drawn about crabs in the soft-shelled condition. Any attempt to do otherwise is a breach of professional integrity. Conclusions presented by COE/EPA from the Battelle NW investigations stretched the information available way beyond what scientific peer review would allow. CRCFA discussed with Battelle NW what definitive conclusions Battelle could derive from the soft-shelled burial studies they conducted. The response was the only definitive conclusion they could advance was; crab that were buried in at the time of deposition the mortality was near 100%. Battelle could not definitively determine with any degree of reliability either mortality or survival rates. In the natural condition it is well known that crab bury in. What is not known is how much time and how often crab bury up. To apply any results of either the Battelle or Scripps test to actual mortality of survival rates in the natural environment is a quantum, unsubstantiated, leap for any biological scientist. Earlier crab burial study information of Chang & Levings that found 100% mortality at depths of burial considerably less than the COE contends is not mentioned in the FEIS and should be considered. Additionally, COE has attempted to use statewide crab landings to justify non-significance. At one of the work group meetings other fisheries biologist present called this stretch of information a breach of professional ethics.
- 6) The precedent set for future action is scary. If the COE/EPA can establish an ocean disposal site off the Columbia by simply declaring their actions insignificant and moving ahead over the strenuous challenges to information presented by many, without offering valid scientific evidence, just by establishing a procedure and moving ahead, our entire ocean disposal laws are in jeopardy. In this day and age unavoidable habitat destruction deserves complete mitigation replacement of loss to protect resources for future generations. Today we certainly would not want to live with environmental rules of the 1950's a vast improvement EPA is primarily responsible for achieving.
- 7) Significance exists to reasonably anticipate a cumulative significant negative impact to Dungeness crab. At 122,000 # / square mile / year (this is a conservative estimate based on state average, not on the plume area where production is higher) then the cumulative impact over fifty years will run into millions of pounds. Millions of dollars coastal communities cannot afford to subsidize this project. Keep in mind in the 1950's crab were worth just \$0.08 / # and today they are worth up to \$3.00 / #. What will they be worth in the 2050's, the projected use of the site? Addition adverse impacts of entrainment mortality and direct burial loss at the sites are not included in the 122,000 pound figure, just lost carrying capacity.
- 8) The proposed action of site designation is in violation of local and state law. CRCFA comments submitted to the FEIS are here in included by reference. The action of site designation and use without mitigation replacing the unavoidable loss is a direct violation of Pacific County Master Shoreline Program an enforceable policy of the state and subject to CZMA consistency. Mitigation for lost resources and
- SS-71. The Federal Government disagrees with the commenter's characterization of Hancock. See 1999 Final IFR/EIS, Appendix H, and *A Summary of Benthic Invertebrate Information in the Region of Existing Offshore Disposal Sites Off the Mouth of the Columbia River, September 1997*. The summary accurately reflects information available at the time. With regard to the information referred to as "CRCFA research done under research permits," the Corps has requested the results of this research from the CRCFA and the Washington and Oregon Departments of Fish and Wildlife. Neither of the state agencies has provided the information in response to the requests. Furthermore, as the commenter is aware, the CRCFA has expressly refused to provide the information. With regard to alleged "sterilization," see response SS-67. The Corps has already responded to the comments regarding the Pacific Northwest National Laboratories studies. See response to comment S-20. The Final SEIS does not include any further information from those studies. The Corps stands by its analysis of impacts.
- SS-72. The Federal Government disagrees that they are simply declaring their actions insignificant. New ocean disposal sites are being established because existing sites are inadequate to meet identified, well-documented, need for such sites. The Corps and USEPA conducted an exhaustive search for disposal sites and determined the Shallow Water and Deep Water Site comply with Federal law and process and documented that conclusion in the 1999 Final IFR/EIS. Additional information regarding the baseline has been added to the Final SEIS. That information confirms the analysis presented in the Final IFR/EIS.
- SS-73. The CRCFA has not provided any support for or source of the estimate of 122,000 lbs per square mile per year. It is unwarranted to conclude that ocean disposal will have that impact. The Federal Government has requested on numerous occasions crab pot data the CRCFA has cited to; however, the CRCFA has never provided any data in support of its claims.
- SS-74. The Federal Government disagrees that it is in violation of federal and state law. See response to comment SS-61. The Pacific County Master Program does not apply to activities beyond 3 miles, or south of Cape Disappointment.

resource use, above and beyond simply avoiding and minimizing adverse impacts is required. Replacement of unavoidable loss is necessary. Compensatory mitigation must be proven adequate to replace the loss resources, habitat, and fishing potential.

- SS-75 9) Cumulative effects to the coastal aquatic environment and sediment distribution affecting future shoreline erosion which does not develop overnight is a major weakness in the SEIS presentation.
- SS-76 10) Removing channel deepening sediments for the near term disposal does not protect the crab industry as cumulative effects of MCR maintenance is still overwhelming in comparison to the quantity placed in other peoples backyard. **Determination of significance cannot be avoided by breaking an action down into small components of consideration.**

The determination of insignificance appears to be based in six items:

- 1) The area of impact versus the size of the Pacific Ocean
- 2) Hancock's unsubstantiated crab recovery statement
- 3) Highly challenged soft-shelled crab studies
- 4) Percent of Crab Fishing Income by area overlay.
- 5) State landings of crab
- 6) Staff opinion

At best, all six areas of determination in this decision-making process are highly controversial and highly susceptible to challenge. If other information was used to base the insignificance determination would your agency please indicate in writing so that proper public comment can occur?

- SS-77 Ocean disposal site designation is a serious consideration with long-term consequences on the marine environment governed by many rules and regulations. Without establishing the baseline conditions which exist in the vicinity of the disposal sites there is simply no way to determine what effect the proposed dumping at the sites will have on the marine environment and, consequently no way to comply with the many rules and regulations.

- SS-78 It is fundamental to the integrity of this process to closely examine whether the U. S. Army Corps and EPA's evidence is adequate to substantiate the insignificant impact determination to aquatic resources and habitat, or whether conclusions are colored by improper motive (least direct cost to Corps' budget), directly affecting the credibility of the scant evidence provided, or in most cases, evidence not provided:

- 1) Inadequate baseline data on commercial resources in and around the disposal sites (MPRSA),
- 2) Inadequate economic impact analysis on small businesses and coastal communities (RFA & Washington State Small Business Impact Statement),
- 3) Inadequate mitigation for unavoidable impacts for entrainment and disposal (Violates Pacific County MSP & ORMA regulations, among others),
- 4) Inadequate consideration and implementation of reasonable alternative of beneficial use of sediments by direct beach placement at Benson Beach (Violates PCMSP),
- 5) Inadequate cumulative effects analysis over the projected fifty year use of the sites (NEPA),
- 6) Inadequate EFH consultation in the ocean (Magnuson/Stevens) related to bottom fish,
- 7) Inadequate thorough needs analysis, in site sizing (violates demonstrated need of PCMSP, Washington State ORMA, MPRSA),
- 8) Inadequate avoidance since all available timing windows are not considered (PCMSP & ORMA),
- 9) Inadequate use of Ocean Disposal Task Force which has no effective input or authority,
- 10) Inadequate investigation of **sterilization of fishing grounds** – severe interference with the fishery (Violates MPRSA, PCMSP, NEPA),
- 11) Inadequate toxic sediment testing (MPRSA, no sediments to ocean above trace levels, without current testing, there is no way possible to comply) SEIS continues to allow Willamette River sediments to be brought to the ocean (this must be removed from the document),

SS-75. Exhibit J of the Final SEIS addresses cumulative impacts regarding sedimentation, including accretion and erosion. The project includes monitoring measures so that the Corps, USEPA and the Adaptive Management Team can monitor accretion and erosion annually and adjust activities in response to new information.

SS-76. Reallocating material from the channel improvement project for construction of the ecosystem restoration projects proposed and evaluated by this SEIS does not significantly alter the need for or capacity analysis for ocean disposal at the mouth of the Columbia River. However, the potential benefits to the Columbia River estuary from this action are significant and should not be minimized. The proposed action for this Final SEIS does not include ocean disposal or the dredging of the MCR channel, which is a separate federal project. The Federal Government included a discussion of MCR impacts for purposes of assessing cumulative impacts as required by NEPA (see Section 6.12 of Final SEIS). The NEPA, however, does not require mitigation of actions that are not part of the action being taken. The USEPA's rule-making to propose new ocean disposal sites is also a separate action that is expected to be completed in 2003. The USEPA was a cooperating agency on the 1999 Final IFR/EIS, which selected the new sites to be proposed for designation. EPA is again a cooperating agency on this Final SEIS. See our responses to S-12 and S-13. Your comment regarding "determination of significance" has been responded to elsewhere.

SS-77. See response to comment S-18 and response to SS-53, #2 regarding baseline studies. The Federal Government is in compliance with pertinent rules and regulations concerning the ocean disposal components.

SS-78. This comment summarizes points made and responded to elsewhere in the comment letter. The Federal Government disagrees with the commenter's characterization and conclusion.

- 12) Inadequate response and consideration to public and agency comments (This needs correction, NEPA),
- 13) Inaccurate conclusions about soft-shelled crab tests (Integrity of EIS analysis questioned, NEPA),
- 14) Inadequate sediment testing through use of the exclusionary clause in the Dredged Material Evaluation Framework unnecessarily compromises the evaluative process and places the marine environment at unnecessary risk from bioaccumulation of toxins. Without testing the COE/EPA have failed to meet their burden of proof for both trace contamination (MPRSA) as well as avoiding potential impact (PCMSP). High levels of toxins are found bio-accumulated in marine and estuarine species, the pathway to that accumulation needs to be found.

SS-79 Designation of ocean disposal sites is premature at this time. The scientific integrity associated with a determination of non-significance, negatively impacting commercial resources and coastal fishing communities that rely more and more on crab for economic well-being is extremely questionable. Cumulative impacts to other fisheries have placed an inordinate amount of reliance on crab for the fishing industry in the Columbia region. Salmon used to be the 2nd largest industry (even ahead of Microsoft) in the state of Washington. Lack of environmental concern has eliminated salmon as a viable coastal fishery. Recently Commerce Secretary Daley declared the trawl fishery a disaster and placed large quota cuts in that fishery, more closures are in the works. Tuna markets are still weak and not at all dependable for economic relief. The Coastal Indian Tribes have recently been allocated 50% of the crab in their usual and accustomed fishing areas. The very best fishermen from all other failed coastal fisheries are extremely reliant on crab as a major source of income, even more so than indicated in the ocean disposal site selection process. Each and every crab lost becomes more and more important and significant to the economic health of the coast.

SS-79. See our response SS-78.

SS-80 From this overview of determination of non-significance by the EPA/COE it should be obvious that there is substantial question as to the validity of the insignificance determination of impact to the marine environment. Severe negative profit impacts to coastal fishing interests even beyond the fisherman will occur. Regulatory Flexibility Analysis was established by congress and again amended in 1996 to protect small businesses from the type of actions currently taking place in the ocean disposal process. No RFA analysis what so ever has been offered by EPA/COE to determine any effect on commercial crab profits or loss associated with entrainment and ocean disposal.

SS-80. See responses SS-58 and SS-78.

SS-81 Washington coastal communities and up river ports are currently working with the COE to realize a vision of beneficial use of dredge disposal sediments. The Benson Beach alternative disposal experiment preformed in the summer of 2002 was highly successful. If significant direct beach placement occurs on an annual basis, the deep-water site will be extremely over sized in addition to the already 100% contingency presently built in. The need for a 14+ square mile deep-water disposal site will not be demonstrated. Benson Beach alternative needs additional consideration as a primary disposal site to minimize future impacts to fishing businesses and coastal erosion. Benson Beach is also likely to be the most cost beneficial option available for society when the benefits to coastal erosion abatement, re-locating an aesthetic near shore camp ground, building a new sewer system for the state park and USCG National Motor Lifeboat School, reduced response time to marine casualties by the USCG, reduced transit time to and from distant disposal sites and other benefits accrued from environmental services of not dumping on natural resources and habitat become part of the cost/benefit analysis. The "least cost option" as currently defined by the Corps is often the most cost to the taxpayer, e.g., Rice Island and site B (extreme loss of commercial resources totaling hundreds of millions of dollars).

SS-81. See responses S-52 and SS-48. In accordance with 33 CFR 335.4, it is the policy of the Corps of Engineers to discharge dredge material into the waters of the United States and ocean waters in the least costly manner, at the least costly and most practicable location, and consistent with engineering and environmental requirements. The Corps has fulfilled this policy.

CRCFA has reviewed present and previous comments by WDFW, ODFW, Washington DNR, US Fish and Wildlife Service, Oregon DLCD, National Marine Fisheries Service, Pacific County, Pacific Fisheries Management Council, Columbia River Estuary Study Taskforce, Lower Columbia River Estuary Program, private citizens and Columbia River Crab Fisherman's Association, all indicating support of mitigation for unavoidable resource loss. This

- SS-82 mitigation concept for unavoidable resource and habitat loss must be addressed before site designation. The Washington State Legislature offered additional support to the crab industry by attaching a rider to the State matching funds for channel deepening. That rider forbids the matching funds from being spent until an agreement that protects the crab industry is reached. Central to that agreement is mitigation. The COE/EPA have been put on notice numerous times that an agreement is necessary. To date, no talks have been initiated to formalize that agreement. We are here in again notifying responsible authorities in both EPA and COE that an agreement needs to be reached regarding ocean disposal that protects the crab industry from the negative impacts of the dredging operation (this includes consequences of maintaining the Mouth of the Columbia River, not just the deepening to Portland) so that state channel deepening matching funds can be utilized. It is the intent of CRCFA to protect the crab industry from government-subsidized destruction of the habitat and resources that our industry needs to survive.
- SS-83 It is not the intent of CRCFA to impede ocean disposal, in fact we have tentatively agreed to the proposed sites subject to conditions sited in our FEIS comments. We continue to have several basic problems with the proposal, 1) no mitigation for unavoidable resource and habitat loss, and 2) the over sized buffer which extends into prime fishing area which in the future could be filled with sediment from site over-flow. With the advent of Benson Beach beneficial use site, and considering the other site capacities involved, the entire deep-water site is dramatically over-sized. 3) Human health and safety from over-mounding and resulting increase in wave amplification at site E continues to be problematic. The 10% wave change standard needs additional safeguards not currently in place.
- SS-84 Improvement of site E management has to tie the maximum 10% wave change standard to the deposition of sediments at the site. Averaged wave analysis is misleading. Individual wave analysis must be brought to the forefront and evaluated by the ocean disposal task force. The STWAVE model is NOT the final determination of the 10% criteria, since it is not designed to successfully analyze long period waves. CRCFA would also urge independent review of mounding effects using all wave models commonly used throughout the world by world class experts. This analysis should also give understanding to model limitations. The models should be adjusted to observed ocean conditions at the sites. Tidal dynamics need to be included in the analysis. Outside experts are ready, willing, and able to extend their expertise in analysis of the wave amplification if time and expenses are paid, please inquire. Wave amplification experts outside of the Corps need to evaluate the 10% wave change in the areas of concern.
- SS-85 We realize that inland economics are highly dependant upon international shipping which relies on getting deep draft vessels over a hundred miles inland and needs to be supported. We do, however, insist that adverse impacts to the coastal fishing communities economic base, Dungeness crab be mitigated so that our coastal fishing communities will not become unwilling sponsors of international shipping (prime benefactors) through lost resource and habitat. Mitigation for unavoidable loss of crab habitat and resource is a necessary part of the dredging and ocean disposal process as required under CZMA. It is highly irresponsible to continue to over look the law of the land.
- SS-86 By reference, the comment letter and bound volume CRCFA delivered to Mr. Fitzsimmons on July 10<sup>th</sup>, 2000, is part of CRCFA public testimony and other information submitted to Washington DOE over last few years.
- CRCFA will also include by reference, the CRCFA letter submitted in Astoria hearing on the 40-foot channel maintenance hearing on April 4, 2000.
- By reference CRCFA includes testimony submitted in Astoria 12 February 2002 hearing.
- SS-82. The Corps and USEPA disagree with the characterization of the Channel Improvement Project, the MCR project, or ocean disposal site designation with regard to the crab industry. See all previous responses to this commenter, and responses S-17, SS-53 and Final SEIS, Exhibit K-4, regarding impacts to the crab industry. For clarification, the appropriation rider referenced in this comment is on an appropriation that is limited to constructing the channel improvement project and does not apply to issues related to the MCR project.
- SS-83. See responses S-133, I-47, and I-49 regarding mitigation. See responses S-13 to S-16 regarding size of the site and impact on fishing area and response S-121 to S-123 regarding Benson Beach. See response SS-68 regarding health and safety considerations from over-mounding at Site E.
- SS-84. The comment appears to pertain to past management of "Expanded Site E" and has been forwarded to the Corps' MCR project manager and USEPA's ocean dumping coordinator. To the extent the comment is intended as a recommendation on how the Shallow Water Site should be managed after it is designated under Section 102, the evaluation in the 1999 Final IFR/EIS, Appendix H, included consideration of impacts to navigation at the Shallow Water Site. The Corps and USEPA anticipate continuing use of computer models in managing the Shallow Water Site. The commenter's assertion that the modeling is based on average wave height is incorrect. The Corps and USEPA also disagree that the ST-WAVE is not designed to analyze long period waves. The ST-WAVE model is the state of the art model for assessing wave action outside the surf zone and is particularly suited for analyzing long period waves. The Corps and USEPA possess sufficient expertise in this area and do not need outside experts to participate in analysis of wave amplification.
- SS-85. See our response to comment SS-61 regarding the application of the CZMA. See all previous comments regarding impacts to the crab fishery.
- SS-86. The CRCFA letter dated 4 April 2000 provides comments on a consistency determination for the 40-foot navigation project. A separate and distinct consistency determination has been prepared for the proposed project. As noted in that determination, both the State of Washington and Pacific County have expressly limited their enforceable policies for ocean disposal to areas north of Cape Disappointment. Both the Shallow Water Site and the Deep Water Site are south of Cape Disappointment.
- The testimony on 12 February 2002 pertained to the MCR project. That project is not a subject of the SEIS.
- Comments to the 1999 Final IFR/EIS have already been considered.
- The Corps has been unable to locate the uncorrected minutes and has insufficient knowledge to respond to their contents.

- Also, CRCFA will include agency and public comments to the FEIS: Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement – Columbia & Lower Willamette River Federal Navigation Channel. Most common comments were, “insufficient information for conclusions drawn and comments from DEIS not answered in FEIS.”
- SS-86 CRCFA will also include the uncorrected minutes of the May 12th, 1999 Columbia River Dredged Material Disposal Workshop by reference, which include numerous statements, related to the need for mitigation of crab loss.
- CRCFA will also include comments to Washington and Oregon’s 401 and consistency determination related to the FEIS.
- CRCFA will include all recent comments to EPA Region 10 Administrator Charles Clark asking for and SEIS since the insignificant impact to the marine environment is not sufficiently supported to make a reliable determination of significance.
- SS-87 This volume of agency and public input must be fully analyzed, incorporated, responded to, and incorporated into the determination of ocean disposal site designation. Aquatic habitat and resources (Dungeness crab) deserve more protection and mitigation than currently provided in the SEIS. The double standard of applying mitigation to every project reviewed by the Corps and not required in this case must be corrected.
- SS-88 The limited biological data supplied is not sufficient to support the insignificant determination found in the SEIS. Washington Department of Ecology has no choice concerning consistency determination. Until the information is provided to clearly establish the significance or insignificance of the proposed actions the project is inconsistent with state law. Adverse impact to the aquatic marine environment’s diminished carrying capacity will occur. The degree of impact needs to be established and mitigation occur before moving ahead. As important as regional economic gains are it is not the coastal communities responsibility to subsidize this project through continued uncompensated resource, habitat, and use loss.
- SS-89 As presented the SEIS related to cumulative impacts analysis (both environmental & marine safety) of ocean disposal is scant, perfunctory, and not useful as a decision-making tool for prevention of reasonably foreseeable negative impacts. The SEIS unreasonably diminishes commercial resource productivity without replacement mitigation. The SEIS analysis related to human health and safety does not prevent wave amplification from exceeding the 10% wave change standard over the 1997 baseline. This SEIS is nothing more than an official procedure and needs considerable more attention to prevent identified problems in the ocean to come into compliance with the numerous rules and regulations.

Respectfully submitted,

Dale Beasley, CRCFA

SS-86 (con’t). The Corps has submitted applications for water quality certifications to both states, as well as consistency determinations. The state reviews under Section 401 and the CZMA are currently ongoing. The responses of the states will be fully considered.

The comment is unclear on what comments to the Regional Administrator of the USEPA the commenter is referring to. The comment lacks sufficient specificity for a response.

The materials that are referenced were considered to the extent they are included in the record. The Corps received comments for the projects under consideration at that time. The Corps and USEPA will consider by reference only those materials that are actually submitted for the record of this project. Comments on the 1999 Final IFR/EIS have already been considered.

SS-87. The Corps and USEPA have analyzed, incorporated and responded to public and agency comments in the 1999 Final IFR/EIS and this Final SEIS.

SS-88. See response S-18 regarding additional baseline data and the determination of impacts at the ocean disposal sites.

SS-89. The Final SEIS has additional information regarding cumulative impacts. The Corps and USEPA disagree that the project will diminish commercial productivity. See response SS-68 regarding wave amplification.

# LOWER COLUMBIA RIVER ESTUARY PARTNERSHIP



Corps of Engineers Response

September 12, 2002

US Army Corp of Engineers, Portland District  
CEN-PM-E ATTN: Robert Willis  
P.O. Box 2946  
Portland, OR. 97208-2946

Dear Mr. Willis:

The Lower Columbia River Estuary Partnership is pleased to submit the following comments on the Columbia River Channel Improvement Project Draft Supplemental EIS. These comments are based on an independent, technical review of the nine proposed habitat restoration projects identified in the EIS. The comments are the result of an unbiased technical review of the projects by the Estuary Partnership's Science Work Group, a diverse 40 member technical advisory group to Estuary Partnership's Board of Directors. A membership list is included as Attachment 3. Those who participated in the review are indicated by an asterisk.

The review was made at the request of the Board of Directors with the understanding that the projects were to be reviewed strictly on their technical merit in relation to the Estuary Partnership's Comprehensive Conservation and Management Plan (CCMP) for the Lower Columbia River and Estuary. Many of the member organizations whose representatives participated will be submitting separate comments under their own organization letter head. The comments herein do not reflect those individual organizations' official positions.

SS-90. It should be noted that not all individuals with asterisks by their names participated in the review of the ecosystem restoration actions. Specifically Geoff Dorsey and Eric Bluhm of the Corps, and Cathy Tortorici of NOAA Fisheries were only there to explain the actions, not to comment on them. The rest of the comment is noted.

SS-90

## REVIEW PROCESS

At the quarterly meeting of the Estuary Partnership's Board of Directors on July 11, 2002, the Board discussed at length how the Estuary Partnership should respond to the Channel Improvement Supplemental EIS. The Board recognized that a number of actions in the Estuary Partnership's CCMP were relevant to the elements of the EIS. They were concerned about possible conflicts of interest among the Board members but agreed that an independent, technical review of the proposed habitat restoration projects in relation to the CCMP would be both appropriate and desirable. The Estuary Partnership's Science Work Group was thus tasked with reviewing the proposed habitat restoration projects and reporting back to the Board at their next meeting on October 3, 2002.

The CCMP calls for an ecosystem based approach to protecting and enhancing the lower Columbia River and estuary. It has 6 actions that specifically address habitat conservation and restoration and are thus relevant to the EIS. They identify the need to: inventory and prioritize important habitats to be protected and conserved; establish a systematic approach to protect and restore key habitats; adopt consistent habitat protection standards; preserve and restore tributary buffer areas; restore 3,000 acres of tidal wetlands; and monitor the effectiveness of habitat projects.

On June 21, 2002, 20 members of the Estuary Partnership's Science Work Group met at the Corps of Engineers District Office in Portland to review and evaluate the nine proposed habitat restoration projects. The projects were described in detail by Corps staff and Work Group

## Corps of Engineers Response

members were provided an opportunity to ask questions and discuss the proposals. The presentation was followed by a review of the habitat project ranking criteria developed at the June 2001 Lower Columbia River and Estuary Habitat Conservation and Restoration Workshop in Astoria. The criteria, which were developed to provide a scientific basis for evaluating and prioritizing salmonid conservation and restoration projects, have subsequently been refined and tested by the Science Work Group. A basic description of each criterion is included as Attachment 1. Under the direction of the Work Group chair, each project was discussed by the group and ranked on a ranking work sheet. The ranking work sheet, the collective rankings, and relevant comments are included as Attachment 2.

SS-90

On June 28, 2002, 15 members of the Science Work Group participated in an all day field trip to the proposed sites. At each site, the proposed actions were described in detail by Corps staff. Members then reviewed their comments from the August 21<sup>st</sup> ranking process and discussed the relative merits and negative aspects of each project. What follows is a summary of the Work Group's evaluation of each project based on the ranking process and the site visits.

### PROJECT EVALUATION

SHILLAPOO LAKE: This project as it is currently planned is a waterfowl habitat restoration project. It is supported by the Washington Department of Fish and Wildlife. No fish benefits are expected and as a result the ranking criteria could not be strictly applied although most elements of the criteria were helpful in evaluating the wildlife benefits of this site. As a waterfowl habitat restoration project, the project is acceptable. In addition, it was noted that the project would provide significant benefits to migratory birds. During the site visit, there was considerable discussion about what it would take to make it a fish habitat restoration project and whether that was feasible and/or desirable. Since no feasibility study was done on this project as a fish restoration project, there was insufficient information to evaluate its fish potential. It would likely be a seasonal wetland and could thus benefit juvenile salmonids by providing feeding and refugia habitat during high flow periods. It would also be beneficial to other fish including less desirable species such as carp. During low flow it would be mostly dry and might become infested with Reed canary grass, an invasive species. Extensive management would be needed to make this a viable fish restoration site. The site offers no unique benefits for fish that could not be found at Vancouver Lake nearby. As a waterfowl and migratory bird project, the site offers good opportunities although maintenance costs would likely be high.

SS-91

BACHELOR SLOUGH: The benefits of this project are uncertain. Although the dredging of Bachelor Slough would likely provide some improvements to water quality by increasing flows and thus lessening high summer temperatures, its benefit to fish, especially salmonids is uncertain. With summer temperatures in the Columbia River already in the high range for salmonids, the additional Columbia River water introduced into the Slough would seemingly not add great benefits. In addition, the proposed riparian vegetation restoration, although potentially valuable for terrestrial organisms and birds, would offer no temperature reduction benefits. It would, however, offer increased food production for fish through detritus and insect introduction over time. There is also concern that dredging would make the slough too available to boaters. No data exists regarding salmonid usage of Bachelor Slough or of historic fish usage patterns although prior to diking, this was a seasonally flooded area and thus was likely used by salmonids and other fish as well as waterfowl. Because of the uncertainties, the project was ranked a tentative medium for connectivity and habitat loss, and low because it involved dredging. Extensive monitoring would be needed and finding an appropriate reference site could be difficult.

SS-92

SS-91. The Corps was prepared to conduct a feasibility evaluation of the Shillapoo Lake restoration feature for fisheries (salmonid) habitat development. The fisheries habitat concept was coordinated with WDFW and NOAA Fisheries twice and the final determination twice presented to the Corps by these agencies was to proceed ahead with WDFW's original proposal for waterfowl habitat enhancement. Thus, the Corps did not nor will not evaluate this location for fisheries habitat development in the absence of resource agency support.

SS-92. The Bachelor Slough ecosystem restoration feature was proposed by the USFWS during the consultation process. The primary value of the Bachelor Slough restoration feature is the establishment of riparian forest. The Corps agrees that the value to the species for the dredging of the slough is moderate. The Biological Opinion concluded that this feature would likely increase juvenile salmonid use of the slough due to improvements in water quality and connectivity. The Biological Opinion also noted that 6 acres of riparian habitat would be restored and additional forest habitat would be developed.

SS-93. Comment noted.

SS-94. The Biological Opinion concluded that, "this feature should increase habitat connectivity and improve foraging conditions for juvenile salmonids" and also concluded that, "[t]his restoration will provide some short- and long-term improvements to habitat complexity, connectivity, or conveyance; feeding habitat opportunity; refugia; and habitat-specific food availability." The Corps views the embayment circulation improvement feature as a small incremental improvement in the overall health of the lower Columbia River. Monitoring as prescribed in the NOAA Fisheries Biological Opinion will be implemented.

SS-95. The Corps and the USFWS are implementing a pro-active effort to establish a secure and viable population of Columbian white-tailed deer at Howard/Cottonwood Islands. The USFWS is also implementing other introduction actions at Crims and Fisher Islands downstream of Longview, Washington to also develop secure and viable populations of CWTD. The success of these translocations cannot be predicted in advance. Consequently, implementation of the long-term feature at Tenasillahe Island awaits the determination of these reintroduction actions.

While the proposed long-term restoration feature at Tenasillahe Island would alter the existing project for migratory bird habitat, the restoration of tidal marsh habitat to approximately 1,778 acres would represent a substantial improvement to fish and wildlife resources, including virtually all the migratory bird species that use the estuarine tidal marshes.



**Corps of Engineers Response**

SS-96. The Corps has revised the proposed action at Miller/Pillar to focus on restoration of tidal marsh habitat. There are numerous examples of successful tidal marsh establishment on dredged material in the Columbia River estuary (response S-9). In addition, the proposed action at Lois Embayment has been significantly reduced in size and the Miller/Pillar action will be conducted one cell at a time to assess results before proceeding further. These projects are proposed as part of a restoration and research actions from the Endangered Species consultation with NOAA Fisheries and USFWS and therefore include a range of monitoring actions to be conducted in concert with restoration. Given the proposed revisions to the restoration actions, the successes with similar actions elsewhere in the estuary, and the proposed monitoring, the Corps believes it is prudent to implement these restoration features in conjunction with the channel improvement project. Doing so it allows the Corps to take advantage of its authorities, willing sponsors, available cost sharing dollars, and materials and equipment required to construct these features which otherwise would be difficult to obtain.

These monitoring efforts would include a control site adjacent to the restoration area and at the target subtidal depth. Monitoring protocol would be established in concert with the USFWS and NOAA Fisheries per the Biological Opinion (Section 12.5, Terms and Conditions 5f). Results will be presented annually to the NOAA Fisheries and USFWS (Section 12.5, Terms and Conditions 6c).

Results from the NOAA Fisheries baseline monitoring [Draft SEIS, Section 4.8.6.3, Hinton et al. (1995)] indicate that fisheries resources, particularly sub-yearling chinook, could benefit from the restoration proposal. Bottom et al. (2001) reported, "... the comprehensive collections during investigations by the Columbia River Estuary Data Development Program (CREDDP) in 1980-81 indicated that both subyearling and yearling Chinook salmon in the tidal fluvial and estuarine mixing region of the estuary preyed extensively on invertebrates from shallow-water habitats (McCabe et al. 1986, Bottom and Jones 1990)." *Corporhium salmonis* tended to be the most prominent prey item and to a lesser extend the congener, *C. spiniornis*, insects (undifferentiated), and the estuarine mysid *Neomysis mercedis*. The Miller-Pillar restoration site is located within the tidal-fluvial zone of the estuary.

SS-97. To address the state's and other similar comments about types of habitats to be restored, the Corps will modify the Lois Island embayment and Miller-Pillar ecosystem restoration features. Rather than attempt to mimic the historic bathymetry of these locations, the Corps will place fill material to an elevation of approximately +6.6 feet mllw in order to develop tidal marsh habitat. This will reduce the acreage targeted for restoration purposes to approximately 191 acres of tidal marsh habitat at Lois Island embayment. These features would provide for restoration of tidal marsh habitat, a focal point for restoration efforts by the multiple parties addressing estuarine habitat restoration.

Attainment of tidal marsh habitat on dredged material at Lois Island embayment is achievable as evidenced by existing tidal marsh habitat that has developed on the interior borders of Lois and Mott Islands and at South Tongue Point, lands formed by deposition of sandy dredged material.

SS-93 COTTONWOOD / HOWARD DEER INTRODUCTION: This project involves no actual restoration but does involve protection of existing riparian vegetative growth including extensive cottonwood forests which are important to the survival of Columbia White tailed deer. Because it had no fish benefits associated with it, the criteria were not entirely applicable. However, the project has merit because it protects important floodplain riparian forests which would benefit a wide variety of wildlife. It also would protect these lands from eventual development and lay the ground work for eventually restoring Tenasillahe Island to wetland habitat by providing an alternative habitat for the White tailed deer.

SS-94 HUMP, LORD, WALLACE ISLANDS: Improving flushing to the backwater areas of these islands was ranked relatively low by the group during the ranking process. Although the actions would improve water quality and sediment flushing, it was unclear how much it would benefit salmonids. When viewed during the field trip, the benefits of these projects seemed more positive particularly with respect to improving connectivity. No real benefits with respect to replacing lost habitat could be realized but fish access to refugia and feeding areas might be improved. The projects would be passive once the channels are opened and thus was ranked high for the passive criteria. Again, extensive monitoring would be needed to evaluate the benefits of these actions.

SS-95 TENASILLAHE ISLAND: During the ranking process, this two phase project was ranked medium during the short term phase which involved improved water passage and high in all categories during the long term phase which essentially entailed returning this site to prime wetland habitat including some spruce marsh. The field visit confirmed the previous rankings. The project would add 1700 + acres to the string of protected marsh habitats in the lower river that are part of the Lewis and Clark Wildlife Refuge and the White Tailed Deer Refuge. The value of this connective habitat to salmonids would likely be quite high. The project would also provide valuable monitoring opportunities to track change over time. The group had some reservations about the project because of the uncertainties associated with the relocation of the deer and with the long time frame before benefits could be realized. It was also noted that an existing project on the island to improve habitat for migratory birds would be negated.

SS-96 MILLER / PILLAR SANDS: The group ranked this project low in most categories. They expressed the following concerns:  
1. There is a lack of data to support the probable success of such a project: Specifically, a) Its not known how long it would take for this site to become productive shallow water habitat if it ever would, and b) its not known whether salmonids would benefit from the site. Since it is not providing the type of habitat that is short supply presently and it is not connected to other habitats of importance, its benefits remain suspect.  
2. The addition of pile dikes to protect this area is intrusive, costly and may not provide the expected results. Funds might be better spent removing old pile dikes rather than installing new ones.

The group agreed that before a project like this is considered, there is a need to conduct a well monitored pilot project to test the effectiveness and appropriateness of this approach to restoration.

SS-97 LOIS ISLAND: Although similar to the Miller/Pillar project, this proposal ranked high because of its connectivity to nearby productive shallow water habitat, the opportunity to restore to historic conditions, and the opportunity to conduct a pilot project to evaluate the effectiveness of this approach. Thus it was rated high in connectivity and availability of a reference site. It was rated low in the habitat loss category because it is creating habitat that is already in abundance nearby. In addition, it is expected to encounter strong local resistance because it will interfere

## Corps of Engineers Response

with a select salmon fishery and a local sports fishery. It also is not passive during the development phase and got a low initial rating although the restoration of shallow water habitat will be passive over the long term. There was also a concern that the coarse Columbia River channel sand was the wrong material for restoring shallow water habitat. Overall, this project could potentially provide a good opportunity to implement a small pilot study to test this approach to restoration provided extensive monitoring and evaluation occurs.

SS-98 | TIDE GATE RETROFITS: Several tide gate retrofits are proposed. The group did not examine the details of each project but considered instead the general benefits of this type of project. The tide retrofits would improve flows and thus fish passage would likely be improved but the changes in flow could also result in the loss of some wetlands and fringe marshes depending on the situation. The value of the projects were site dependent and were thus rated low to medium for connectivity and low to medium on replacing lost habitat. There is a clear need to develop a better understanding of the impacts of tide gate improvements. With little data to support the probable success of these projects, the group was not comfortable giving them a better rating. On the other hand, implementing some pilot tide gate retrofits and monitoring them before and after would provide valuable data that could help support future restoration work of this type. One site was examined in the field. Similar concerns were voiced during the site visit.

SS-99 | PURPLE LOOSESTRIFE CONTROL: This project is a habitat enhancement project and thus did not match well with the ranking criteria. The group recognized the significant threat Purple loosestrife poses to wetland habitat and agreed that the project has positive merit as long as it is very carefully controlled, well coordinated with other agencies, and extensively monitored. There appear to be no direct benefits to fish from this project although other wetland dependent organisms and plants would clearly benefit.

SS-100 | At the end of the field trip, the group discussed the proposed restoration projects overall. It was noted that the proposals were mostly limited to government lands in an effort to minimize the many hurdles associated with the acquisition and restoration of private lands. Several members of the Group noted that there are private lands that could be available that would more closely fit the criteria and offer significantly better ecosystem benefits by conserving and/or restoring lost or declining habitat types. It was agreed that some of the members would explore these opportunities with the intent of developing a priority list of high value habitat acquisition and conservation projects. Finally, the Group emphasized the none of the projects should move forward without a firm commitment to extensively monitor and evaluate each and every project and effectively apply adaptive management principals.

SS-101 | The Lower Columbia River Estuary Partnership and its members appreciate the opportunity to respond to the draft Supplement EIS for the Columbia River Channel Improvement Project. If you have any questions, please feel free to contact Bruce Sutherland or myself at 503-226-1565.

Sincerely,



Debrah Marriott  
Executive Director

SS-97 (con't). The Corps does not agree; our evaluation of the potential impacts to the Select Area Fishery is presented in the response to state comment S-7. Our analysis regarding implementation of a small pilot study at Lois Island embayment is presented in response SS-10. Monitoring of habitat development at this location was addressed in response SS-10.

SS-98. The Corps based its proposed retrofitting of tidegates for fisheries passage was based upon recommended sites from ODFW and WDFW. To further develop the concept, the Corps reviewed comparable efforts that have already occurred in Clatsop County, Oregon. The Corps is unaware of any concerns associated with actions already implemented in Clatsop County.

We believe that we can specifically address your concerns about tidegate-related impacts during Plans and Specifications when detailed information on a site-specific basis will be developed. We also can discuss with the appropriate personnel the impacts of those tide-gate modifications that have already been implemented in Clatsop County by others.

Resource agency personnel need to recognize that there are trade-offs involved with any habitat modification feature. All values cannot be retained when implementing changes to habitat or the infrastructure that plays a role in habitat maintenance. The tidegate retrofits is estimated to provide or improve anadromous fish access to 38 miles of tributary streams that contain spawning, stream rearing, and (in some locations) backwater channel and freshwater marsh habitat for rearing and/or overwinter refuge from floods. Impacts to fringing wetland habitat will be minimized on a site-specific basis when the Corps develops Plans and Specifications to implement the proposal. The Biological Opinion concluded that this action should result in short- and long-term improvements to habitat complexity, connectivity, or conveyance, feeding habitat opportunity, refugia, and habitat-specific food availability by reconnecting the Columbia River to these tributary streams.

SS-99. The Biological Opinion concluded that reduction of purple loosestrife in the Columbia River estuary would help "reestablish the diverse native vegetation of tidal marsh habitats" and that "this restoration feature is likely to benefit ESA-listed salmonids. These changes should benefit habitat complexity, connectivity, or conveyance, feeding habitat opportunity, refugia, and habitat-specific food availability."

SS-100. The adaptive management team established for the project will evaluate the effectiveness of the ecosystem restoration features as specified in the "Terms and Conditions" of the Biological Opinion.

SS-101. The Federal Government appreciates LCREP's involvement.

**ATTACHMENT 1: Habitat Priority Evaluation Criteria**

SS-102. Noted.

**HABITAT CONNECTIVITY** is a broad landscape concept. It emphasizes linkages between habitat areas that provide a variety of functions for species at various points of their life cycle. Gradual alteration of landscapes through natural succession and retrogression allow species that require a variety of habitat components to disperse and survive. In the lower river, historic changes have limited or cut off species' access to resources needed for their development

**HISTORIC HABITAT LOSS:** Land use activities such as diking, filling, and shoreline development have removed many of the shallow, peripheral wetlands and isolated the Lower Columbia River from its floodplain. Other historic wetland types such as emergent and forested wetlands have been greatly diminished. These areas promote networks of physical complexity such as shallow, dendritic channels and backwater sloughs. The loss of shallow wetlands may be of particular importance to salmonids with sub yearling life histories that often rear and seek refuge in estuaries for extended periods before migrating to sea. Furthermore, specific importance is placed on the oligohaline and brackish transition zone of the estuary because of its role as a critical staging area for sub yearling salmon in their acclimatization to salt water

**LINKAGES TO REFERENCE SITE(S):** Determining the effectiveness of restoration activities will require comparison to relatively unaltered reference habitats in close proximity to serve as a "control" for evaluating habitat change. This allows for monitoring the growth, species composition, successional stage and time period of the restoration site in comparison to the reference site. This will assist in developing performance standards and benchmarks for restoration activities in the estuary.

**PASSIVE HABITAT RESTORATION OVER HABITAT CREATION:** Engineering manipulations to create new habitats or to enhance existing habitats introduce great levels of uncertainty about the ecological impacts of such actions and/or the application of the results to other locations. "Passive" restoration methods such as dike and tide gate removal should receive first priority for restoration experiments since historic habitat features of the surrounding area may still be intact. When possible, returning the site to historic hydrologic conditions, using or mimicking natural processes, should be prioritized (i.e. removal of tidegates, levees), over large scale earth moving and further engineered solutions.

**MONITORING AND EVALUATION:** Restoration activities should be placed in the context of an experimental design strategy. Metrics should be developed that enhance an understanding of the connection between habitat variables and species' needs. The results of monitoring can provide the foundation for more effective restoration methods in future projects.

**COMMUNITY SUPPORT AND PARTICIPATION:** While the workshop theme was the development of a scientifically based criteria, most groups noted the need for local community support and participation. Developing partnerships among communities, organizations, individuals and agencies was identified as a critical element to long term estuary restoration success.

ATTACHMENT 2: Habitat Project Evaluation Worksheet - Results Of August 21, 2002 Meeting

Project Name	Discussion	Connectivity	Habitat Loss	Ref Site	Passive	M & E	Support
Shillapoo Lake	This project is based strictly on waterfowl and was thus not evaluated by the workgroup until after the site visit						
Lois Is Embayment	As with all the proposed projects, the ratings are based on the assumption that they meet the stated objectives  It was noted that this type of habitat has actually increased over the years so project does not address historic habitat losses	High	Low	High	Low Dumping Action is low but passive restoration is medium	High need	Low unless shown otherwise
Miller Piller Restoration	Similar situation to Lois Is. Project is not creating most needed habitat – shallow water habitat has increased over time Because of its isolation, it has low connectivity	Low	Low	High	Low process involves dumping spoils	High Need	Low unless shown otherwise

Project Name	Discussion	Connectivity	Habitat Loss	Ref Site	Passive	M & E	Support
Tenasillahe Island	Short term project – improved flow	Medium	Medium	High	Medium	High need	Medium from USFW
	Long term project – deer removal, entire island opened up for restored flows	High	High	High	High	High Need	Medium From USFW
Cottonwood Howard Deer Introduction	No restoration work associated with this project, merely deer relocation						
Bachelor Slough	The outcome of this project is uncertain thus difficult to assess – also uncertain about historic habitat conditions	Medium ?	Medium? w/riparian restoration	Medium to high?	Low dredging involved	High need	USFW lands

Project Name	Discussion	Connectivity	Habitat Loss	Ref Site	Passive	M & E	Support
Purple Loose-Strife Control	This project is an enhancement project not restoration	Medium since it could benefit upland species	N/A	Yes	N/A	High need	N/A
Tide Gate Retrofits	Will improve fish passage, but may lose wetlands and fringe marshes	Low to Medium	Low but increasing access to medium	Medium if the ref site is based on hydrology and subsequent changes to habitat – value of comparison to other tide gate projects	Low	High need	variable
Hump, Lord, Wallace Islands	Restoring flushing, this mostly a water quality issue – improved sediment flushing	Low to medium	Low	N/A	High	High need	N/A

### ATTACHMENT 3: Science Work Group Membership

Chair: Cathy Tortorici, NMFS

Staff: Bruce Sutherland, LCREP

\* Participants in the project review and/ or field trip

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25 Years of Protecting Salmon  
and Tribal Treaty Rights

Corps of Engineers Response

September 13, 2002

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Portland District  
Corps of Engineers  
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**RE: Comments on the Columbia River Channel Improvement  
Project, Draft Supplemental Integrated Feasibility Report and  
Environmental Impact Statement**

Dear General Fastabend and Colonel Hobernicht:

SS-103 The Columbia River Inter-Tribal Fish Commission (CRITFC),<sup>1</sup> at the direction of the Confederated Tribes and Bands of the Yakama Nation, the Confederated Tribes of the Umatilla Indian Reservation, the Nez Perce Tribe and the Confederated Tribes of the Warm Springs Reservation of Oregon, appreciates the opportunity to review and provide final comments to the Columbia River Channel Improvement Project Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (DEIS). CRITFC filed comments on this project in the past,<sup>2</sup> and we incorporate by reference those comments in the following analysis. We note that many of the same issues and deficiencies are revisited in this DEIS, so we continue to support the "No Action Alternative".

SS-103. Comment noted.

GENERAL COMMENTS

<sup>1</sup> CRITFC was created in 1977 by the Nez Perce Tribe, the Confederated Tribes of the Umatilla Indian Reservation, the Confederated Tribes of the Warm Springs Reservation of Oregon and the Yakama Nation. The governing body of CRITFC is composed of the fish and wildlife committees of its member tribes. Protection and enhancement of those streams and flows that provide spawning, rearing and migratory habitat for anadromous fish are of critical importance to the tribes. CRITFC provides technical and legal support to the tribes to carry out those goals.

<sup>2</sup> February 5, 1999 draft EIS comments; May 26, 1999 comments on USFWS Coordination Act Report; November 30, 1999 comments on FEIS.

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- SS-104 • The Corps should formally consult with our member tribes on this proposed project before the FEIS is finalized and the ROD is signed, consistent with the Corps' own national Native American policy and Executive Orders. In specific letters to the Corps,<sup>3</sup> CRITFC has repeatedly requested consultation, but the consultation has yet to occur. The tribes define consultation as the negotiation and cooperation process that ultimately leads up to and includes a bilateral decision between the federal government and affective tribes.
- SS-105 • The DEIS fails to adequately describe and analyze the effects of the proposed action on treaty-reserved resources including salmon, pacific lamprey and sturgeon and their critical habitats.
- SS-106 • The DEIS does not adequately address cumulative impacts from the proposed action that could adversely affect fish health, especially issues related to potential toxic contamination in sediments.
- SS-107 • The DEIS economic analysis of the proposed project is questionable. In addition, the DEIS fails to address possible impacts to tribal socioeconomic parameters and cultural issues.
- SS-108 • The DEIS fails to examine the project's impacts on the estuary and lower river in context with the Columbia River Basin ecosystem. More specifically, the DEIS fails to analyze or understand the relation of the estuary as critical habitat essential for the recovery of ESA listed and depressed salmonid stocks.

SS-104. The Corps provided the tribes the opportunity to do government-to-government consultation. Only the Yakama and Warm Spring tribes responded and participated in this process. The Corps is available to do government-to-government consultation with any other tribes that express an interest. Technical coordination was also offered to the tribes and only the Umatilla and Nez Perce Department of Natural Resources tribal members requested a meeting. This coordination is also available to any requesting tribe.

SS-105. Impacts to salmon and sturgeon and their critical habitats have been thoroughly evaluated in the 1999 Final IFR/EIS, the 2002 draft SEIS, and the biological assessments and Biological Opinions for the project. Information on Pacific lamprey and river lamprey will be provided in the Final SEIS. It is anticipated that the project will not affect either of these species or their habitat.

SS-106. The 1999 Final IFR/EIS and the Final SEIS evaluate the potential cumulative effects of past and present actions affecting the project area, as well as reasonably foreseeable future actions. The Final SEIS also describes extensive new analysis of sediment chemistry throughout the project area and the potential effect of future cleanup of contaminated areas of the Willamette River. Based on concerns expressed by NOAA Fisheries and others in 1999 about the potential effects of contaminants on the river and estuary, substantial effort was devoted to re-analyzing the issue, including evaluation of thousands of sediment chemistry samples from throughout the project area. The new analysis confirms the Corps' initial conclusion that project activities do not pose a significant risk of adverse effects from contaminants. This conclusion is supported by the NOAA Fisheries and USFWS Biological Opinions. See responses SS-13, SS-20, SS-111 and SS-192, l. Additionally, the Corps and USEPA have recently established the Northwest Regional Dredging Team to coordinate and manage dredging/sediment issues in the Pacific Northwest. This body will become an important forum for examining and finding solutions to sediment contamination problems in the future. A letter was sent to the various Northwest Tribes inviting their participation.

SS-107. In their May 2002 Biological Opinion, NOAA Fisheries determined that an unquantifiable but low amount of incidental take of listed salmonids will occur over the life span of the project as a result of the proposed action. Consequently, we do not believe that a loss of fisheries resources will occur at a level that would constitute an adverse impact to tribal socio-economic parameters and cultural issues.

SS-108. Through the ESA reconsultation process, the Corps, NOAA Fisheries and USFWS devoted substantial effort to improving the understanding of the Columbia River ecosystem, including the lower river and estuary, as they relate to salmonid productivity, survival and critical habitat. The conceptual model, which was developed through the reconsultation process and approved by NOAA Fisheries and USFWS, addresses these issues in detail. Rather than repeat the reconsultation analysis in its entirety, the SEIS summarizes the results of that analysis and incorporates the more detailed presentations of it in the Biological Assessment and Biological Opinions, which are attached as Exhibit H of the SEIS.

SS-109. Discussions on stranding included the more recent study done by NOAA Fisheries in 1993. This study has been cited in the 1999 Final IFR/EIS and in the Final SEIS in the Technical Memo on stranding. In addition results from the pilot study done this year will be added to the Final SEIS.

SPECIFIC COMMENTS

Biological Assessment and Biological Opinion

SS-109 The ecological effects of the proposed alternatives in the DEIS are founded upon information and conclusions of a revised biological assessment (BA) and a revised biological opinion (BiOp). In discussions with NMFS and the Corps surrounding the previous BA and the 1999 Opinion, the lack of field studies and data were identified as major deficiencies of the assessment and opinion. Despite the fact that physical models were constructed, no new field studies or data were produced for the current BA and BiOp. The BA and BiOp did not contain any new data regarding the potential impacts of the project on estuary health or fish health impacts from the proposed dredging activity. No additional field data were obtained to resolve critical uncertainties since the prior NMFS no-jeopardy opinion was rescinded even though this need was previously identified as critical.

The BA and BiOp have an expanded environmental baseline description, but they still lack specifics and recent data. For example, the only description for stranding of juvenile salmon by ship wakes was one 1977 study. As another example, the BA suggests

<sup>3</sup> December 16, 1999 letter from Don Sampson to Lt. General Joe Ballard; March 3, 2002 letter from Don Sampson to Brig. General David Fastabend.



that phytoplankton populations in the estuary are low because of high flushing and cites a 1984 study for evidence. The relevance of this study is questionable because flows are now significantly reduced by the modification of flood flows by the Corps. Sherwood et al. (1990) determined that large volumes of plankton are created in reservoirs and are flushed into the estuary where they provide a large forage base for shad, which may compete with salmon for habitat. These facts are not mentioned in the baseline description.

*Short-term cumulative effects*

SS-110 In section 6.3 of the BA only three categories of short-term salmon impacts were identified. Among other things, the following issues remain inadequately addressed in the BA and DEIS: toxic entrainment by dredging; dredging year-round, including during the salmon migration; harassment and entrainment of salmon during dredging (salmon commonly migrate below 20 feet from the surface contrary to the assumption in the BA); turbidity plumes during dredging; and loss of benthic productivity.

*Long-term cumulative effects*

SS-111 Much more detailed and specific baseline information on the ecological status of the estuary through field studies is necessary before determining new impacts. Section 6.3 of the BA states that monitoring and research would be done after additional dredging. This would make it impossible to measure the changes in ecological response to new dredging, as the opportunity to establish the baseline before dredging would be lost.

Allen and Hardy (1980) note that after construction, the new channel becomes a sink for toxic contaminants that are re-suspended again and again from ship traffic and maintenance dredging. The database for toxic sampling in the proposed channel deepening area is insufficient, especially in areas near the mouth of the Willamette River. In all there were only 89 grab bag samples and only 29 of these were analyzed for toxics. A toxicologist consultant for the Ports described the database as, "spotty". The database must be expanded with more sampling and the fish health risks assessed before the EIS is finalized and the ROD is signed.

SS-112 In our comments to the initial and revised NMFS draft biological opinions we noted that epidemiological studies for fish in the estuary were critical and should proceed and be included in the opinion. The BA and subsequent DEIS did not consider the methodology of Mac and Edsal (1991: in Ewing 1999) for the study of the relationship of lost reproductive success in Great Lakes trout due to exposure to toxics. Ewing (1999) notes that toxics can affect fish behavior such as schooling, temperature selection, seawater adaptation, endocrine disruption and sexual development to the detriment of the population. The BA and subsequent DEIS addressed toxic uptake in prey and salmon, but did not address possible sub-lethal effects that would compromise salmon populations. The current contaminant loading of fish in the lower Columbia and estuary is already high. The BA and subsequent DEIS did not address heavy metal, other herbicide and insecticide impacts on salmon or their habitat, nor of wave action that will re-suspend toxics in shallow water habitat where organic

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SS-109 (con't). The Sherwood (1990) paper (no reference was given) is based on data from the CREDP study which is the 1984 data. No new data is available on phytoplankton in the river or estuary that would refute the conclusion that phytoplankton productivity is low because of the dynamic nature of the estuary and the short flushing time. Both these factors prevent the establishment of a brackish water or marine populations of phytoplankton that would provide a large estuarine population. In addition, since the freshwater population that develops in the warmer more stable environment of the upstream reservoirs dies when it reaches the salt water interface it does not contribute to a large standing crop of phytoplankton in the estuary.

SS-110. We disagree; all of these impacts have been thoroughly discussed in the 1999 Final IFR/EIS, the 2002 Draft SEIS, and the Biological Assessment and Biological Opinion.

SS-111. Because of the dynamic nature of the Columbia River, bottom sediments are constantly being reworked and therefore consist of sand with a very low percentage of fine-grained material. Such sediments do not have binding sites for contaminants. The improved channel will not measurably alter the dynamics of the river to the point where slack water will form potential sinks for toxic contaminants. The database of sediment quality in the Columbia River is much larger than the 89 samples mentioned. The Federal Government has identified over 100 separate studies it has conducted in the last 22 years in the Columbia River for various purposes. Over 4,000 samples on the Columbia River have been identified. This information continues to be updated. The Corps is actively populating the SEDQUAL database to include these identified Corps' studies. The Corps, USFWS and NOAA Fisheries have committed to annually review the Columbia River sediment quality database including new sediment data and determine if conditions trigger the need for additional testing.

SS-112. The SEIS and previous documents did not assess all of the reported potential impacts to fish due to the lack of contaminants found in the material to be dredged. Had contaminants been found in concentrations above or even approaching established levels of concern additional evaluation including biological testing would have been performed. It is known that fish in the Columbia River have measurable body burdens of some contaminants of concern however no link to the sediments proposed to be dredged has been made. The Bi-State studies conducted in the early 1990s included the evaluation of fine-grained sediment from backwater areas in the Columbia River. This study did not find significant levels of contamination in the backwater areas along the sides of the channel. Bioassays were performed on these sediments during the Bi-State study. Based upon the lack of toxicity found in these tests, no further biological testing is considered necessary by both the Corps and USEPA. Ship wakes are not expected to cause resuspension of contaminants from shallow water areas.

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sediments are likely to contain toxics and where salmon rear and rest.<sup>4</sup> The Corps should conduct toxic contaminant screening, bioassay and bioaccumulation studies of sediments and biota along the proposed channel dredging sites and backwaters that will be disrupted by ship wakes. The results from these tests should be included in the FEIS. The section in the BA that addresses toxics states that the toxic assessment is 1) uncertain, 2) literature based and 3) requires extrapolation because field studies have not been done. The FEIS should also contain the updated EPA/Corps Dredged Material Evaluation Framework. These issues must be addressed before the EIS is finalized and the ROD is signed.

SS-113 According to the NMFS Cumulative Risk Analysis (CRI) in the 2000 FCRPS Biological Opinion, survival of listed juvenile salmon in the estuary and near shore environment must be increased to 11-14% in order to prevent jeopardy of listed salmon in the Columbia River. Analysis by Bottom and Jones (1990) and NMFS researchers (Dawley, pers. comm. 2000) and Congleton et al. (2001) indicate that juvenile salmon in the Columbia estuary have less food in their stomachs than juvenile salmon in other Oregon and B.C. estuaries. Percy (1992) noted that smaller juvenile salmon (from the lack of food) have higher ocean mortality rates. Neither the BA nor the DEIS include an updated CRI assessment because the data is lacking. Thus, the proposed project is not considered in context with overall actions in the basin to promote salmon recovery.

SS-114 Schreck et al. (2000) found that migration speeds were enhanced by outgoing tides in radio telemetry studies of juvenile salmon migrating through the CR Estuary. Deepening the channel will cause the saltwater intrusion to shift upstream and the ETM to impact tidal regimes, possible to the detriment of outmigrating salmonids. Neither the BA, nor the DEIS address this issue.

SS-115 Through modeling analyses of the physical changes from the proposed action, Baptista et al. (2001 BA Appendix F) found that the proposed dredging would result in negative habitat changes, especially in the navigation channel where adults and juveniles are expected to migrate. River temperatures will be cooler in the deepened channel because of greater salinity intrusion, however, this could be a negative impact to salmon. The Baptista et al. discussion in Appendix F also recommended that the modeling analysis of habitat opportunity be extended upstream into the river reaches proposed for dredging based upon water depth. These issues are not adequately addressed in the DEIS.

SS-116 Data from High and Bjornn (2001) and Goniera and Bjornn (2001) indicate that adult salmon below Bonneville Dam migrate as deep as sixteen meters below the surface and seek cool temperatures. Adult salmon at these depths would be at risk from dredging activities including contact with the dredging machinery and contact from turbidity plumes. Hydroacoustic studies by Ploskey et al. (2001) and sampling by Backman (2000 pers. com.) indicate that juvenile salmonids can be found migrating in the water column at depths of 30-

<sup>4</sup> The DEIS indicated that larger vessels would be faster (DEIS at 3-8) which would increase ship wakes. The DEIS does not contain any specific studies or which indicates that the shoreline and shallow water movement of sediments caused by large ship wakes would not continually resuspend sediments along the river and in salmon habitat. The NMFS biological opinion notes that Corps analysis of larger ship wakes could result in a 1-5% increase in higher ship wake generation.

SS-112 (con't). Regarding toxics assessment, the BA states that negligible risks were predicted for the channel sediments that are proposed for dredging. Further, the potential for cumulative risks appears negligible because all contaminants posed negligible risks. Because their specific modes of action are different and exposures were below effects thresholds, risks from PAHs, PCBs, and the DDT family are not additive. This result supports the overall conclusion concerning negligible risk potential to juvenile salmonids in the lower Columbia River as a result of the proposed project. Additional field studies are not needed.

The Dredged Material Evaluation Framework (DMEF) has not been updated. The DMEF and process was intended to be reviewed on an annual basis and updated as needed. Minor modifications have been made on a case-by-case basis by the agencies. A concerted effort is presently ongoing to scope the work needed for a major update to the DMEF. The DMEF will be updated as new information, procedures, or techniques are adopted. This major effort is expected to take 3 years to complete; until that time, the existing DMEF with modifications as accepted will be used. The DMEF is accessible at <https://www.nwp.usace.army.mil/ec/h/hr/>. See 6.4 and Exhibit H on the Corps website.

SS-113. The Corps disagrees; a thorough evaluation of the impacts of the project on juvenile salmon rearing and rearing habitat was conducted during the NEPA and ESA processes. The conclusions from the modeling efforts and of the experts panel during the reconsultation process was that the physical change to the estuary associated with the deepening would be small and not produce a significant change in the juvenile salmon rearing habitat, such that it would affect their survival. In addition, the ecosystem restoration projects proposed as part of the improvement project will provide additional rearing areas that are anticipated to improve juvenile salmon fitness and overall survival.

SS-114. The ETM does not affect tidal regimes as stated but is actually the mixing zone produced by tidal action and freshwater flow. The modeling done during the original 1999 Final IFR/EIS process and the reconsultation process indicate that the shift in upstream salinity levels will be minor. It is discussed in the 1999 Final IFR/EIS, the 2002 Final SEIS, BA and Biological Opinion. During the consultation process, it was agreed by NOAA Fisheries and the expert panel that this minor change would not have a significant effect on salmonids in the short term. To address potential uncertainty regarding long-term effects, the Corps will organize a workshop on ETM.

SS-115. You are correct in stating that some of these issues were not discussed in the 1999 DEIS. They were however discussed in the Draft SEIS that described the results of the reconsultation process and the additional physical modeling done. Though the model conducted by Baptista indicated a small potential for lower temperatures, it was agreed by the group that these changes were very small in comparison to the normal variation and would not have an effect on salmon habitat. Modeling of habitat opportunity was done during the reconsultation process and was found to be a very small change. These discussions are included in the Draft SEIS.

SS-116. Research done in the lower Columbia River has indicated that juvenile salmon migrate predominately along the channel margins and at depths less than 20 feet (Carlson et al, 2001). Consequently, it is unlikely they would occur to any extent in the dredging area.

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40 feet in the impounded river and below Bonneville Dam. Juvenile salmon radio telemetry studies that tracked fish through the Columbia River estuary showed that fish were migrating as deep as 8.7 meters below the surface (Schreck et al. 2000). Thus, juveniles would be subjected to mechanical and turbidity plume impacts of dredging as well as exposure to toxics in sediments. Schreck (2002) noted that most radio-tagged juvenile steelhead migrate through the navigational channel, near the area that is proposed for blasting. This fact was not noted in the biological opinion or DEIS. The BA, BiOp and DEIS key assumption that salmon do not actively migrate below 20 feet is not supported by any scientific literature.

SS-117 The BA, BiOp and DEIS lack assessments of synergistic and cumulative impacts to salmon and critical habitat that could result from dredging. These include oil spills from larger vessels and more frequent shipping, bilge dumpings, further toxic contamination from increased shipping and industrial activity and introduction of exotic species that could directly or indirectly impact listed species. Because larger ships are less maneuverable than smaller ships the risk of an accident would be increased. These issues are not addressed in the DEIS.

The BA, BiOp and DEIS lacks any discussion or comparison of dredging impacts on fish and fish habitat from other watersheds around the world. These are available in the literature and are discussed in Dodge (1989).

SS-118 Elevated, but not extreme, levels of turbidity caused by dredging have been correlated with decreased juvenile survival by NMFS and others (Junge and Oakley 1970; Smith et al. 1997). The literature (Hardy and Allen 1980) notes that dredging can reduce turbidity as sediments sink into the navigation channel. This issue is not adequately addressed in the DEIS.

SS-119 The DEIS states that 70 mcy of sediment will be removed from the river from the proposed action over a 20 year period, and that this will cause reduction of water surface profiles and shoreline riparian areas above RM 70 to RM 170. Significant portions of sediment may sink into the deepened channel only to be removed by dredging out of the system. The DEIS does not adequately analyze what this impact could mean to existing riparian areas that are critical habitat for salmonids.

SS-120 In Section ES-18 of the BA, the Corps and Ports call for an adaptive, oversight policy management structure of the regional federal executives and ports making decisions related to the proposed dredging and estuarine habitat enhancement. The BiOp's conservation recommendation includes the tribes in this structure, yet the DEIS is silent. As a co-manager of the resource, the tribes need to have meaningful policy input into any decision-making process.

SS-121 In the revised BiOp for channel improvements, NMFS finds that the proposed action would be adverse to essential fish habitat (EFH) under the Magnuson Act. The DEIS does not address the impacts of proposed alternatives on the EFH.

SS-116 (con't). Information on adult salmon migration indicates that they also tend to follow the shoreline or channel margins. No juvenile or adult salmon have been collected during the dredge entrainment studies conducted during normal dredging operations. It is unlikely that migrating adult salmon would occur in any numbers near the bottom of the main navigation channel, at 40 plus feet of depth, where dredging occurs. Consequently, any impacts from dredging operations or turbidity would be expected to be minimal. Sediment sampling has shown the dredged material to be predominately clean sand with very low levels of fine grain material, which would be the source of contaminants. Consequently, the chance for salmon to be exposed to contaminants during dredging is low. A discussion of the potential blasting effects was discussed in the EIS; it was indicated that blasting would be done during the approved in-water work period to minimize impacts to salmonids.

SS-117. As discussed in 1999 Final IFR/EIS and the Final SEIS, none of the factors listed are expected to change, over current conditions, with the deeper channel. A discussion on the effect of the channel improvement on introduction of exotic species also was provided in the Draft SEIS and as indicated, was not expected to change with the project. The project is intended to accommodate Panamax class bulk carriers and container ships. Since these ships already transit the Columbia River with 40-foot drafts, increasing drafts to 43-foot will result in only a marginal decrease in maneuverability. As explained in the 1999 Final IFR/EIS, the Columbia River channel has an excellent safety record and this is expected to continue with the deeper channel. Finally, there is no requirement under NEPA to compare dredging impacts to those occurring from other watersheds from around the world as suggested by this comment.

SS-118. The potential levels of increased suspended sediment and turbidity were thoroughly evaluated during the endangered salmonids consultation and are explained in the 2001 BA. The potential elevated levels of turbidity are too low to impact juvenile salmonid survival.

SS-119. The potential shoreline changes were thoroughly evaluated during the endangered salmonids consultation and are explained in the 2001 BA. As noted on p 6-34 of the SEIS, the side-slope adjustment could cause a shift in the location of some shallow water habitat. This shift would occur along old shoreline disposal sites with sandy beaches and riverbeds. The shift would occur over 5-10 years and habitats would remain similar to the existing habitats. Also, the potential water surface changes were thoroughly evaluated during ESA consultation and are explained in the 2001 BA. The water surface reductions are less than 0.2-foot in reaches of the river that have daily water surface fluctuations of 1-2 feet and seasonal fluctuations of 10-15 feet. The less than 0.2-foot change in water surface would not cause a discernable impact to riparian habitat.

SS-120. The adaptive management process will include input from the tribes, state resource agency and interested stakeholder groups. The adaptive management meetings will be semi-annual and open to the public; research proposals and results will be posted to the Corps' website. The input provided by CRITFIC, the tribes and the states will be considered in making recommendations to the management workgroup. The Adaptive Management Team is prepared to meet with CRITFIC, member tribes, and the states to discuss areas of concern before making decisions. All decisions about adaptive management will be available and posted on the Corps' website.

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SS-121 There should be annual mitigation requirements for existing and proposed maintenance dredging, but this is not addressed in the DEIS.

Nowhere in the BA, BiOp or DEIS are dredging impacts to Pacific Lamprey addressed. Pacific Lamprey are a prey of choice to predators that, when lamprey are scarce, turn to juvenile salmon. Lamprey are also an important cultural food for the tribes.

DEIS

### Chapter 3 Needs and Opportunities-Shipping Analysis

Given the facts reported in the DEIS, CRITFC believes that the project is not economically viable. In fact, it appears that the environmental and other real costs outweigh any true economic benefits. For instance, the DEIS relies on data of estimated grain container shipping that is outdated and inaccurately forecasts future conditions of markets. To be legitimate, the FEIS must include more reasonable estimates based on accurate assessments of current and potential markets. In addition, the project seems to ignore the fact that the majority of the new para-max class ships require drafts of forty-four to forty-eight feet, greater than forty-three feet planned for this project.<sup>5</sup> In order to truly reap the benefits that the DEIS claims, the Corps would need to dredge a much deeper channel.

SS-122

The project will almost certainly create greater impacts to the river by encouraging more industrial development and shipping activity, further degrading salmon habitat. In their review of dredging impacts throughout the U.S., Allen and Hardy (1980) note that the greatest impacts from new channel construction often are related to increased industrial development made possible by additional dredging and subsequent increased shipping. Indeed, major deepening of the turning lanes for the lower river ports are part of the dredging proposal.

### 4.3 Non-Structural Alternative

SS-123 The BA and DEIS lack discussion related to modification to mainstem river operations, such as modified flood control, both in the Willamette and Columbia Rivers that could mitigate for the impact of dredging or even avoid the dredging altogether. For example, creative and more accurate modifications to LOAD-MAX, which is a non-structural alternative that would time navigation according to tidal cycles. In our November 30, 1999 comments on the first DEIS, we suggested several technical modifications to LOAD-MAX that would make it more effective. This included, but were not limited to: improving river stage forecasting; seeking consistency with Willamette and FCRPS outflow release schedules driven by power marketing; and improving hydrological and meteorological forecasting using state-of-the-art methods with more frequent updates. It does not appear that the DEIS considered these modifications.

SS-121. The Corps has submitted a revised EFH assessment for coastal pelagic and groundfish species, for NOAA Fisheries' evaluation. The initial EFH assessment was provided in the Draft SEIS. Revisions were made as a result of comments received from the Pacific Fisheries Management Council on the Draft SEIS and original EFH assessment. The revised EFH assessment is included in the Final SEIS. A discussion on Pacific and river lamprey is provided in the Final SEIS.

SS-122. The commodity projections used in the analysis represent today's best available science and have been reviewed thoroughly by an external expert panel. The expert panel's conclusions were that the Corps' numbers were conservative and reasonable.

The fact that vessels could use more than 43 feet if it was available does not reduce the benefit of having a 43-foot channel. There will always be vessels in the world fleet that are too large to call on the Columbia River, and the benefits of this project are calculated accordingly. As part of the ESA consultation conducted with USFWS and NOAA Fisheries, the six lower Columbia River ports submitted documentation on each port and what future plans are expected at each port. The deepening of the Columbia River is not inducing industrial development on the river as documented in the ports' letters, which are available on the Corps website.

SS-123. As described in section 4.3 of the 1999 Final IFR/EIS, the NWS-NWRFC has already made significant improvements in the hydrologic and hydraulic modeling used to provide the Loadmax river stage forecasts. As explained at the technical review on June 7, 2002, further upgrades to Loadmax may provide some incremental improvement in forecasts that will improve navigation safety, but will not result in 3-foot additional draft for outbound ships. The technical review panel indicated in their report that, "Loadmax was already being pushed to its limits and that a deeper channel would be needed before deeper draft vessels could navigate the channel."

<sup>5</sup> According to the tables in this section, over 50% of the ships being used to transport corn require more than a forty-three foot draft and 25% of ships carrying barley and 10% of wheat-bearing ships are too big. On the other hand, 75% of ships carrying wheat, 17% of ships carrying corn, 58% of ships carrying barley only require a draft of forty feet or less. Another export, alumina, will reap no benefit at all from the project.

#### 4.4.3.10 Disposal Plan

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SS-124 The DEIS relies on inadequate studies of disposal impacts. The DEIS proposes dumping dredge spoils into a deep-water ocean site ten years after the project commences. According to ODFW, the Corps has only obtained six grab bag benthic samples at this site, not nearly enough to create an adequate baseline assessment of possible impacts from dredging spoils. Additional surveys should be conducted at the proposed site and included in the FEIS.

SS-125 This project will contribute a great deal to the avian predation problem in the estuary, which arose primarily due to the Corps' disposal of dredging spoils that created such island habitats as Rice and Miller Sands islands. Existing estimates indicate that between about 6-12% of the entire annual Columbia River production of juvenile salmon are consumed by avian predators in the estuary (Roby 2002 unpublished data). For 2002, NMFS estimated that some 126.5 million juveniles arrived at the estuary, indicating that some 7.6-15.2 million were consumed by avian predators, the majority using habitat created by existing dredging spoils. The DEIS describes hundreds of acres of new and existing dredge disposal sites to be used as in-water disposal sites that are very near to existing bird colonies (i.e. proposals to add 228 acres to Rice Island and 151 acres to Miller Sands Island). The additional loss of juvenile salmon from the new dredge spoils would likely be considerable, yet this issue is not adequately addressed in the DEIS and should be fully addressed in the FEIS.

SS-126 The DEIS confirms that dredge disposal will occur at Miller Sands Island, and that side slope adjustment from the disposal will occur into shallow water areas. Schreck et al. (2002) noted that for the first time, juvenile salmon radio tags were found on Miller Sands in 2001, indicating that avian predators are finding new forage areas, and may "clump" at the top of the estuary during flood tides. This information also reveals that avian predators appear to be moving upstream to seek salmon in transition zones, thus, disposal of dredge spoils in these areas will likely create more avian predator habitat. This issue should be addressed in the FEIS.

SS-127 We question whether the proposed "restoration feature" projects will truly benefit salmon. There are flaws in these projects, and even the DEIS states that some of these projects will negatively affect salmon in the short-term. Other than the projects that dispose of dredging spoils, it appears to us that mitigation projects identified by the Corps will require separate Congressional appropriations that are not tied to the project construction costs. Thus, it is questionable whether the Corps will actually implement them.

SS-128 We believe that before initiating these projects, the Corps should conduct small pilot projects to properly evaluate the impacts to salmon. For instance, the Miller-Pillar and Lois Island Embayment projects, which involve dumping dredge spoils in the river to create shallow water habitat, may not benefit salmon as claimed. On the contrary, the EPA<sup>6</sup> has

<sup>6</sup> January 22, 2002 EPA Comments to Corps of Engineers' Dredged Material Management Plan, McNary Reservoir and Lower Snake River Reservoirs draft Environmental Impact Statement.

SS-124. Regarding additional studies, we agree. Appendix H addresses the need and impact of ocean disposal of dredged material from the MCR and proposed channel improvement project. Additional physical and biological baseline information was identified as required and attainable at the Deep Water Site. Additional baseline information has been collected in the two years since the 1999 Final IFR/EIS, and this new information is disclosed in the Final SEIS, Exhibit N. Sufficient information through the series of baseline studies and historical information will allow USEPA to designate the two sites identified in Appendix H. The establishment of baseline conditions at an ODMDS is a part of the designation process for a new site and part of the historical record for previously used sites. It is not the purpose of designation surveys to provide either a basis or a baseline for monitoring. Designation surveys are for the sole purpose of designating a disposal site(s). An original baseline is usually established during site designation where the sea floor has not been disturbed. Depending on site use and management objectives, this assessment may or may not accurately reflect the conditions inside and outside of the site several years later after sediment has been placed at the site. Some changes are predicted and acceptable (e.g., ultimately a 40-foot mound will be formed at the Deep Water Site if used to full capacity), other changes may not be (e.g., widespread placement of dredged sediment outside the site). Impacts assessment is conducted as part of management of the designated site and evaluates the severity, extent, and significance of changes at the site and/or off-site.

SS-125. The Corps disagrees that this project will contribute to avian predation. The comment incorrectly states that there are hundreds of new and existing dredge disposal sites to be used as in-water disposal sites. The project does not include any new in-water disposal sites that will create dry land that can be used by birds. The project also uses the existing footprint at Rice Island (228 acres) and Miller Sands Spit (151 acres; acreage of disposal site varies due to the location being a shoreline disposal site that accretes (disposal) and erodes on an annual basis). No new areas for birds are created at these sites. Therefore, we are not adding hundreds of acres of new upland disposal sites as the comment alleges.

The Corps is currently required by the Biological Opinion for the maintenance of the 40-foot navigation channel to preclude Caspian terns from nesting at Rice and Pillar Rock Islands and Miller Sands Spit. Caspian tern nesting is acceptable at East Sand Island and the Corps currently manages a six-acre site there for terns to nest. Tern diet at East Sand Island, near the mouth of the Columbia River' mouth is more diverse, with salmonids comprising less than 40% of the diet.

The NOAA Fisheries will continue to require the Corps to preclude Caspian terns from nesting on the upper estuarine islands through the forthcoming renewed biological opinion for the 40-foot navigation channel and subsequently, for the 43-foot navigation channel O&M, once the project is constructed. Rice Island, Miller Sands Spit and Pillar Rock Island are not scheduled to be used for dredged material disposal during construction of the 43-foot project.

Caspian tern management in the western U.S. is the subject of an interagency effort (Caspian Tern Working Group). The intent is to disperse the tern population amongst a number of nesting locations to reduce predation on juvenile salmonids and lessen the risk of catastrophic loss through disease, pollution or another element, of the bulk of the Caspian tern population.

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SS-126. Miller Sands Spit, not the island referenced in the comment, will be used for dredged material disposal during the O&M phase of the proposed project. The high tide/riparian strip on the interior (southern) side of the Spit lies outside the disposal site boundary. Thus, no disposal or sideslope adjustment will occur into the shallow waters of Miller Sands embayment. Sideslope adjustment will occur on the channelward side of the spit into deep water and toward the navigation channel. This is an ongoing process that has been present since the spit was formed by dredged material disposal in 1976.

Avian predators, such as Caspian terns, double-crested cormorants, or gulls of various species have utilized this area of the estuary for a substantial period of time and are not a phenomenon of the last few years. Caspian terns colonized Rice Island in 1986, immediately across the channel from Miller Sands Spit. A gull colony was present on Rice Island beginning around 1980. Cormorants have also colonized Rice Island and channel markers in the area. The Corps' wildlife biologist has observed all these species foraging in the area since 1978. Thus, avian predators have discovered no new foraging area. This area of the estuary is not the head of the tide.

Two factors probably contribute to the location of salmon radio tags on Miller Sands Spit. First, the presence of a gull colony near the downstream end could easily lead to juvenile salmonid radio tags occurring at this location. Secondly, gulls and Caspian terns will congregate on the spit in large numbers prior to nesting and even into the nesting season. Pellets cast by loafing birds may contain radio tags.

As proposed, the disposal of dredged material does not create more avian predator habitat. As noted above, the disposal site footprints, as proposed, remain the same as pre-project.

SS-127. NOAA Fisheries and the USFWS assessed the affects of the restoration projects, including the potential short-term adverse affects noted in Draft SEIS, and disagree with this comment's conclusions. See response to comments SS-10 and SS-91 through SS-100. Ecosystem restoration features are not "mitigation." They represent voluntary actions undertaken by the Corps under Section 7(a)(1) of the ESA, utilizing the Corps' existing authorities. No separate Congressional appropriations are required to implement. These features are now part of the project. The Corps is committed to implementing these ecosystem restoration features subject to the contingencies described for each project.

SS-128 and SS-129. The Corps has proposed to modify its implementation of Miller-Pillar to more fully evaluate restoration benefits (see response SS-96). No such modification is necessary for the modified Lois Island embayment restoration feature (see state response S-10). The restoration action at Miller-Pillar is directed at re-attainment of productive shallow water habitat as determined from baseline studies (see response SS-96).

The comment provides no information to support the statement that there is a solar heating problem for salmonids in Cathlamet Bay (Miller/Pillar location) or Grays Bay, both of which contain significant acreage of intertidal mudflat and shallow subtidal habitat. These areas are important foraging areas for juvenile salmonids. They also are subject to tidal ebb and flow and therefore, substantial water exchange occurs throughout the tidal cycle, which probably precludes your concern over increased water temperature. Our proposal at Miller/Pillar, at 224 acres, pales in comparison to the 44,770 acres shallow water habitat in the estuary (see response SS-312).

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SS-128 and SS-129 (con't).

Dredged material deposition should not decrease total dissolved oxygen concentration. The material to be disposed is medium to coarse-grained sand with less than one percent fines, including organic material. Given extant river flow, tidal exchange and the negligible amount of organics in the material to be dredged, there should not be a reduction in dissolved oxygen. See responses SS-91 and SS-98 regarding tidegate retrofitting and Shillapoo Lake.

SS-130. This comment accurately explains that the 2001 SEI process developed additional information to address questions raised by NOAA Fisheries in 1999 regarding the ETM. The 2002 Biological Opinion is based on this best available science. The project includes a monitoring and adaptive management program. This process includes initiation of consultation under the ESA, if necessary.

SS-131. As discussed in the 1999 Final IFR/EIS and the Draft SEIS, changes in the ETM and bottom salinity in the channel are minor compared to natural variation of these parameters. Consequently, it is unlikely that they will have an adverse effect on migration timing or estuary residence. Neither of the Schreck studies had information on juvenile salmon migration depth. Research done by Carlson et al (1999) indicated that migrating juvenile salmon are found predominately along the channel margins rather than on the bottom as indicated. Changes in salinity in these areas are even smaller than on the channel bottoms, which would further minimize the impact to migrating salmon.

SS-132 to SS-134. There is little or no evidence that deepening the channel will adversely affect wildlife or fishery resources, especially in regard to up-river tribes. Channel deepening and disposition of dredge material as outlined in the alternatives, would have minimal and localized impacts to wildlife in the lower river province and estuary. It should have little or no impact on migrating salmonids and resident fish, especially in the long term. There is no known direct socio-scientific data that directly connects the perceived disintegration of the socio-psychological-economic system of tribal life-ways to the proposed actions specific to the geographic location. If such definitive information exists, the Corps would welcome the opportunity to review this with the tribes through the consultation process.

SS-129 noted that the effects of such projects could negatively affect salmon. Among other problems, shallow water habitat can increase water temperatures by increasing solar heating of the shallow water benches. The result can both benefit warm water fish that prey on salmon, while harming salmon, which are cold-water fish. In addition, sediment disposal in-river will decrease total dissolved oxygen concentrations critical to salmon and other anadromous fish. The Shilapoo Lake project, while mitigating for wildlife habitat, will not benefit salmon. Also, the tide gate retrofits project impacts remain uncertain.

#### 6.2.2.3 Salinity and Estuary Turbidity Maximum

SS-130 The estuary turbidity maximum (ETM), the critical saltwater/freshwater mixing zone, is an important issue that may have significant effects on salmonids. NMFS withdrew its 1999 Opinion in part to reevaluate potential risks that dredging could impose on the ETM. The modeling applied during the SEI process and described in the 2002 BiOp speculates that the ETM will be move upstream by about one mile as denser saltwater moves upstream displacing freshwater. The BiOp notes that recycling in the ETM could shift, changing resident phytoplankton production (Page 57). The BiOp also notes that the location of deposition of nutrients could vary with the shift of the ETM. The BiOp describes the long-term impacts to salmon and critical habitat as uncertain. However, impacts will not be reversible by simply trying to monitor the changes. The import of this issue has not changed, nor has the uncertainty lessened.

SS-131 Research by Schreck et al. (2002) and Schreck et al. (2000) indicates that juvenile salmon tend to rely on tidal cycles in the ETM area when moving seaward. Schreck et al. (2002) noted that the rate of migration through this area is possibly linked to survival to saltwater, because longer migration times allow more exposure to predators, and longer smolt development rates. They noted that multiple years of study under different flow and tidal conditions were needed to understand smolt migration and feeding through transition zones and hence, to better understand smolt survival and performance in the estuary and near ocean environment. They also noted that avian predation rates could be related to the freshwater-saltwater transition areas (see avian predation comments above). They concluded that if juvenile salmon arrive in saltwater prematurely, their subsequent survival may be compromised. Moving the saltwater wedge upstream could result in compromising salmon survival by increasing the chance that juveniles arrive prematurely. In addition, the DEIS notes that salinity will be increased at the bottom of the navigation channel. Recent juvenile and adult radio-telemetry studies indicate that salmon use these areas during their migrations. The research recommended by Schreck et al. (2002) and Schreck (2000) should be conducted before the EIS is finalized and the FEIS should contain a discussion of this research and implications to salmon migrations and productivity.

#### 6.8 Socio-Economic Resources

SS-132 The DEIS does not discuss how the alternatives could affect tribal socioeconomic factors or culture, and fails to assess how the proposed project will impact treaty and cultural resources. The FEIS should analyze the continuing and cumulative impacts of the four alternatives in the DEIS to the socioeconomic factors for tribal communities using methods

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SS-133 and data described in Meyer Resources (in CH2 M Hill 1999). The Meyer Resources analysis describes the transfer of river wealth from tribal communities to non-tribal communities from Corps' actions such as dredging for navigation. Loss of tribal wealth with respect to fish and wildlife resources from the river has resulted in disproportionate rates of poverty and mortality to tribal communities compared to non-tribal communities.

SS-134 With respect to tribal cultural resources, the DEIS fails to discuss impacts from the four alternatives to archeological resources. The health and abundance of anadromous fish, including salmon, steelhead, Pacific lamprey and sturgeon are also critical tribal cultural resources and have been since time immemorial. The proposed action would blast Warrior Rock, which may be a cultural resource. The Corps has not consulted with the tribes about impacts to cultural resources from the proposed alternatives. The FEIS should contain the linkages between these fish populations, and their fate under the four alternatives and others presented in these comments with tribal cultural resources. The FEIS must examine the issue of Environmental Justice with respect to all alternatives analyzed.

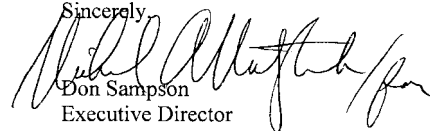
### CONCLUSION

SS-135 CRITFC appreciates the opportunity to provide final comments on the DEIS. We believe that the DEIS contains many deficiencies that need to be addressed in the FEIS. Primarily, the DEIS fails to examine the impacts of the project on the estuary as a part of a greater basin ecosystem. In this respect, the FEIS needs to be integrated with actions in the NMFS 2000 FCRPS BiOp with respect to basin-wide recovery of salmon and protection of treaty trust resources. The DEIS also fails to adequately describe and analyze the effects of the proposed action on treaty-reserved resources including salmon, Pacific Lamprey and sturgeon and their critical habitats. Likewise, the DEIS fails to address the possible impacts to tribal communities tribal cultural issues and environmental justice. The DEIS also fails to address issues related to toxic contaminants in sediments that could end up in dredge spoils or the water column for shoreline erosion from ship wakes. In particular, the DEIS points to no recent toxic sampling data of the proposed dredging sites. Finally, the assumptions in the DEIS economic analysis of the proposed project are arguable, raising questions as to the actual economic viability of this project.

SS-136 Because tribal interests are affected by this project, we request that the Corps consult with our member tribes according to established protocols before finalizing this EIS and signing a ROD. Should you have technical questions regarding these comments, please contact Bob Heinith at (503) 731-1289.

SS-132 to SS-134 (con't). The Corps has noted the opinion that the DEIS fails to address the potential impacts to cultural resources. The legal requirements for addressing this under the National Historic Preservation Act (NHPA) are specific to the definitions in that Act. The referenced alternative resources, such as salmon, steelhead and lamprey, are natural resources, and although they may be considered as cultural from a tribal perspective, we can only include those included in our policy and regulations under NHPA consideration. Inventories of the dredging areas (river bottom) are nearly impossible to execute under the current technology. The cultural inventories of proposed fill placement sites have been executed by Minor et al (1996), and monitoring during fill placement has been recommended. The comprehensive interpretation of the term "cultural resources," to include biological resources, as applied by NHPA, falls outside the Corps policy and guidelines. We are investigating the Warrior Rock issue, and would welcome any information concerning this area and its significance relative to NHPA, NEPA and Sacred Sites.

SS-135 and SS-136. The Corps disagrees with this comment. With the exception of lamprey, all of the listed issues have been discussed in the 1999 Final IFR/EIS, the 2002 Draft SEIS, BA, and Biological Opinion. A discussion on lamprey and their impacts will be added to the Final SEIS. Contrary to your statement, consultation has been underway with the member tribes for several years and is continuing.

Sincerely,  
  
Don Sampson  
Executive Director



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**Re: Comments on Draft Supplemental Environmental Impact Statement for  
Columbia River Channel Deepening Project**

Dear Colonel Hobernicht, Mr. Lohn, Mr. Crouse, Ms. Tortorici and Ms. Badgley:

SS-137 On behalf of the Columbia River Alliance for Nurturing the Environment (“CRANE”), this letter provides comments on the U.S. Army Corps of Engineers’ July 2002 Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (“DSEIS”) for the Columbia River Channel Deepening Project. In addition, this letter provides comments on the National Marine Fisheries Service and U.S. Fish and Wildlife Services Biological Opinions for the Channel Deepening Project, both dated May 20, 2002 (the “NMFS BiOp” and “USFWS BiOp,” respectively; collectively, the “Biological Opinions”). These comments include a report on the DSEIS, attached as Exhibit A, prepared by Dr. Robert Dillinger of Natural Resources

SS-137. The Corps disagrees with the general comment that the Draft SEIS and the Biological Opinions are “legally, economically and scientifically flawed.” The Draft SEIS and the Biological Opinions comply with all relevant and applicable federal and state law requirements. Responses to specific comments, and to the attached reports, are addressed below as each comment is raised. Moreover, in response to public comments, including these comments, the Corps has expanded the cumulative effects section (§6.12) in the Final SEIS.

Planning Services (“Dr. Dillinger DSEIS Report”); a report on the DSEIS, attached as Exhibit B, prepared by Nancy Olmsted, M.S., of Natural Resources Planning Services (“Olmsted Report”); a report on the DSEIS, attached as Exhibit C, prepared by Ernie Niemi, M.C.R.P., of EcoNorthwest (“Niemi Report”); and a report on the Biological Opinions, attached as Exhibit D, also prepared by Dr. Dillinger (“Dr. Dillinger BiOp Report”). We believe that the DSEIS and the Biological Opinions on which it is based are legally, economically and scientifically flawed, and offer these combined comments to demonstrate that (a) the Biological Opinions do not meet the standard set forth under Section 7 of the Endangered Species Act and consultation should be withdrawn and reinitiated, and (b) the Corps should withdraw the DSEIS and reissue a revised DSEIS that remedies the deficiencies identified in this letter.

**1. THE SEIS REPEATS ERRORS AND OVERSIGHTS  
IN THE FEIS FOR THE PROJECT**

SS-138 The DSEIS repeats many of the same errors and oversights that appeared in the October 1998 Draft Environmental Impact Statement (“DEIS”) and the August 1999 Final Environmental Impact Statement (“FEIS”). In particular, the Corps’ analysis continues to ignore the effects of significant interdependent and interrelated activities in its environmental and economic analyses. CRANE renews the objections and comments raised in Perkins Cole’s letters on behalf of CRANE member Paul L. King, which commented upon the DEIS and FEIS. See Correspondence from Perkins Coie to Steve Stevens (Feb. 4, 1999) (“DEIS Comment Letter”), Correspondence from Perkins Coie to David B. Sanford, Jr. (Nov. 12, 1999) (“FEIS Comment Letter”).

SS-139 The bases for these objections and comments include (a) CRANE’s continued concern that the impacts of the Corps’ proposal for dredged spoil disposal on the Lower Columbia River ecosystem have not been adequately examined and considered, (b) the Corps’ failure to adequately disclose and analyze the impacts of sponsor ports’ use of the dredge spoils through interrelated and interdependent actions, (c) the Corps’ continued inclusion of the Gateway 3 parcel as an upland disposal site and (d) the Corps’ continued failure to address comments related to the Channel Deepening Project’s wetland and wildlife impacts. In addition, CRANE raises the following supplemental comments.

SS-138. The Corps disagrees with the general comment that the environmental and economic analyses presented in the October 1998 Draft IFR/EIS, August 1999 Final IFR/EIS, and July 2002 Draft SEIS ignore “the effects of significant interdependent and interrelated activities.” These documents, as well as other related documents, comply with all relevant and applicable federal and state law requirements. Responses to specific comments are addressed below as each comment is raised.

SS-139. The Corps disagrees with the general comments regarding the sufficiency of the Final SEIS. The impacts of dredge material disposal and sponsor use of dredge material, the transfer of dredge material to disposal site W-101.0 (a 40-acre disposal site within the boundary of the approximately 1,100 acre Port of Vancouver Columbia Gateway project) and the impacts of the channel improvement project on wetlands and wildlife are fully considered and evaluated in the 1999 Final IFR/EIS and this Final SEIS. See 1999 Final IFR/EIS §2.4 (channel maintenance), §4 (alternatives), §5 (affected environment), §6 (project impacts); Final SEIS (same).

**A. The DSEIS unlawfully ignores interrelated and interdependent actions that will be taken by the Port of Vancouver after dredge spoil deposition on Gateway 3.**

SS-140

Federal law requires examination of a project's direct, indirect and cumulative impacts, including "impacts on the environment which result from incremental impact on the action when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.7. The Corps is obligated to identify "all other actions—past, proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same area" and "the overall impact that can be expected if the individual acts are allowed to accumulate." *City of Carmel-by-the-Sea v. United States Dep't of Transp.*, 95 F.3d 892 (9th Cir. 1996). Despite these requirements of federal law, the Corps continues to impermissibly confine the scope of its review of the impacts of dredge spoil disposal on the Gateway 3 property. The Corps' analysis admits that the Channel Deepening Project will expedite the conversion of agricultural land use to port development, but excludes development actions that will be taken by the Port of Vancouver from the scope of review. See DSEIS at 4-14. The Gateway 3 development is not only reasonably foreseeable but interrelated and interdependent with the Channel Deepening Project.

**1. The DSEIS proposes to reduce acreages for dredge spoil deposits on Gateway 3, but does not propose to reduce the overall volume of those depositions, resulting in nothing more than "fill gerrymandering" for purposes of appearance.**

SS-141

The Corps proposes to reduce the acreage to be used on Gateway 3 for dredge spoil disposal from 69 acres to 39.7 acres, but the DSEIS does not reduce the overall volume of dredge spoils to be deposited on the site (2,800,000 cubic yards). See DSEIS at 6-14 (reporting only the reduction in acreage); DSEIS, Exhibit K, Draft Technical Memorandum: Consistency with Local Critical Areas Ordinances at 42 (proposing to accommodate 2,800,000 cubic yards of dredge spoils on Gateway 3) (hereinafter "Critical Areas Ordinances Exhibit"); FEIS, Table 4-18 at 4-59 (proposing disposal of 2,800,000 cubic yards of dredge spoils on Gateway 3).

Since the Corps intends to use Gateway 3 for the disposal of the same volumes of dredge spoils proposed in the DEIS and FEIS, it appears that the Corps is merely engaged in "fill gerrymandering"—depositing mountains of dredge spoils so as to avoid areas identified as wetlands. See Critical Areas Ordinances Exhibit at

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SS-140. The Corps agrees that federal law and regulations require review of direct, indirect and cumulative impacts. See 40 C.F.R. §§1508.7, 1508.8. The Draft SEIS specifically addresses cumulative impacts in §6.12 and other sections addressing alternatives, the affected environment, and general project impacts. Moreover, the cumulative impacts section of the Final SEIS (as well as other sections) has been revised and expanded to address specific comments and concerns raised during the public comment process.

The term 'cumulative impacts' is defined in NEPA regulations as:

[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. §1508.7. The terms 'impacts' and 'effects' as "used in [NEPA] regulations are synonymous." 40 C.F.R. §1508.7. The term 'effects' is defined as:

- (a) Direct effects, which are caused by the action and occur at the same time and place.
- (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

40 C.F.R. §1508.8.

The Corps' disposal of dredge materials at disposal site W-101.0 is fully considered in the 1999 Final IFR/EIS and Final SEIS. The Port of Vancouver's proposed Columbia Gateway development project ("Gateway") is not interrelated or interdependent with the channel improvement project. Nor is it an indirect effect of channel improvement. Gateway is an approximately 600-acre proposed industrial development and 500-acre mitigation effort that is being separately planned, evaluated and permitted by the Port of Vancouver. See 1999 Final IFR/EIS §3.4 and Final SEIS §3.4. The Port has made it clear that completion of the proposed Gateway development is not dependent on the availability of dredge material from the channel improvement project and that Gateway will proceed regardless of whether the channel improvement project is implemented. See Final SEIS §3.4. However, because the Port's Gateway development is a reasonably foreseeable future action, its potential effects are analyzed in the Final SEIS cumulative effects discussion. See Section 6.12. Lastly, the Corps notes that the decision *City of Carmel-by-the-Sea v. United States Dep't of Transp.*, 95 F.3d 892 (9th Cir. 1996) was withdrawn and superceded by *City of Carmel-by-the-Sea v. United States Dep't of Transp.*, 123 F.3d 1142 (9th Cir. 1997).

SS-141. As discussed above, the Port of Vancouver's proposed Columbia Gateway development is not a connected action, and is not an indirect effect of the channel improvement project. The Corps disagrees with the comments regarding the acreage reduction for dredge material disposal at the W-101.0 disposal site. The Corps has reduced the area of the W-101.0 disposal site from 97 acres to 40 acres in order to reduce the impact of disposal on agricultural lands at the W-101.0 site. See Final SEIS §8.7.1. The volume of dredge materials projected for deposit at the W-101.0 disposal site over the life of the channel improvement project is now 2.3 million cubic yards.

Figs. 28-32. Based on the Port of Vancouver's Gateway Master Plan ("Gateway Master Plan"), it is clear that the Port of Vancouver intends to use Gateway 3 for industrial development. If the Port intends to make use of these large quantities of fill to prepare Gateway 3 for development, it must first undertake grading and additional spreading of the fill. The Port's actions will likely eliminate any benefit derived from the Corps' disposal design, which purports to "avoid any wetland fill." In addition, the Port's fill activities will be both interrelated and interdependent with the Channel Deepening Project action, as they occur as the direct result of the Corps' disposal of dredge spoils on the site. As such, the impacts attendant to the Port's further moving of the fill must be analyzed in the Corps' environmental documents.

**2. The Port of Vancouver's claim that Port development and Channel Deepening are not connected is legally insufficient and factually incorrect.**

The Port of Vancouver has submitted a letter denying that the Port's development is contingent upon receipt of the dredge spoils. See DSEIS at 3-16; see also Correspondence from Lawrence J. Paulson to Laura Hicks (April 11, 2002). This contention is undercut by the Corps' acknowledgement that (a) one of the primary benefits to be derived from channel deepening will be the "expedite[d] conversion of 193 acres of agricultural land to port-industrial lands" (DSEIS at 4-14), and (b) "some future development of port marine and industrial facilities is reasonably foreseeable within the project area," although the Corps implausibly asserts that this development will not be "caused by or connected to channel improvement" (DSEIS at 6-56). The Corps' and the ports' efforts to explain the lack of connection between channel improvement and increased port development are unconvincing. Not only will the Channel Deepening Project provide the Port of Vancouver with cheap fill, but, according to the Corps' analysis of the economic benefits of Channel Deepening, the Channel Deepening Project will also spur the economic development along the Columbia River necessary to justify additional port and industrial development like the Gateway project. Gateway development plans and the Channel Deepening Project are clearly linked. Failure to consider the Gateway development plans in conjunction with the Channel Deepening Project improperly and illegally segments an interrelated and interdependent action. This issue is discussed at greater length below at Section II(A)(3).

SS-141 (con't). The projected disposal volume is within the estimated site capacity, and amounts to a reduction of 500,000 cubic yards from the 2.8 million cubic yards predicted for disposal at the W-101.0 disposal site in the 1999 Final IFR/EIS. See the Final SEIS, Exhibit K-9.

Further, there is no basis for the suggestion that the Port of Vancouver would grade and spread the dredge materials deposited at the W-101.0 disposal site throughout the larger Gateway project without proper environmental review and authorization. The City of Vancouver is currently in the process of drafting an EIS for the Port's Columbia Gateway Subarea Plan. After completing the EIS, and before using any dredged materials from the channel improvement project, the Port would need to obtain all appropriate permits, including Clean Water Act Section 404 permits for any proposed wetland filling. Again, because the Port's proposed development is not connected with the channel improvement project, and is not an indirect effect of the project, it is not evaluated as a direct or indirect effect of the project, but rather as a potential cumulative effect. See Final Supplemental IFR/EIS Section 6.12.

The Corps has not engaged in "fill gerrymandering." The reduction of disposal at W-101.0 results from the fact that the amount of material in this stretch of the river has declined significantly.

SS-142. The Corps disagrees with the general comments that the Port of Vancouver's proposed Gateway project and the channel improvement project are interrelated, interdependent, or improperly segmented. Please see the discussion in response SS-140 regarding the proposed Gateway project and the W-101.0 dredge materials disposal site. The Port of Vancouver's Gateway project is a wholly separate project undertaken and permitted by the Port of Vancouver. The Port of Vancouver has made it clear that the Gateway project will proceed regardless of whether the channel improvement project proceeds, and that the 600-acre Gateway project is not dependent on the deposition of dredge materials at the 40-acre W-101.0 disposal site. Draft SEIS §3.4. Because the proposed development is reasonably foreseeable, its potential cumulative effects are evaluated in Section 6.12 of the 1999 Final Supplemental IFR/EIS.

SS-142

**B. The DSEIS fails to remedy scientific flaws and legal inadequacies contained in the DEIS and FEIS.**

The DSEIS does not correct significant scientific errors that appeared in the Corps' DEIS and FEIS analyses. In addition to the general objections renewed above at Section 1, CRANE points out the following flaws, which further demonstrate the inadequacy of the Corps' environmental review.

**1. The Corps fails to remedy inadequacies regarding its treatment of Sandhill Cranes.**

The Corps notes that Sandhill Cranes, a listed endangered species in Washington, "have been observed at the site" (see Critical Area Ordinances Exhibit at 43), but provides no analysis of how the disposal of dredge spoils will affect existing Sandhill Crane habitat on Gateway 3. Nevertheless, the Corps has determined that its mitigation measures are "consistent with the draft Washington State Recovery Plan for the Sandhill Cranes (August 2001)." See Critical Areas Ordinances Exhibit at 44. The Corps ignores the fact that the final Washington State Recovery Plan for Sandhill Cranes, published in June 2002 and attached as Exhibit E, specifically identifies the loss of Sandhill Crane habitat on the Gateway properties as a serious threat to the species' survival. See WDFW, Washington State Sandhill Recovery Plan at 21-22 (June 2002) (hereinafter "Final Sandhill Recovery Plan").

There is no question that Sandhill Cranes frequent the Woodland Bottoms, Sauvie Island, Ridgefield National Wildlife Refuge and the Vancouver Lowlands. Nevertheless, the Final Sandhill Recovery Plan makes clear that habitat preservation in those other locations will not make up for habitat losses on the Gateway properties, and specifically notes that such losses might be occasioned not only by the Port's development plans, but also the Channel Deepening Project. See Final Sandhill Recovery Plan at 22, 23. Furthermore, the Corps' proposed mitigation plan for Sandhill Crane habitat is contingent upon the Corps' purchase of 284 acres of fee title property on which to provide long term pasture and wetland habitat, but the Corps provides no guarantee that this project will in fact be undertaken. See Critical Areas Ordinances Exhibit at 44. The Corps' contingent mitigation plan, and its failure to analyze the current Sandhill Crane habitat values on Gateway 3 demonstrate that the Corps has not remedied inadequacies in its review of the Channel Deepening Project's impacts on Sandhill Cranes.

SS-143. Purchase of lands for project-related purposes, including wildlife mitigation lands, will become a legally binding, contractual requirement upon the sponsor ports signing the Project Cooperation Agreement. Thus, they are obligated to provide these lands. The proposed wildlife mitigation efforts more than adequately address impacts to wildlife and their habitat mitigation ratios are 12:1, 4:1 and approximately 1:1, respectively, for wetlands, riparian habitat, and agricultural lands. The large mitigation tracts selected along the Columbia River will improve habitat connectivity for wildlife species. The mitigation lands are replacing smaller, more isolated impacts, principally of agricultural lands. The mitigation lands will provide substantially better habitat conditions than project impacted habitats. Impacts to the agricultural lands at disposal site W-101.0 were considered in developing this mitigation.

The Corps has reviewed the Final Washington State Sandhill Crane Recovery Plan and determined that the channel improvement project, including the proposed mitigation, is consistent with the final plan. The Corps will only use a 40-acre disposal site in the Columbia Gateway property. The wildlife habitat value of the property has been determined and wildlife mitigation efforts will be implemented at the Woodland Bottoms mitigation site. Mitigation at Woodland Bottoms will include 132 acres in long-term pasture and 97 acres in wetland habitat that will benefit sandhill cranes. As discussed above, the mitigation plan for the project assessed the habitat value of the W-101.0 disposal site and more than compensates for any impact to it. The wildlife mitigation plan provides for securing lands and habitat development in Woodland Bottoms which is documented by WDFW in their final sandhill crane recovery plan as lands used by this crane population. Given the extensive array and acreage of State Wildlife Management Areas (Sauvie Island, Shillapoo; 2,371 acres) and National Wildlife Refuges (Ridgefield NWR; 5,150 acres) in the area, plus private agricultural lands, and the full mitigation effort for this project, it is not anticipated that the project would adversely affect sandhill cranes. Further, should the Port of Vancouver's independent Columbia Gateway development be implemented, mitigation for their project related impacts will be implemented.

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**2. The DSEIS cannot adequately assess the Channel Deepening Project's effects on wetlands or propose adequate mitigation for their loss.**

SS-144

The Corps' wetland mitigation plans are incomplete in their scope and inadequate in the remedies they propose. These deficiencies are discussed in detail in the Olmsted Report, attached as Exhibit B.

**a. The Corps fails to analyze and propose mitigation for the effects of interrelated, interdependent wetland filling that will be undertaken by the Port of Vancouver.**

SS-145

The Corps' Wetland Mitigation Plan identifies Mt. Solo and Puget Island as the only sites where Project activity will result in unavoidable impacts to isolated wetlands. See DSEIS, Exhibit K, Draft Technical Memorandum: Consistency With Local Critical Areas Ordinances, Appendix B, Wetlands Mitigation Plan at 1 (hereinafter "Wetlands Mitigation Plan"). But the Corps' analysis fails to take into account the interdependent and interrelated actions that will be undertaken by the Port of Vancouver to spread fill on the Gateway 3 property. See discussion *infra* at Sections I(A)(2) and II(A)(3). As a result, the impact area described in the Wetlands Mitigation Plan must be enlarged to include the Gateway 3 property and the Corps must propose mitigation that will compensate for wetlands losses caused by the Channel Deepening Project.

**b. The Corps bases its mitigation plans for Mt. Solo and Puget Island on incomplete knowledge of those sites; as a result, the proposed mitigation is inadequate.**

SS-146

The Corps not only excludes impacts to the Gateway 3 wetlands from its analysis, but also fails to conduct even the most rudimentary research necessary to propose viable mitigation plans for Mt. Solo and Puget Island. The Corps' own documents admit that "[n]o formal wetland delineation has been completed on either site, and some detailed information (i.e., soil characteristics from taking soil samples and comparing the Munsell Soil book) on the wetlands is not available." See Wetlands Mitigation Plan at 6. Without this basic information, the Corps cannot credibly evaluate impacts to Mt. Solo and Puget Island wetlands, let alone propose responsive mitigation plans to compensate for their loss.

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SS-144. The Corps disagrees that the wetland mitigation plans are incomplete. See responses S-72, SS-146 and I-28. Responses to the Olmsted report are provided at SS-179 through SS-186.

SS-145. The Corps disagrees with the comment that the Wetlands Mitigation Plan must be enlarged to include the Port of Vancouver's proposed Columbia Gateway project. As discussed above, the proposed Gateway development is not a connected action, and is not an indirect effect of the channel improvement project. Accordingly, the channel improvement project is not responsible for providing any mitigation that may be required should the proposed Gateway project move forward. Any such mitigation would be solely the responsibility of the Port of Vancouver. The Port of Vancouver has issued a Draft EIS for its Columbia Gateway Subarea Plan. The Draft EIS identifies impacts to and mitigation for wetlands and wildlife.

SS-146. The comment's reference to delineation is quoted out of context. The Corps' mitigation efforts are based upon utilization of the USFWS's Habitat Evaluation Procedures (HEP). This analysis addresses habitat quantity and quality for both impact (disposal) and mitigation sites. HEP is a credible methodology to evaluate project-related impacts, including wetland habitat, and gains (mitigation sites). It is not necessary to implement another methodology to determine wetland impacts and mitigation. In addition, the Corps worked with an interagency task force comprised of federal and state resource agencies to use HEP to analyze impacts from the Mt. Solo and Puget Island sites that includes impacts to wetlands, agricultural and riparian lands. The agencies agreed that this approach, which focuses on habitat functions, was the proper approach to develop mitigation for this project. The approach results in mitigation to wetlands at a very high ratio and also provides mitigation for functions from non-wetland areas. The result of this approach is that the mitigation for the Project includes far more mitigation acreage than would result from conducting a delineation that identified wetlands and provided mitigation only for wetland impacts (the approach suggested by the comment). Furthermore, the quantity and quality of wetland acres was determined by topography, review of color infrared aerial photographs and site investigation at Mt. Solo. The Corps believes formal wetland delineation would not result in a substantial change in the acreage of identified wetland habitat. In addition, analysis since the 1999 Final IFR/EIS indicates that the amount of wetland impacts is lower than estimated in that document. However, the proposed mitigation has remained substantially the same. A formal wetland delineation will be conducted prior to discharge of dredged material in these wetland sites in order to verify the Corps' conclusion; the mitigation plan will be adjusted, if necessary.

**3. The DSEIS fails to discuss the impact of potential sediment contamination.**

SS-147 The DSEIS fails to address the presence of contaminated sediments. These sediments will be removed as part of the Channel Deepening Project, but the Corps fails to discuss or evaluate the effect of the resuspension and deposition of that sediment. The Corps ignores potentially significant detrimental impacts to the Columbia River and the upland sites on which the sediment will be deposited. As a result, the DSEIS' analysis of sediment issues is scientifically inadequate.

**C. The Corps continues to fail in its obligation under NEPA to ensure the scientific integrity of its studies.**

SS-148 As noted in our DEIS Comment Letter and FEIS Comment Letter, analysis used to support conclusions reached in the DSEIS must have scientific integrity. 40 C.F.R. § 1502.24. The DSEIS fails to meet this standard because, among other things, (a) the Corps relies inappropriately on merely theoretical conceptual modeling to derive its conclusions; (b) the Corps relies on studies conducted in vastly different systems and ignores those studies' explicit warnings regarding research limitations and limited applicability; (c) the Corps' own research has been conducted over insufficiently long periods, using faulty methodology; (d) the Corps' data regarding the Columbia River ecosystem is highly uncertain, and is entirely inadequate as a basis for conclusions regarding the system's operation; and (e) neither the Corps' monitoring plans nor its adaptive management plan are set forth in sufficient detail to offer any assurance that they will in fact work to correct any flaws in the basic Channel Deepening Project proposal. These criticisms are discussed more fully in Section II, and in the Dr. Dillinger SEIS Report, the Olmsted Report and the Dr. Dillinger BiOp Report.

**II. THE DSEIS CONTAINS ADDITIONAL ERRORS AND OMISSIONS THAT WILL LEAD TO FAULTY DECISION MAKING**

SS-149 In addition to repeating many of the serious legal and biological problems that pervaded the DEIS and FEIS, the DSEIS contains new legal, scientific and economic flaws. Taken together, these defects undermine the Corps' conclusions and the adequacy of the Corps' review.

SS-147. The Federal Government disagrees with this assertion. The sediment has been adequately characterized in accordance with national and regional testing and evaluation guidance and has been found to be suitable for unconfined in-water or upland placement. In addition, the topic of suspended sediment has been addressed in several forums and is addressed in the Final SEIS.

SS-148. As discussed in more detail in responses to specific comments, the analysis reflected in the Final SEIS has scientific integrity as required by the CEQ regulations. The methodologies used in Corps' analyses and the sources of information are clearly identified throughout the Final SEIS and in the Bibliography. See 40 CFR 1502.24. Further, many of the scientific methods and decisions challenged by the comment were developed in consultation with and approved by NOAA Fisheries and USFWS, the federal agencies responsible for protecting ESA-listed species, after being addressed through the open scientific review process facilitated by SEI. Throughout the SEI and consultation processes, the Corps, NOAA Fisheries and USFWS used agreed scientific methods, such as the conceptual model, to evaluate the best available information. The Final SEIS builds on the collaborative consultation effort and analyzes newly available site-specific information on potential impacts to smelt, sturgeon, crab and other non-listed species and resources. While available information does not indicate reasonably foreseeable significant adverse effects, the Corps' monitoring and adaptive management commitments will address areas of potential remaining uncertainty. Under the terms and conditions of the Biological Opinions, the Corps will be submitting more detailed plans in accordance with published NOAA Fisheries' guidance. See responses to Dillinger and Olmstead (SS-170 through SS-187.)

SS-149. The Corps disagrees. The 1998 Draft IFR/EIS, the 1999 Final IFR/EIS, and the Draft and Final SEIS fully comply with NEPA.



**A. The Corps unlawfully segments review of the Channel Deepening Project because it omits foreseeable direct, indirect and cumulative effects of the Channel Deepening Project.**

SS-150. The SEIS cumulative impact discussion (§6.12), and the cumulative impacts sections of the 2002 Biological Opinions properly address the cumulative effects of all foreseeable actions affecting the lower Columbia River. See response SS-140.

SS-150

As noted above, federal law requires examination of a project's direct, indirect and cumulative impacts, including "impacts on the environment which result from incremental impact on the action when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.7. The Corps is obligated to identify "all other actions-past, proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same area" and "the overall impact that can be expected if the individual impacts are allowed to accumulate." City of Carmel-by-the-Sea v. United States Dep't of Transp., 95 F.3d 892 (9th Cir. 1996).

**1. The Corps describes its action area so narrowly as to exclude significant effects of the Channel Deepening Project.**

SS-151. The Final SEIS cumulative impacts discussion (§6.12) and the cumulative impacts sections of the 2002 Biological Opinions by NOAA Fisheries and USFWS properly address reasonably foreseeable actions affecting the lower Columbia River. The Final SEIS cumulative impacts section was revised and expanded in response to public comments regarding the Draft SEIS. Moreover, the economic benefits of the channel improvement project are not based on proposed or contemplated new or expanded port facilities. The benefits are based on increased shipping transportation efficiencies from the deeper channel.

SS-151

The Corps describes its action area as the "bank-to-bank run of the Columbia River from Bonneville Dam down to the river's mouth, which includes adjacent port terminals and berths and certain ecosystem restoration and mitigation sites," as well as "[u]pland disposal, ecosystem restoration, and mitigation sites." DSEIS at 1-7. This scoping ignores the direct, indirect and cumulative impacts of development that will accompany the Channel Deepening Project and which will occur landward of the Columbia River's banks and in the Portland metropolitan area, among other places.

The Corps and the sponsor ports trumpet the regional economic benefits they presume will flow from the Channel Deepening Project. See e.g., FEIS, Ch. 3. These benefits can only be realized if the Channel Deepening Project spurs direct, indirect or cumulative economic growth landward of the action area. The Corps cannot draw valid conclusions regarding the likely impacts of the Channel Deepening Project based on an incomplete and overly narrow definition of the Channel Deepening Project's action area and scope of effect that does not go beyond the river banks.

As described in the Final SEIS, the proposed deepening of the channel would result in relatively small physical or biological changes to areas directly affected by dredging and disposal over current conditions. These changes would, in turn, not have a measurable effect on the lower Columbia River ecosystem. Over the long term, the likely decreased maintenance dredging from a deeper channel and the proposed restoration actions would be expected to improve fish and wildlife habitat over current conditions.

This extremely limited scope of analysis also fails to take into account the cumulative environmental impacts that are likely to accrue because the Channel Deepening Project lies at the heart of the Lower Columbia River ecosystem. Through a dramatic physical alteration of the Columbia River bed, adjacent uplands, and the Mouth of the Columbia River, the construction and maintenance of the Channel Deepening Project affects the interrelationships between plant and animal life and the habitat on which

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they rely. Moreover, because the Channel Deepening Project affects anadromous species, its effects will be felt throughout the Pacific Coast and the interior Columbia River and Snake River Basins.

**2. The Corps fails to disclose or investigate relevant cumulative impacts of the Channel Deepening Project.**

SS-152. The Final SEIS explicitly considers numerous other actions, for example, Willamette River, MCR dredging, etc. described in the comments, and concludes that the channel improvement project will not contribute to significant adverse cumulative effects.

SS-152

The Corps' discussion of cumulative impacts is inadequate and excludes a number of significant projects that will undoubtedly contribute to the Channel Deepening Project's overall environmental effects. Failure to include these cumulative effects analyses violates federal environmental law and undermines the Corps' conclusion that the Channel Deepening Project will not be detrimental to the Columbia River ecosystem.

**a. The DSEIS mentions the cumulative effects that will be associated with channel deepening on the Willamette River, but provides no useful information or analysis on those effects.**

Although the Corps has deferred its immediate plans to deepen the Willamette River Channel, there is little question that the Willamette's deepening will proceed once environmental cleanup is completed. The Willamette River's inclusion in the DEIS and FEIS, its role as a major tributary to the Columbia and the location of the vast majority of the Port of Portland's berths on the Willamette, rather than the Columbia, all illustrate that neither river can properly be considered in isolation.

SS-153. The Willamette River is listed as a Superfund site under CERCLA. The remedial investigation and feasibility study necessary to develop a cleanup plan for the Willamette River have not been completed. Accordingly, the Final SEIS properly acknowledges that remediation of the Willamette River is reasonably foreseeable and notes that at this time, it is not known what actions will be taken to remediate the Willamette River or what the effects of any remediation may be. See Final SEIS §6.12. Given the uncertainty that arose from the Superfund listing over the precise nature and duration of any future actions necessary to remediate the Willamette River, the Final SEIS also properly acknowledges that determining the nature and magnitude of any potential impacts stemming from any future deepening of the Willamette River channel are largely speculative at this time. However, those effects that are reasonably foreseeable are discussed in the cumulative effects analysis in the Final SEIS. See Final SEIS §6.12. Given the uncertainty associated with the cleanup, deepening of the Willamette has been deferred at this time. Accordingly, the Final SEIS economic analysis does not include any benefits based on deepening of the Willamette River navigation channel or construction of port facilities. The Corps and USEPA are continuing close coordination on all sediment activities in the Willamette River, including CERCLA actions. See response SS-4 and SS-232.

SS-153

The DSEIS mentions the Willamette River channel deepening as a possible cumulative impact, but it provides no useful information for consideration by the Corps or public. Plainly, deepening of the Willamette River cannot proceed without first deepening the Columbia River navigation channel. In addition, any impacts associated with future deepening of the Willamette are likely to affect the downstream Columbia River system's operation as well. The Corps' failure to investigate cumulative effects associated with future Willamette River navigation channel improvements ignores the obvious and undeniable connection between these river systems and violates federal environmental law.

**b. The DSEIS improperly excludes the cumulative effects that will be associated with the Federal Columbia River Power System's proposed actions.**

The Corps fails to account for the cumulative effects of actions to be taken in the Federal Columbia River Power System ("FCRPS"). While the Corps acknowledges that the FCRPS actions and Channel Deepening Project are connected for the purpose of mitigation (see DSEIS at 6-57), it fails to make the same connection with regard to the cumulative effects of the two projects. The FCRPS actions will occur directly upriver from the Channel Deepening Project; as part of the same Columbia River ecosystem, FCRPS actions will have foreseeable cumulative effects when considered in conjunction with the Channel Deepening Project. In particular, execution of the FCRPS actions affects the health of the Columbia River estuary, as does the Channel Deepening Project. If the Corps has underestimated the actual effects of the FCRPS actions, the estuary may be in significantly worse condition at the time of Channel Deepening than has been assumed in the DSEIS. The environmental impacts of the FCRPS actions and the Channel Deepening Project cannot be evaluated in isolation; as a result, the Corps has improperly excluded the FCRPS actions from its assessment of the cumulative impacts associated with Channel Deepening.

SS-154. The potential cumulative impacts of Federal Columbia River Power System (FCRPS) actions are fully evaluated in the NOAA Fisheries and USFWS Biological Opinions (December 2000) for the FCRPS, the NOAA Fisheries 2002 Biological Opinion for the channel improvement project, the Draft SEIS, and the expanded cumulative impacts section in the Final SEIS (Section 6.12).

SS-154

It is also noteworthy that the FCRPS requires further maintenance dredging activities on the Columbia and Snake Rivers upstream from the Channel Deepening Project. The interplay between and cumulative effects of dredging throughout the Columbia-Snake Basin is not recognized by the Corps in the DSEIS. For example, anadromous fish in the Columbia-Snake River Basin are affected by not only the Channel Deepening and maintenance project, but the FCRPS operations, the upstream channel maintenance by the Corps, and a host of other state, local and private activities in a four-state area. The effect of the Channel Deepening Project on the Lower Columbia River estuary is a linchpin for cumulative effects throughout the entire region.

**c. The DSEIS improperly excludes the effects associated with ongoing maintenance dredging at the mouth of the Columbia River.**

The Corps currently engages in annual maintenance dredging at the mouth of the Columbia River ("MCR"). This maintenance dredging is essential to the continued use of the Columbia River navigation channel at its current depths, and will certainly continue at current—if not greater—levels to accommodate the 43-foot channel. As

SS-155. The Corps does not anticipate the need to deepen MCR as a result of the channel improvement project. MCR channel maintenance will not be affected by the channel improvement project. MCR channel maintenance will continue as currently practiced with the "no action" 40-foot Columbia River channel. The minor changes in the hydraulics at MCR attributable to the channel improvement project will not influence sedimentation or resulting maintenance. The Final SEIS includes additional discussion of the cumulative effects of the current MCR maintenance activities. Also see response SS-156 below.

SS-155

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SS-155 with the FCRPS, the Corps admits that dredging at the MCR directly affects the Columbia River and its environment, but fails to analyze that action's environmental effects in conjunction with the Channel Deepening Project's effects. See DSEIS at 6-57. As part of the same navigation system, the ongoing environmental impacts associated with maintenance of the MCR will be interrelated with, caused by, and cumulative with those associated with the Channel Deepening Project, and must be analyzed in the DSEIS. The potential adverse environmental effects of the MCR maintenance dredging and Channel Deepening Project on the Columbia River estuary are particularly troubling. The Corps must engage in additional environmental review of the MCR maintenance if, as it appears, the mouth must also be deepened to accommodate deeper draft vessels. See Army Corps of Engineers, Columbia River at the Mouth, Oregon and Washington Navigation Channel Improvement, Interim Feasibility Report and Final Environmental Impact Statement (March 1983), attached as Exhibit F. Even if the MCR maintenance will not require deeper dredging after Channel Deepening, the Corps' environmental analysis of the MCR maintenance has been cursory at best and is an unreliable indicator of estuary impacts from MCR maintenance itself—let alone the effects of MCR maintenance in addition to Channel Deepening, the FCRPS and other current or foreseeable actions in the Columbia River estuary. Id. The Channel Deepening Project cannot be analyzed in a vacuum to compartmentalize and ignore the cumulative impact of related actions throughout the Columbia Snake River Basin and Columbia River Estuary.

**d. The DSEIS improperly excludes the effects associated with ongoing maintenance of the Columbia River navigation channel.**

SS-156 The Corps currently engages in annual maintenance dredging of the Columbia River navigation channel, but fails to assess the direct, indirect, and cumulative effects of that maintenance dredging will have when combined with the Channel Deepening Project. In addition, future maintenance dredging of the navigation channel will be interrelated and interdependent to the Channel Deepening Project because a newly-deepened channel would require the same—if not greater—maintenance dredging to preserve the open channel. As a part of the same navigation system, the ongoing environmental acts associated with maintenance dredging of the navigation channel will be cumulative with those associated with the Channel Deepening Project, and must be analyzed in the DSEIS.

SS-156. For purposes of evaluating the effects of the project, the 1999 Final IFR/EIS and Final SEIS do address the effects of maintenance dredging as well as the effects of deepening the channel to 43-feet. Throughout the 1999 Final IFR/EIS and Draft SEIS, the quantities of material to be dredged and disposed include both construction and maintenance quantities, as well as incremental changes in future maintenance quantities associated with deepening. Similarly, the evaluation of potential effects of the project covers both construction and maintenance activities. Additional analysis of the effects of maintenance dredging for the 40-foot channel is contained in the June 1998 *Dredged Material Management Plan and Supplemental Environmental Impact Statement* (DMMP).

For the purposes of comparing alternatives, the “no action alternative” is maintenance of the 40-foot channel, which is the Congressionally authorized present course of action that was approved in the 1998 Record of Decision. Therefore, it is the appropriate choice for the no-action alternative. See CEQ “Forty Most Asked Questions” Question 3. Use of the 40-foot channel as the no action alternative does not mean that its effects are not evaluated. As noted above, the effects of maintenance dredging - for either a 40-foot or 43-foot channel - are addressed in the 1999 Final IFR/EIS and in the DMMP and therefore, are available to the public and to decision makers.

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The Corps needs to be clear in disclosing whether it is treating maintenance dredging as part of the action under consideration, or whether it is treating maintenance dredging as part of the environmental baseline. It appears that the Corps is treating channel maintenance as part of the baseline even though channel maintenance is a discretionary action and operation that can be modified or even terminated.

SS-156

CRANE notes that the ESA consultation and biological opinion for the FCRPS treated the entire system of federal power dams as a discretionary operation subject to modification or even, ultimately, removal. The Governor of the State of Oregon supported dam removal as though it were a discretionary action by the Corps and Bonneville Power Administration. Yet, Tom Byler, water policy adviser to Oregon Governor John Kitzhaber was recently quoted in the Daily Astorian as saying; "we've recognized that regardless of channel deepening, maintenance dredging will continue to occur."<sup>1</sup> If federal power dams and their operations are not part of the environmental baseline, CRANE sees no reason why continued channel maintenance and its environmental effects can be swept under the rug as part of an environmental baseline. The environmental effects of channel maintenance must be fully considered in comparison to a no action alternative of no dredging at all. In so doing, the Corps will provide the public, the Congress, and decision makers with a fuller appreciation of the true environmental consequences and combined effects of maintenance dredging and Channel Deepening.

**e. The DSEIS improperly excludes cumulative effects associated with Channel Deepening-related development in the Portland metropolitan area.**

The Corps asserts that the Channel Deepening Project will accommodate a large volume of commodity and container exports from the region, but fails to identify and analyze the likely cumulative effects of the economic development that would result from the Channel Deepening Project. If the Channel Deepening Project will spur additional development, the reasonably foreseeable cumulative effects of that development must be addressed and its environmental impacts analyzed. The DSEIS

SS-157

SS-157. Both the expanded cumulative impacts discussion (§6.12) and the future port development discussion (§3.4) in the Final SEIS, as well as the cumulative impacts sections of the NOAA Fisheries and USFWS 2002 Biological Opinions, properly address the cumulative impacts expected from the general economic development in the Portland metropolitan area.

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<sup>1</sup> Benjamin Romano, "Shifting Sands, Changing Options," Daily Astorian (Aug. 23, 2002) <<http://www.dailystar.com/info/print.asp?ArticleID=1902&SectionID=2&SubsectionID=398>> (accessed Aug. 28, 2002), attached as Exhibit G.

fails to meet this requirement and cannot, therefore, assess the Channel Deepening Project's cumulative effects credibly.

**3. The Corps improperly segments its environmental analysis and fails to analyze interrelated and interdependent development activities planned by the ports.**

SS-158 As discussed above at Section I(A), the Corps and sponsor ports improperly and implausibly disclaim any relationship between the Channel Deepening Project and planned port and industrial development projects. See DSEIS at 3-14; see also DSEIS, Exhibit K, Technical Memorandum: Wildlife and Wetland Mitigation for the Columbia River Channel Improvement Project at 9 (hereinafter "Wildlife and Wetland Mitigation Plan"); Niemi Report at 31-35. These port and industrial development plans depend upon the availability of inexpensive fill and access to deep draft vessels to justify additional development, and must be analyzed together with all other Channel Deepening Project impacts in the DSEIS. Because the Corps has failed to include these interrelated and interdependent development actions, its environmental analysis is incomplete and inadequate. Specific projects are discussed in greater detail below.

**a. The Corps fails to analyze environmental impacts associated with the Port of Portland's West Hayden Island development plans.**

SS-159 The Corps ignores the environmental impacts associated with the Port of Portland's planned development at West Hayden Island based on the Port's 2000 postponement of further permitting and development work for the Island. See DSEIS at 3-14-3-15. Although the project has been, in the words of the Port, "postponed" since 2000, the Port retains detailed plans to develop West Hayden Island. See Port of Portland, "West Hayden Island," <<http://htmlpop/hayden.htm>> (visited Aug. 24, 2002) (attached as Exhibit H). The Island lies directly across from the Port's Terminal 6, and development on the Island could, therefore, support any new deep draft shipping that calls on Terminal 6 as a result of Channel Deepening. The Port plans to reinstate permitting and environmental review for West Hayden Island "when additional marine cargo facilities are needed." *Id.* According to the Corps, completion of the Channel Deepening Project will result in an increased demand for cargo facilities. See DSEIS, Exhibit L, Revised Economic Analysis 43-foot Columbia River. As a result, the Port of Portland's development of West Hayden Island, with direct access to Terminal 6,

SS-158 and SS-159. The described port developments are identified in the Final SEIS as reasonably foreseeable future actions. However, the developments are not dependent upon a deeper channel or upon the availability of dredged material from the channel improvement project. Accordingly, they are not connected actions, and are not indirect effects of the channel improvement project. Further, the economic analysis for channel deepening does not rely on the future development of these port facilities. The ports may or may not utilize dredged material from the proposed disposal sites as part of their port development. For example, the Port of Vancouver has indicated it will proceed with the proposed Gateway development project regardless of whether dredge materials are available from the channel improvement project. See responses SS-139 through SS-142 regarding the Gateway project and the W-101.0 disposal site.

will be a reasonably foreseeable result of the Channel Deepening Project, and its cumulative environmental impacts must be considered in conjunction with the Project's effects in order to satisfy NEPA. The Corps' failure to do so provides yet another example of the inadequacy of its environmental review.

**b. The Corps fails to analyze environmental impacts associated with the Port of Vancouver's Gateway Master Plan.**

Despite its protests to the contrary, the Port of Vancouver's Gateway Master Plan reveals that development of the Gateway Properties is interrelated and interconnected with the Channel Deepening Project. See discussion supra at Section I(A)(2). NEPA requires, therefore, that the environmental impacts of the Gateway development be considered together with those of the Channel Deepening Project. In its current form, the DSEIS fails to satisfy this requirement of federal law, and impermissibly and illegally segments environmental review of reasonably foreseeable interrelated actions, including the development proposed in the Port of Vancouver's Gateway Master Plan.

SS-160. The Port of Vancouver's proposed Columbia Gateway port and industrial development is scheduled to proceed with or without a deeper Columbia River channel. The economic analysis for channel deepening does not include any benefits from the proposed Port of Vancouver expansion. The economic viability of the Gateway development also is not dependent on "cheap" dredged material from the channel improvement project. The Washington Department of Natural Resources (WDNR) will be notified of all locations where dredged material will be placed. It will be up to that agency to collect any royalty for the use of state property. It should be noted that royalties may not be due if WDNR determines the material serves a public benefit.

SS-160

**i. The Gateway Master Plan is interrelated and interconnected with the Channel Deepening Project because it will use Channel Deepening dredge spoils for fill.**

The Port of Vancouver's Gateway Master is interrelated and interconnected with the Channel Deepening Project. The Corps and the Port state that dredge spoils provide a cost-effective source of fill for the Gateway project. See DSEIS 3-16. Despite claims to the contrary, the value of Channel Deepening dredged material to the Port cannot be denied. According to the Port, dredged materials will be the least expensive source of fill for the Gateway properties. See Correspondence from Lawrence J. Paulson to Laura Hicks (April 11, 2002). Access to Channel Deepening dredge materials fundamentally affects the economics of the Gateway development project. In addition, the Corps admits that "Washington and Oregon laws require that royalties be paid to the respective state for dredged material (sand) removed from the Columbia River navigation channel and subsequently used for commercial properties." See DSEIS at 8-9. Thus, the Port's development is enabled by access to cheap fill material, and the Corps avoids the payment of additional royalty fees to Oregon and Washington by funneling Channel Deepening Project dredge spoils into non-

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commercial Port-sponsored projects. These factors, taken together, demonstrate that the Gateway Master Plan is interrelated and interconnected with the Channel Deepening Project. The Corps' failure to include the Gateway Master Plan's environmental impacts in the DSEIS violates NEPA because it improperly segments environmental review of connected projects.

**ii. The DSEIS discusses the Corps' plan to avoid wetlands when it deposits dredge spoils on Gateway 3, but improperly excludes analysis of the Port's later need to spread that fill throughout Gateway 3.**

SS-161 As noted above at Section I(A)(1), the Corps has apparently carefully designed its disposal plan for dredge spoils on Gateway 3 to avoid wetlands. See Critical Areas Exhibit at Figs. 31-32. Despite the fact that the Corps proposes to deposit dredge spoils on 20 fewer acres than proposed in the FEIS, it still proposes to deposit the same overall volume of spoils on Gateway 3 (2,800,000 million cubic yards) as was proposed in the FEIS. Thus, the Port of Vancouver will be left with mountains of dredge spoils. In order to prepare Gateway 3 for industrial development, the Port of Vancouver must spread this fill throughout the property. The environmental impacts of this spreading activity have been improperly ignored in the DSEIS; spreading is reasonably foreseeable, and will occur as a direct result of the Corps' placement of the dredge materials on Gateway 3. The DSEIS must address these environmental impacts if it is to satisfy NEPA.

**c. The Corps does not analyze the adverse environmental impacts of the restoration features at Lois Island Embayment and Miller-Pillar with anything approaching the meaningful scientific analysis required by NEPA.**

SS-162 The DSEIS fails to discuss the likely adverse environmental impacts of the Corps' "restoration features" at Lois Island Embayment and Miller-Pillar in anything approaching the depth sufficient to identify likely environmental impacts. The Corps offers only the most rudimentary description of these projects. Based on the DSEIS, it is apparent that, among other things, the Corps (a) has not identified the ecological baseline for the restoration project areas, (b) cannot, as a result, quantify what ecological value is likely to be lost on a temporary basis, (c) cannot, as a result,

SS-161. Please see response SS-141.

SS-162. The ecological baseline (fish and benthic invertebrates for the Miller/Pillar ecosystem restoration proposal) was established via investigations by NOAA Fisheries' researchers (Hinton et al., 1995). Their investigation is summarized in Section 4.8.6.3 of the Final SEIS. The Corps summarized available literature to characterize the baseline benthic and fisheries resources of Lois Island embayment in Section 4.8.6.1 of the Final SEIS. Also see responses S-7, S-9, and SS-10. The Corps coordinated with the USFWS and NOAA Fisheries through the consultation process on these ecosystem restoration features and has submitted a monitoring plan to these agencies that will assess success of the restoration features. The Corps is implementing an adaptive management plan that will be dynamic through time and will be modified as the restoration features are implemented. Therefore, the Corps cannot provide an exact timeline for how long the restoration will take.



accurately quantify what ecological value is likely to be gained from the projects, (d) cannot possibly project how long "restoration" is likely to take, and (e) cannot identify meaningful monitoring targets based on the paucity of knowledge regarding the existing system. Nevertheless, the Corps proposes to dump between six and eight million cubic yards of its 14 million cubic yard project at Lois Island (see DSEIS at 4-3): the scale of dumping at these "restoration" projects is immense, and the likelihood that they will "restore" anything is dubious. See Dr. Dillinger DSEIS Report at 4-6. In order to satisfy NEPA, the Corps must undertake a meaningful scientific analysis of the likely environmental impacts of its restoration projects; the DSEIS comes nowhere near meeting that standard.

SS-162

In addition, the Corps has not adequately addressed the likely environmental impacts of the proposed sump. The sump area will be exposed to repeated high impact dumping of piles of sedimentation, yet the Corps fails to investigate the environmental degradation associated with that repeated dumping over time. Furthermore, the sump is proposed to be placed near the mouth of the Columbia River (see DSEIS at 4-3)—an area already highly abused and degraded. See discussion *supra* at Sections II(A)(2)(b)-(d). The cumulative impacts of the sump's placement in this location must be analyzed in order to understand the likely effects on the Columbia River ecosystem. These environmental impacts must be analyzed in the DSEIS, as they are clearly not only interrelated and interdependent with the Channel Deepening Project, but are a part of the Corps' actual proposal.

**d. The Corps fails to analyze the long-term environmental impacts associated with maintenance dredging to support the Channel Deepening Project.**

As noted above, the Corps excludes crucial environmental impacts associated with maintenance dredging from its DSEIS analysis. See Section II(A)(2)(d), *infra*. The Corps repeatedly assures that the adverse effects of the Channel Deepening Project on water quality and habitat will be "short-term," "localized," "ephemeral" and "transient," (see DSEIS at 6-32, 6-33 and 6-35) without acknowledging that the same actions and effects will be on-going and long-term because of the maintenance dredging the Corps will have to undertake in order to maintain the deepened navigation channel. The Corps' exclusion of these environmental impacts provides an impermissibly narrow view of the Channel Deepening Project's effects and fails to take into account the environmental effects of interrelated and interconnected actions.

SS-163

SS-163. Please see response SS-156.

**B. The Corps ignores important ecosystem operations in its environmental review and its conclusions are not based on credible or adequate scientific knowledge.**

SS-164 The Corps bases its conclusions that no long-term adverse impacts will occur on inadequate and indeed questionable science. Throughout, the DSEIS neglects to investigate critical ecosystem operations, excludes analysis of relevant related actions, fails to establish critical ecosystem baselines necessary to establish monitoring protocols and adaptive management plans, and proposes to compensate for ecosystem changes with "restoration" plans that are so contingent and ill-defined as to elude analysis. As such, the Corps fails to meet NEPA's requirement of scientific integrity. 40 C.F.R. § 1502.24; see also discussion *infra* at Section I(C). These failings are detailed in the Dr. Dillinger DSEIS Report, the Olmsted Report and the Dr. Dillinger BiOp Report. Examples of some of these failings are discussed below.

**1. The DSEIS fails to provide adequate analysis of the effects of Channel Deepening on habitat productivity and food webs.**

SS-165 In its analysis of the Channel Deepening Project, the Corps employs an "Ecosystem Framework" that recognizes the linkages between physical and biological elements of the environment, such as the relationship between the health of salmon stocks and physical alteration of the Lower Columbia ecosystem. However, the Corps does not adequately analyze the effects of the Channel Deepening Project on habitat productivity and food webs. The Corps acknowledges that habitat productivity and food webs are critical elements of the estuary system (see DSEIS, Fig. S4-2; 6-30-6-38), but the Corps incorrectly and improperly concludes that minimal or tolerable effects on these elements will occur, when the effects are subject to high uncertainty. See Dr. Dillinger DSEIS Report at 15-18.

In theory, the Corps' risk and uncertainty conceptual framework is designed to evaluate risk and uncertainty associated with the Channel Deepening Project and to highlight areas that may require diligent monitoring or additional research to protect against adverse environmental impacts. In most instances, the Corps merely dismisses the effects as short term and therefore immeasurable. See e.g., DSEIS at 6-35. This does not square with the long-term effect of channel maintenance. It is also inconsistent with the Corps' plan to monitor the Channel Deepening Project to keep track of and adapt to these supposedly "immeasurable" effects.

SS-164. This comment appears to be a summary statement for Section B of the comment letter. Responses to the specific comments that follow this summary statement are provided below. As the specific responses indicate the Corps disagrees with the general statement.

SS-165. The Corps disagrees that analysis of the effects of the improvement project on habitat productivity and food web was based on the assumption that small or no changes in the physical environment would subsequently produce no or inconsequential changes in the ecosystem functions of the estuary. Modeling efforts by both the Corps' Waterways Experiment Station and the Oregon Graduate Institute, of Oregon Health Sciences University indicated that the changes predicted to the physical environment were small and well within the normal variation of the physical parameters modeled. Based on this work, it was decided that it would be difficult if not impossible to predict biological changes from these small physical changes. This was agreed to by the agencies and the expert panel during the consultation process. However, because the models had predicted change and there is some uncertainty over the potential for long-term effects, a monitoring program is being developed in cooperation with the agencies to assess any potential long-term changes. In the event the monitoring program shows a detectable change, it will be brought to the adaptive management group for resolution. The Final SEIS includes a mitigation plan for sturgeon.

In direct contradiction to the Corps' conclusion that the Channel Deepening Project will result only in minimal or tolerable adverse effects, the analysis contained in the DSEIS identifies many indicators that present both moderate to high risk and high uncertainty. See DSEIS, Table S6-4: Risk and Uncertainty Conceptual Framework, at 6-40-6-42; see also Dr. Dillinger DSEIS Report at 18-21. Where both risk and uncertainty are moderate or high, the Corps cannot credibly conclude that the adverse effects will be minimal. See Dr. Dillinger DSEIS Report at 19-20. The DSEIS provides no explanation for the conflict between its risk and uncertainty analysis and its ultimate conclusion that the risks associated with Channel Deepening are acceptable. It does not appear that the Corps' conclusions of minimal or tolerable effect are warranted as to the following high risk/high uncertainty indicators: food web and growth; insect effects; suspension/bottom feeders; tidal marsh macrodetritus; resident microdetritus; habitat-specific food availability; contaminants and predation.

SS-165

A good example of the Corps' approach to environmental problems is the "dismiss and defer" approach to project effects on sturgeon. The Corps acknowledges that sturgeon are known to use precisely those habitat areas that will be dramatically altered and adversely affected by dredging and disposal of dredge materials, but the Corps also admits that the precise life-cycle needs of the fish that are met by this habitat (i.e. rearing, breeding, etc.) are simply unknown. DSEIS at 6-20, 6-21. The Corps inexplicably concludes that the unknown environmental consequences for sturgeon are acceptable based on the assurance of future research that may lead to project changes after-the-fact. DSEIS at 6-24. Such research and monitoring may only confirm that damage has been done. It is unclear how the project can be or should be changed if adverse effects are found, nor is it clear how project modifications will be enforced or how the Corps will be accountable to the public or Congress after the environmental damage is done.

The DSEIS raises but does not answer significant questions regarding the adequacy of the Corps' overall environmental analysis and monitoring and adaptive management program. These issues are discussed at length in the Dr. Dillinger SEIS Report at 18-21, and the Dr. Dillinger BiOp Report at 15-17.

**2. The Corps' monitoring plan is insufficiently aggressive to identify—let alone protect against—changes in ecosystem health.**

SS-166 The Corps proposes monitoring actions purportedly to "help to ensure that the conclusions of the project analysis regarding minor effects on habitat and individuals

SS-166. The monitoring program described in Table S6-5 actual builds on the ongoing research effort being done by NOAA Fisheries and funded by the Corps under the Anadromous Fish Evaluation Program for the Columbia River Hydropower System. This program has recently expanded its research program into the estuary and is conducting research to determine how juvenile salmon use estuarine habitat and what types of habitat are important to their rearing success. These studies were begun in 2000 and will establish the baseline against which the changes that may occur with channel deepening will be compared when the channel deepening project funds the research the third year after the deepening. It is reasoned that any major change that would occur would have occurred during the first 3-year period and would be apparent in the data. The adaptive management group will review these results and a decision will be made on the need for additional monitoring.

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are correct." DSEIS at 6-39. The proposed monitoring actions are described in Table S6-5. See DSEIS at 6-43-6-44. With the exception of stranding, which will be monitored only once, one year after deepening, and contaminants, which will be monitored annually during maintenance, the post-deepening monitoring actions are either nonexistent or consist of a single monitoring, three years after dredging. Id. This monitoring plan is entirely inadequate as ecosystem impacts are likely to be firmly entrenched by the third year, when the single monitoring action will occur. Meaningful monitoring must observe ecosystem behavior frequently and over the long-term in order to ensure that the Corps' guesses about the Channel Deepening Project's likely effects have been accurate. This is especially the case where, as here, the Corps' premises its predictions for ecosystem responses on uncertain bases. See discussion supra at Section II(A)(3)(c). Inadequacies in the Corps' monitoring plans are discussed in greater detail in the Dr. Dillinger DSEIS Report at 21-25, and the Dr. Dillinger BiOp Report at 18-23.

SS-166

**3. The Corps fails to undertake credible habitat analyses to determine the effects of Channel Deepening on fish.**

Although the Corps provides HEP modeling for wetlands and uplands habitat, it fails to provide similar HEP-like analysis for fish. Compare Wildlife and Wetland Mitigation Plan at 1-3 (discussing non-fish HEP analysis). As a result, Congress and the Corps cannot conclude that the Corps' mitigation proposals will adequately address adverse effects on fish resources, and the public is hindered in offering meaningful comment on the adequacy of mitigation for adverse effects on fish.

SS-167

Furthermore, the Corps notes that the HEPs it does provide will be updated before implementation, but after the period for public comment has closed. The timing of this reanalysis improperly skills public review of the kind NEPA explicitly requires.

**4. The Corps fails to consider adverse effects on Green Sturgeon that feed and may breed or rear in the Lower Columbia River.**

The Corps' FEIS for the Channel Deepening project recognizes that Green Sturgeon are present in the Lower Columbia River estuary, but neither the FEIS or the DSEIS consider the effects of Channel Deepening and maintenance dredging on this highly sensitive and declining species. See FEIS at 5-20. This omission is particularly important because sturgeon are bottom feeders that are most likely to be present in the area of dredging operations and adversely affected by being buried in sediment

SS-168

SS-167. We disagree. A thorough evaluation of the impacts of the project on fish has been done and is included in the 1999 Final IFR/EIS, Final SEIS, BA and BO. No mitigation for fish comparable to wildlife will occur because the analysis of impacts to fish resources does not identify comparable levels of impact. In addition, in comment SS-146, CRANE appears to criticize the Corps for using a HEP analysis of wetland functions and values, rather than wetland delineation. In this comment, CRANE faults the Corps for not using HEP to analyze fish habitat. CRANE does not explain why it was not satisfied with it in the one instance, or where it is required that it be used for fish habitat. The Corps disagrees that NEPA requires a new public comment period every time analyses are refined or updated. The Corps' statement that it would update the HEP analysis was based on comments from the state agencies on the 1999 Final IFR/EIS. Since that time, the Corps has worked further with the state agencies to respond to questions raised. Based on this coordination and the fact that the Corps has significantly reduced the amount of impacts to riparian areas and agricultural lands, and the amount of wetlands impacted has also declined, the agencies are now comfortable that the proposed mitigation is sufficient. Consequently, the state agencies and the Corps have agreed that it is not necessary to redo HEP.

SS-168. Though green sturgeon are not specifically mentioned in the discussion it is to be assumed that the analysis includes both species since they are generally recognized to occur in similar habitats and use similar resources. This is addressed in the Final SEIS. In the event green sturgeon from the lower Columbia River are listed, we will consult with the agency that lists them.

[I 5690-0017/SBO22540.027]

SS-168 disposal or entrained in dredging equipment. See FEIS at 6-18 and 6-19 (discussing effects on White Sturgeon). These adverse effects are even more critical for Green Sturgeon, which have been petitioned for listing under the Endangered Species Act. Prior to the issuance of the DEIS for the project, NMFS acknowledged that the petition to list Green Sturgeon presented substantial scientific information indicating that listing "may be warranted." 66 Fed. Reg. 64793 (Dec. 14, 2001) (attached as Exhibit I). After finding that an ESA listed may be warranted, NMFS promised action on the listing by June 12, 2002. *Id.* at 64794. In its notice, NMFS observed that Green Sturgeon are present in the Lower Columbia River and are particularly vulnerable to habitat degradation and species decline because they are a long-lived species with low fecundity. *Id.* In light of the precarious position of Green Sturgeon as a species and the strong likelihood that individuals of the species will be directly and adversely impacted by dredging operations, the Corps' failure to consider effects on this species is a failure to take a hard look at environmental impacts.

**5. The Corps' "restoration" features are so contingent as to be of no certain value, and are insufficiently described to permit independent review.**

SS-169 The Corps proposes a number of "restoration" features pursuant to Section 7(a)(1) of the ESA. See DSEIS at 4-22. The Corps asserts that these projects "will create or improve salmonid habitats, specifically tidal marsh, swamp, and shallow water/flats habitats." *Id.* Nevertheless, three of the six proposed projects are contingent, and the Corps provides no guarantee that the projects, or projects of equal ecological value will ever be completed. Specifically, "restoration" projects at Bachelor Slough, and long-term actions at Tenasillahe Island and Cottonwood-Howard Island are, at this point, merely theoretical. See DSEIS at 1-10. There is no indication that delisting of Columbian white-tailed deer is imminent (see Dr. Dillinger DSEIS Report at 6); without delisting the Tenasillahe Island and Cottonwood-Howard Island projects will not proceed. Bachelor Slough is likewise uncertain to happen, since its completion is contingent not only upon securing easements from the WDNR but also upon obtaining favorable sediment testing results. As noted above, two of the remaining three projects raise serious environmental questions as they involve the dumping of sediment on currently functional estuarine environments in the absence of any evidence that dumping will "restore" the environments in question. See *eg.*, Dr. Dillinger DSEIS Report at 4.

SS-169. While ecosystem restoration features favor improvements to salmonid habitat in the lower Columbia River, they are not explicitly restricted to that species complex. Obviously, the reintroduction of Columbian white-tailed deer to Cottonwood-Howard Islands is oriented to only that species. Tidal marsh development favors the full gamut of fish and wildlife resources in the lower Columbia River that utilize that habitat component. The Final SEIS, Section 4.8.6, has been modified to reflect the broader effect of the proposed ecosystem restoration features.

Ecosystem restoration features, to be implemented under Section 7(a)(1) of the ESA, are voluntary rather than mandatory requirements. As such, there is no need or requirement to "guarantee" their completion. The Corps intent is to construct these ecosystem restoration features to the extent that the contingencies identified are met. We have identified in the Final SEIS issues that may result in a particular ecosystem restoration feature to be not constructed. Should we fail to construct a specific ecosystem restoration feature, no compensatory development action for that specific feature will be pursued in the context of the project. The Corps has other authorities, e.g., Section 1135 of WRDA 1986 and Section 206 of WRDA in which to pursue restoration projects external to this project.

The commenter's assertion that reintroduction of Columbian white-tailed deer at Cottonwood-Howard Islands can not proceed without delisting the species is inaccurate. Translocation of Columbian white-tailed deer to those islands can occur in the absence of the species being delisted. The USFWS has recently translocated the species to Crims Island at CRM 54-57 and intends to also place the species on Fisher Island, CRM 59, in the near future.

Implementation of the long-term ecosystem restoration feature at Tenasillahe Island is indeed contingent upon delisting of Columbian white-tailed deer. And the Bachelor Slough feature will not be constructed if sediments were contaminated. These are just examples of the many constraints that befall proposed restoration actions and are not unique to this project.

**III. THE DSEIS'S BIOLOGICAL ANALYSIS IS SCIENTIFICALLY INADEQUATE**

Dr. Robert Dillinger of Natural Resources Planning Services, Inc. reviewed the Corps' biological analysis in the DSEIS, and prepared a report, which is submitted with these comments.

SS-170

Dr. Dillinger has identified a number of areas in which the Corps' biological analysis is simply inadequate, its mitigation and restoration projects ill-conceived and its adaptive management plan without merit. For example:

- The Corps bases many of its assumptions regarding ecosystem behavior on conceptual models. These models are not based in fact, do not quantify links among physical-chemical and biological indicators and are insufficiently grounded in scientific knowledge to support the Corps' conclusions. See Dr. Dillinger DSEIS Report at 8-12. In a number of circumstances, the Corps ignores readily available data, overstates the significance of data obtained in dissimilar circumstances, ignores statements of limited applicability that appear in the studies it purports to use, conducts its own studies using inadequate sampling timeframes and techniques and relies heavily on unproven and unprovable "best professional judgment." *Id.* Based on these weaknesses, the DSEIS cannot possibly evaluate the Channel Deepening Project's impacts with any credibility.

SS-171

- Not only has the Corps failed to ground its conceptual models in fact, but it has also failed to conduct essential verification and sensitivity analysis. *Id.* at 8. Without this independent testing, the models will remain mere guesswork. Future research is so poorly described as to offer no assurance that any usable additional data will be collected. *Id.* at 12.

SS-172

- The Corps' data and conclusions continue to be plagued by uncertainty. Unless and until this uncertainty is eliminated, the Corps' modeling can neither predict system responses to Channel Deepening with any accuracy nor support the Corps' conclusions that adverse effects will be minimal. *Id.* at 10-12, 15-18.

SS-173

- The Corps misapplies the concept of adaptive management. In order to design and implement a successful adaptive management program, the Corps must first study the system in order to identify baseline conditions with some precision and to develop hypotheses and management guidelines based on that baseline knowledge.

SS-174

[I 5690-0017/SBO22540.027]

SS-170. The Corps disagrees with the specific items identified in this statement. Following is a detailed response to specific comments found in the Dillinger/SEIS report, which was provided as an attachment to the CRANE comments. The responses use the section numbering used in the Dillinger Report, where available, otherwise refer to page and paragraph in the Dillinger Report. The complete attachments to the CRANE comment letter are available for review at the Corps' Portland District Office.

*Dillinger's Page 1*

The Corps disagrees. All available information relevant to the Columbia River was used in evaluating the projects and alternatives. Assumptions used in the impact assessment are those that are currently found acceptable for the Columbia River by professionals that have years of research experience with the river, estuary and their processes. A discussion of the criticism of the conceptual model was previously addressed in response to the letter comments submitted by CRANE. The restoration projects are based on what is considered by experts as the type of habitat that is important to create in the Columbia River to achieve restoration. Since few restoration projects have actually been done in the estuary there is a level of uncertainty associated with their success. Consequently a comprehensive monitoring program is planned, with the flexibility to change the project as necessary to achieve the desired results. As described in the Biological Assessment and Biological Opinion, a monitoring program is already underway and will continue for up to 10 years after project completion depending upon the results. This information on pre and post-project conditions will enable the adaptive management taskforce to evaluate any changes that may occur. The adaptive management program is being developed and will likely continue to evolve as the monitoring and research programs proceed.

Comments from the second and third paragraphs on page 1 are noted.

The Corps disagrees with the characterization of the adaptive management program described in paragraph 4, page 1. The adaptive management program has been revised and included in the Final SEIS.

*Dillinger's Page 2*

**COMMENTS ON THE ENVIRONMENTAL SECTIONS OF THE DSEIS**

**Chapter 4 Alternatives**

**4.5 COMPARISON OF ALTERNATIVES**

**4.5.1.2 Biological Impacts**

The Corps disagrees with the contention that the Lois Island embayment and Miller-Pillar ecosystem restoration features will have substantial short- and long-term negative impacts to fish and wildlife resources. The proposals in the Draft SEIS have been modified in response to state agency comments to feature tidal marsh development, a habitat in the lower Columbia River that has suffered substantial impact. These restoration features are not mandatory requirements to offset impacts from the channel improvement project. Rather, they are voluntary actions to be implemented under our existing authorities as provided for under Section 7(a)(1) of ESA. The implication of radical changes to the systems from channel deepening and deposition of dredged materials is not borne out by the consultation process nor does the commenter substantiate it.

## Corps of Engineers Response

The Corps believes that tidal marsh vegetation will develop on the two ecosystem restoration sites. Our optimism is based upon field observations of actual dredged material disposal sites that have developed tidal marsh habitat. For instance, associated with the Lois Island embayment restoration feature, presently targeted for tidal marsh development, are Lois Island, Mott Island and South Tongue. These three sites were all created from dredged material deposition associated with post-WW II development of a mooring basin (Lois Island embayment) for Navy ships. All three sites have developed tidal marsh habitat on their fringes. Abutting the Miller-Pillar ecosystem restoration feature (tidal marsh/intertidal flat habitat objective) are Miller Sands Island, Miller Sands Spit and Pillar Rock Island. Miller Sands Island was formed in the late 1920s-early 1930s from material dredged from the navigation channel. It is fringed by tidal marsh habitat. Miller Sands Spit, constructed from dredged material in 1976, is also fringed with tidal marsh habitat along the south shore.

The modifications to Miller-Pillar and Lois Island embayment ecosystem restoration features to develop tidal marsh habitat will also be based upon developing the correct elevation for that community's development. The Corps can determine that elevation through simple survey procedures of adjacent, existing tidal marsh habitat. The Corps will simply observe examples of tidal marsh habitat that have developed on dredged material. For Lois Island embayment, the fringing tidal marsh habitat that abuts Lois Island, Mott Island and South Tongue Point represents an excellent example of tidal marsh habitat development on dredged material. The Corps will mimic the elevation of this existing tidal marsh habitat development to attain tidal marsh establishment on the 191 acres proposed for restoration in Lois Island Embayment. Data from the CREDDP atlas (1984) indicates that the low freshwater (tidal) marsh at South Tongue Point produced 657-902 grams dry weight of marsh vegetation per meter squared (August 1981-July 1980 sampling periods). Data for natural low freshwater (tidal) marshes elsewhere in Cathlamet Bay were: Russian Island (1064-1093 gm dry wt/m<sup>2</sup>); Karlson Island (590-576 gm dry wt/m<sup>2</sup>); Lois Island east marsh (314-310 gm dry wt/m<sup>2</sup>); Tronson Island (499-592 gm dry wt/m<sup>2</sup>); and Quinns Island (717-778 gm dry wt/m<sup>2</sup>) plus Grays Bay (270-641 gm dry wt/m<sup>2</sup> and 530-391 gm dry wt/m<sup>2</sup>). Average primary production from low freshwater (tidal) marsh for these sites was 569-626 gm dry wt/m<sup>2</sup>. Thus, the tidal marsh restoration proposed at Lois Island embayment should attain comparable results to the tidal marsh that developed on dredged material at South Tongue Point. We believe comparable results will occur with tidal marsh restoration at Miller-Pillar as there exists tidal marsh habitat that has developed on dredged material at Miller Sands Island, Miller Sands Spit and Pillar Rock Island.

### 4.8 Ecosystem Restoration Plan

#### General Comments:

See Corps' responses to S-9; SS-184; SS-170, Page 1; and SS-170, 4.5.1.2 Biological Impacts (above). The Corps disagrees with your contention that hydraulic analyses should be performed for each restoration feature. The Corps has completed a hydraulic analysis for the Miller-Pillar ecosystem restoration feature. The analysis indicated that the previously proposed pile dike field would hold the material in place. Lois Island embayment is a quiescent location and there is no need for a hydraulic analysis. Tidegate retrofits are at existing features and there will be no significant change in the structures. The Corps will monitor the Hump-Fisher and Lord-Walker ecosystem restoration features but anticipates no hydraulic concerns developing at these locations. They are comparable to the channel at the upstream end of Miller Sands Island that separates the island from Miller Sands Spit. Further, we also do not anticipate hydraulic issues at Bachelor Slough.

## Corps of Engineers Response

*Dillinger's Page 3*

### **“Creation of intertidal marsh...emergent marsh plant community.” DSEIS at 4-11.**

As demonstrated in response to SS-170, Page 2, tidal marsh establishment on dredged material (sand) has occurred in the lower Columbia River at a number of locations and results in productive tidal marsh plant communities. For the Martin Island lagoon, a wildlife mitigation action, topsoil will be added to the embayment fill to provide a soil surface on the fill. As the restoration features and Martin Island lagoon are destined for tidal marsh habitat, the hydric conditions for marsh plant community development will be present. The commentator references a 1986 textbook on Wetlands authored by Mitsch to support the proposition that the dredged material, consisting of sand, is unsuitable for marsh creation. In fact, Mitsch states that, “[T]he source of mineral sediment [for marsh creation] is not as important for the productivity of the marsh as elevation, drainage, and organic content, all of which are determined by local hydrologic factors.” See page 183.

### **“Ecosystem restoration features...greater than baseline conditions.” DSEIS at 4-11.**

These two ecosystem restoration features have been modified to feature tidal marsh development. Conditions for benthic invertebrates also entail depth. The depths of the navigation channel, plus its natural dynamic status (sand waves) preclude attainment of population levels comparable to shallow, less dynamic habitats such as the shallow subtidal habitat being lost to erosive conditions at Miller-Pillar (Hinton et al. 1995). The Corps disagrees that the restoration features will result in short and long-term losses to system productivity and have long-term negative impacts to salmonids. The Biological Assessment and Biological Opinion do anticipate short-term losses for salmonids but long-term gains will offset any short-term impacts.

### **“The introduction of Columbian white-tailed deer...population of this listed species.” DSEIS at 4-11.**

Reintroduction of Columbian white-tailed deer to Cottonwood-Howard Island is not contingent upon delisting of the species. The action contingent upon delisting of the species is implementation of the long-term restoration action at Tenasillahe Island. The proposed restoration feature at Cottonwood-Howard Island would be implemented by USFWS personnel from the Julia Butler Hansen Columbian White-tailed Deer National Wildlife Refuge who are quite cognizant of Columbian white-tailed deer population levels. The Corps is confident that refuge personnel will not severely deplete the existing population of Columbian white-tailed deer in accomplishing the reintroduction action. Further, the Corps is satisfied with the USFWS's evaluation that the existing riparian forest habitat on Cottonwood-Howard Island will support the species in this reintroduction effort to a portion of their native range.

#### **4.8.6.1 Lois Island Embayment Habitat Restoration**

##### **General Comments**

*And Dillinger's Page 4*

### **“The restoration action includes ...Columbia River navigation channel.” DSEIS at 4-23.**

The ecosystem restoration feature at Lois Island embayment is a voluntary action by the Corps under Section 7(a)(1) of the ESA and is not a term and condition associated with a reasonable and prudent alternative. Furthermore, mitigation is not a recognized term or element of the ESA. The Corps will provide monitoring of the ecosystem restoration feature at Lois Island, which is a term and condition of the Biological Opinion. The monitoring protocol will be provided to NOAA Fisheries and USFWS by December 15, 2002 as required in the Biological Opinion.



## Corps of Engineers Response

### **“Eight species ...occurred at depths of 16-20 feet.” DSEIS at 4-24.**

The list of species provided in the Final SEIS are those that were collected in the area and had been reported previously from the stomachs of juvenile salmon collected in the estuary. The dietary habitats of the juvenile salmonids have been evaluated in several studies (Kirn, Ledgerwood and Jensen, 1986). These studies all found that *Corophium salmonids* were an abundant food item in the diet of juvenile salmonid in the estuary. Cladocerns and mysids are less abundant in the stomach of salmon than *Corophium salmonis*. Benthic surveys conducted by NOAA Fisheries under contract to the Corps were designed to survey benthic invertebrate populations in the area. Though it is recognized that core samples are not as effective in sampling epibenthics as grab samples, they are being use because more samples can be taken over a larger area since less material is sampled. Since covering as a large an area as possible was the goal core samples were chosen. The study was designed by recognized experts in benthic sampling in the Columbia River and are sufficient in size and number.

*Dillinger's Page 5*

### **4.8.6.3 Miller-Pillar Habitat Restoration**

#### **“Restoration of the erosive...mimic historical depths.” DSEIS at 4-26.**

The Corps has conducted a hydraulic analysis of the Miller-Pillar location to determine the hydraulic processes present and how to counter them with pile dikes in order to hold dredged material in place for habitat development. The Miller-Pillar area is currently highly erosive and therefore does not provide much of any habitat useful for *Corophium*. The filling and placement of a pile dike system will create a more stable backwater like area that will collect the necessary silts and fines that provide the habitat that *Corophium* prefer.

### **4.8.6.3 Tenasillahe Island**

*(Correct section reference for Draft SEIS is 4.8.6.4)* The Tenasillahe Island long-term ecosystem restoration feature is estimated to be constructed approximately 10-years after implementation of the channel improvement project; hence, the designation as a long-term ecosystem restoration feature. As ecosystem restoration features are voluntary actions by the Corps under Section 7(a)(1) of the ESA, the Corps does not have to provide a replacement ecosystem restoration feature in the event that this one is not implemented.

*Dillinger's Page 6*

### **4.8.6.4 Cottonwood-Howard Islands White-tailed Deer Introduction**

*(Correct section reference for Draft SEIS is 4.8.6.5.)* As the USFWS has noted, this is a reintroduction, not an introduction that implies placement of the species in a location outside their historic range. USFWS personnel from the Julia Butler Hansen Columbian White-tailed Deer National Wildlife Refuge would implement the proposed restoration feature at Cottonwood-Howard Island. The Corps is relying on refuge personnel to determine number, age class structure and sex ratios of Columbian white-tailed deer to be reintroduced in order to accomplish the reintroduction action. The final population ratios will depend upon survival, emigration and reproduction associated with the reintroduced animals. That cannot be determined at this time. The USFWS will be monitoring the reintroduced population and we anticipate that population ratios will be disclosed upon the release of annual reports.

## Corps of Engineers Response

### 4.8.6.5. Ecosystem Research Actions

As required through the terms and conditions of the Biological Opinions, the ecosystem research actions and the ETM workshop are detailed in more depth in the Corps implementation plan submittal to NOAA Fisheries and the USFWS. This information is available on the Corps website.

### 4.8.6.6 Bachelor Slough Restoration

The Corps has clearly stated in all documents that implementation of the Bachelor Slough ecosystem restoration feature is contingent upon sediment chemistry results that meet established criteria for dredging and/or disposal of sediments. Failure of sediment chemistry to meet established criteria will result in this feature being dropped from further consideration. As ecosystem restoration features are voluntary actions by the Corps under Section 7(a)(1) of the ESA, the Corps does not have to provide a replacement ecosystem restoration feature in the event that this one is not implemented.

## Chapter 6 Environmental Consequences

### 6.1.1 Ecosystem Model

The Columbia River conceptual model is a valid, peer-reviewed integration of existing scientific knowledge into a tool useful for understanding how the fundamental components of the river's ecosystem interact. This integrated understanding will substantially assist in assessing the effects of the channel improvement project on salmonids.

The conceptual model is the most comprehensive model for the Columbia River developed to date. The model's principal author is Ronald Thom, Ph.D., who has a national reputation for his work in ecosystem restoration and modeling. The use of conceptual models has been recognized as a scientifically valid approach for decades and such models are in active use around the world. In the U.S., a conceptual model has been used in the Chesapeake Bay to help implement regulatory policies governing nutrient inputs to that ecosystem (Dennison, WC, RJ Orth, KA Moore, JC Stevenson, V. Carter, S. Kollar, PW Bergstrom, and RA Batuik. 1993. Assessing water quality with submersed aquatic vegetation. *Bioscience* 43:86-94). Conceptual models are used in the Puget Sound Estuary Program. The River Continuum conceptual model is in wide use throughout this country (Vannote, RL, GW Minshall, KW Cummins, JR Sedell, and CE Cushing. 1980. The river continuum concept. *Canadian J. Fisheries and Aquatic Sciences* 37:130-137). Finally, conceptual models previously developed for the Columbia River, which address relationships between bathymetry and current velocities (Salmon at Rivers End, Bottom, *et al*, 2001 (unpublished draft), Northwest Fisheries Science Center, NOAA Fisheries, Seattle, WA), primary productivity, and food web conceptual models were integrated as components of the conceptual model developed for this project. The National Academy of Science recently recognized the validity of conceptual models as a tool to enhance understanding of ecosystems and to assist in the implementation of monitoring programs (see National Research Council. 2002. *Ecological Indicators for the Nation*. National Academy Press. Washington, DC).

Dr. Thom developed the conceptual model at the suggestion of the SEI panel and scientific staff at NOAA Fisheries and the Corps. The model was developed by comprehensively evaluating existing scientific data and models for the Columbia River. A series of models that addressed significant components of the Columbia system are listed at page E-3 of the Biological Assessment for the channel improvement project, December 28, 2001. The draft conceptual model was extensively evaluated by the SEI panel and by scientists at NOAA Fisheries and the Corps who have substantial expertise in the Columbia River ecosystem. Comments offered by Dr. Dillinger during the SEI process were also evaluated.

## Corps of Engineers Response

As a result of this peer review process, a focused and integrated conceptual model was developed. *Id.* Contrary to the comments the conceptual model has substantial verification as it is based on multiple empirical studies. *Id.* Also the comments concerning reliance on “professional judgment” badly mischaracterizes the peer review process through which the conceptual model was evaluated extensively by a nationally recognized scientific panel assembled by SEI as well as by scientists at NOAA Fisheries and Corps who have substantial expertise about the Columbia River. The implication of the comments that “professional judgment” reflects arbitrary individual conclusions by Dr. Thom or anyone else is simply wrong.

On a separate issue, the commentator references a study he co-authored (Fechhelm et al.) for the proposition that a study of salmonid fish in the Sagavanirktok River estuary in the Alaskan Beaufort Sea suggests that temperature plays a more important role in growth than salinity. The Fechhelm study, however, has limited relevance to the Columbia estuary for several reasons. First, the study involved the growth rates of broad whitefish (*Coregonus nasus*), which is known to be less euryhaline (less able to live in waters with a wide range of salinity), and is a distant arctic cousin. Second, this sampling for this study was conducted in the Beaufort Sea, in the Arctic region of Alaska, where saline levels would be expected to be less variable than in the Columbia River. Third, the study reports that the broad whitefish spends as much as nine months under the ice in the rivers and lakes of northern Alaska. Page 2. This variation in temperature regions is vastly different from the temperate Pacific Northwest. Fourth, the study area was a delta consisting of a shallow shelf ( $\leq 1.5$ m deep) that extends seaward for 3-4 km. Thus, it is by definition a highly saline environment. Fifth, because of the shallow study area, temperatures remained fairly constant. Page 5. Finally, the study area has significantly more drastic swings in available daylight—from 0 hours in the winter to 24 in the summer.

Although the researchers concluded that temperature played a greater role than salinity in growth rates of yearling broad whitefish, they found that the minor association with salinity may have been an artifact of the inverse relationship between temperature and salinity. Page 7. They also found that salinity could not be discounted as a controlling factor, as other variables may have masked its effects in the model. Page 10. British Petroleum apparently funded the monitoring program for this study, which was intended to have direct application to assessing impacts of oil and gas development in the Arctic.

*Dillinger's Page 10*

### **6.2.2.2 Bathymetry and 6.2.2.3 Salinity**

The Corps disagrees with the reviewer assertion that our salinity modeling is useless. The assessment that the proposed 43-foot channel will have little or no impact on salinity intrusion is based on the results of two independent, state-of-the-art, 3-dimensional hydrodynamic models. The OSHU/OGI model is a new model, which was developed specifically to address salinity intrusion on the Columbia River. The WES model has been applied to a variety of salinity problems around the United States. Both models predicted very small changes in salinity intrusion, as described in the 2001 BA. The models and their results were reviewed by the SEI expert panel and found to be adequate for evaluating potential impacts from the proposed 43-ft channel. The resource agency representatives that participated in the 1995-96 salinity workshops also reviewed and accepted the WES model. The timing, locations, flow conditions, and levels of potential salinity changes are described in the 2001 BA. The expected bathymetric changes are described in the 1999 Final IFR/EIS, BA, and the Final SEIS.

## Corps of Engineers Response

The potential changes to the ETM and related impacts to salmonid habitat were addressed during the SEI expert panel review that was conducted as part of the ESA consultation in 2001. In the south channel, the ETM has been found to range between RM 5 and 20 under existing conditions. To the extent that the ETM is related to salinity intrusion, the proposed 43-ft channel may result in an upstream shift of up to 1 mile in the upstream and downstream limits of the ETM in the south channel. The effect of the potential shift in ETM location on distribution of nutrients in the estuary is expected to be so small that it cannot be measured. These potential effects to the ETM are not anticipated to measurably affect salmonids. The ETM processes and these results are presented in the 2001 BA and confirmed in the NOAA Fisheries 2002 Biological Opinion.

*Dillinger's Page 11*

### **6.2.4 Ecosystem Restoration Features**

#### **Pg 6-15, Para 1**

See our responses to SS-170, 4.5.1.2 Biological Impacts.

#### **Para 2.**

The monitoring protocol has been developed and submitted to the NOAA Fisheries and USFWS for them to review and approve.

### **6.6 Biological Impacts**

#### **6.6.1 Aquatic Resources**

##### **6.6.1.1 No Action Alternative**

##### **Dungeness Crab**

The crab distribution model has been revised since the Draft SEIS. It is now based on an analysis of different flow and real time salinity information measured by the CORIE stations. It also includes data on crab distribution collected during the entrainment sampling done in the upriver bars this summer on the dredge *Essayons*. As indicated in the Draft SEIS, the model is not finished but will be evolving, as new data becomes available.

*Dillinger's Page 12*

**Pg 6-18 Para 2** See response to Dungeness crab above.

**Pg 6-19 Para 1** See response to Dungeness crab above.

**Pg 6-19 Para 3** See response to Dungeness crab above.

#### **Pg 6-20 White Sturgeon**

The study conducted by ODFW and WDFW was done to determine the occurrence, abundance and age structure of sturgeon in the in-river deep-water disposal sites. The study accomplished this objective. As reported in Final SEIS, Exhibit K-1, the earlier study results were used to design the behavioral study of sturgeon in the deep-water areas and to determine how they react to dredging and disposal operations. The impact assessment is based on information available to date and is a reasonable analysis of impacts based on sturgeon behavior and dredging and dredge material disposal procedures. The suggestion that this work will not occur is baseless. In fact, the study is already underway and as indicated in the Final SEIS was underway when the Draft SEIS was released.

#### **P 6-25 para 1 and 2**

A detailed discussion of the impacts to benthic invertebrates and crabs using the deep water site is given in the 1999 Final IFR/EIS. Additional information on crab distribution and abundance in the deep water site developed during the baseline study is presented in the Final SEIS.

## Corps of Engineers Response

It is well known that there is uncertainty associated with any restoration action. We are confident that these restoration features will be successful based on observed results at other Columbia River estuarine locations. Also see response SS-170, 4.5.1.2 Biological Impacts. For instance, the shallow water area that developed behind Rice Island and Miller Sands after creation of the islands has been demonstrated to be a highly productive area for benthic organisms as well as juvenile salmon (see Hinton, S.A., R.L. Emmett and G.T. McCabe, Jr. 1992. *Fishes, Shrimp, Benthic Invertebrates and Sediment Characteristics in Intertidal and Subtidal Habitats at Rice Island and Miller Sands, Columbia River Estuary*. Northwest Fisheries Science Center, NOAA Fisheries, Seattle, WA).

*Dillinger's Page 13*

### Para 3

The statements of diversity are based on actual samples collected in the area off the MCR in both inshore and offshore areas. The statement made is comparative between in inshore and offshore and not an indication of actual diversity.

### Para 4

A discussion on impacts of disposal in the deepwater site is provided in the draft and final IFR/EIS.

### Pg 6-26 Para 2

The study referenced has been completed. We disagree with your statement on the nature of studies conducted offshore of the Columbia River. Though these studies were done for particular disposal operations the combination of the studies that have been ongoing since the 1970s provide a very thorough assessment of the benthic resources offshore. More specific comments on sample distribution size and frequency for each study would have to be provided to evaluate the validity of this comment.

### 6.6.1.3 Ecosystem Restoration Features

The Corps disagrees with the implication that the process is causing “damage to the ecosystem as a whole.” The ecosystem restoration features are voluntary actions undertaken under §7(a)(1) of the ESA. The Corps response to SS-170, 4.5.1.2 Biological Impacts, addresses the forage and productivity question. We do not expect the ecosystem restoration features at Lois Island embayment and Miller-Pillar to support the same community as existed prior to disposal. We expect enhancement of the communities. The Columbia River is an excellent source of organic material and silt.

### 6.6.2.5 Ecosystem Restoration Features

#### Pg 6-28 para 2

The Corps response to SS-170, 4.5.1.2 Biological Impacts, addresses this comment.

#### Pg 6-29 para 1

The Corps response to SS-170, 4.8.6.1 Lois Island Embayment Habitat Restoration, addresses this comment.

*Dillinger's Page 14*

### Para 2/3

The Corps agrees that the interim ecosystem restoration feature is likely to be implemented. Our estimated timeframe for the long-term feature is 10-years but it is dependent upon establishment of three secure and viable populations of Columbian white-tailed deer in order to comply with de-listing requirements in the Columbian white-tailed deer Recovery Plan.

## Corps of Engineers Response

There is no guarantee, implied or otherwise, that reintroduction of the species at Cottonwood-Howard Island will result in a secure and viable population. The delineation of the long-term ecosystem restoration feature in the Draft SEIS is a reasonable and prudent action and outlines the Corps commitment to implement this feature in conjunction with the channel improvement project.

### Para 4

USFWS personnel from the Julia Butler Hansen Columbian White-tailed Deer National Wildlife Refuge would implement the proposed restoration feature at Cottonwood-Howard Island. The USFWS is responsible for the management of this species and are knowledgeable of the population levels of Columbian white-tailed deer and which sub-populations would be suitable for collection of individual animals for the reintroduction effort. The Corps is relying on refuge personnel to determine number, age class structure and sex ratios of Columbian white-tailed deer to be reintroduced in order to accomplish the reintroduction action. The final population ratios will depend upon survival, emigration and reproduction associated with the reintroduced animals. That cannot be determined at this time. The USFWS will be monitoring the reintroduced population and we anticipate that population ratios will be disclosed upon the release of annual reports.

### Pg 6-30 para 1/2

Ecosystem restoration features are voluntary actions by the Corps under Section 7(a)(1) of the ESA; therefore, the Corps does not have to provide a replacement ecosystem restoration feature in the event that this one is not implemented. The USFWS will conduct the necessary NEPA documentation to translocate Columbian white-tailed deer.

### 6.7.1.1 ESA Consultation Process Results for the 43-foot Channel Deepening Alternative General Comments

#### The Conceptual Model

The Corps disagrees with the comments concerning the adequacy of the conceptual model. See response to 6.1.1 Ecosystem model. The impact assessment was done by agency representatives using all available information and best professional judgement.

*Dillinger's Page 15*

#### Pg 6-33

##### Bullet 2

The Corps believes that the small changes in the ETM that may occur as a result of the project are dwarfed by the variation in the ETM, which occurs naturally. The small variation is not expected to have significant biological effect. Further, there is no evidence that there will be a change in the timing of the shift in the ETM as the commentator suggests. The timing of the ETM shift is governed by seasonal flow fluctuations and tidal factors. These relationships are discussed in greater detail in the 2001 BA, Page 6-20.

##### Bullet 3

The water depth and velocity relationship to salmon habitat is used as an indicator of potential change with the deepening not as an absolute indication of available juvenile salmon habitat in the Columbia estuary. From this standpoint it is a useful tool since the physical models used could predict the change in these values with the deepening. A detail discussion of the relationship is provided in Salmon at Rivers End (Bottom et al. 2001, unpublished draft).

## Corps of Engineers Response

### Para 1

Your opinion is noted.

### Pg 6-34

#### Habitat Types Pathway

*Dillinger's Page 16*

#### Bullet 1

As stated in the Draft SEIS and the 1999 Final IFR/EIS, this conclusion is based on the fact that these sites are highly erosive and are not physically stable enough for the productive habitat to develop. Though no biological surveys were done to support this conclusion, experience with other erosive areas supports this conclusion.

### Pg 6-35

#### Habitat Primary Production Pathway

#### Bullet 1

The quoted statement from the Draft SEIS does not address interconnectivity between deep and shallow water sites. It is a statement that, in the Columbia River, deep-water areas support less vegetation than shallow water areas because of reduced light penetration with depth. A small reduction in light in the water column over deep-water habitat is not expected to have an effect on the overall amount of vegetation in these areas.

#### Bullet 2

See above responses on models and ETM. The estimates of the impacts to productivity are once again based on the small physical changes that would result in a small or undetectable change in the productivity of the system. We still support this as a valid impact assessment tool.

#### Food Web Pathway

A discussion of plankton and mobile epibenthos was provided in the 1999 Final IFR/EIS.

### Pg 6-36

#### Bullet 1 (6-36)

This comment reflects the author's apparent lack of understanding of the project and the bottom sediments of the Columbia River. Sediments dredged and disposed of from the main navigation channel are all of the same type and because of the constant movement of the sand waves do not have much of any fine grain sediments. Consequently, the habitat does not have to restore itself. As was described in the 1999 Final IFR/EIS and Final SEIS, recolonization will take some time and may in fact not completely occur if the site is continuously dredged or disposed on.

#### Bullet 2 (6-37)

You are correct in stating that no population estimates have been done for most macroinvertebrates. The Corps disagrees that such estimates are necessary or appropriate. An estimate of Dungeness crab lost to the population has been done and is included in the Final SEIS. A discussion of the known habitat requirements of the species of macroinvertebrates is given in the 1999 Final IFR/EIS and the 2001 BA.

#### Bullet 3 (6-37)

See responses above on models and ETM.

## Corps of Engineers Response

*Dillinger's Page 17*

### **GROWTH PATHWAY (6-36)**

This assessment was once again based on the small change in physical parameters from the deepening, and subsequent high likelihood of no change in the parameters that affect salmon growth. A detailed growth model was not considered necessary because of the lack of change in the parameters that would affect the growth pathway.

**Pg 6-37**

### **Potential Short-term effects.**

See responses to 6.1.1 above.

**6-38 to 6-53**

### **Potential Long-term Effects, Monitoring Actions and Compliance Actions**

Comments noted. The development of the risk and uncertainty analysis and the adaptive management process is described in depth in the BA. The process used the current approach on adaptive management with the help of Dr. Steven Bartell who is an recognized expert in this field. Additional development of the adaptive management process will be done as the team is developed.

The commentator references Power and Adams 1997 to support the proposition that science has become skeptical of risk assessment results obtained using best professional judgment. The references are in fact brief introductory notes, which discuss the scientific discourse surrounding the process of risk assessment, and not the development of risk monitoring programs. Furthermore, the article is silent on "best professional judgment," which clearly does not apply to the development of the risk analysis. Finally, another article the commentator cites supports the use of best professional judgment ("BPJ"), and states that some types of risk assessments require extensive use of BPJ. See Holdway at page 817-18.

The commentator also cites to R.T. Lackey (National Health and Environmental Effects Research Laboratory, USEPA) for the same proposition. But Lackey examines the pros and cons of risk assessment as a tool. He does not reach any conclusions regarding development of the risk assessment program. In fact, Lackey states, "The decision to use risk assessment is a heavily value-laden decision. Technical expertise cannot substitute for values and priorities in ecological risk assessment; these are issues of policy and not science." See page 811.

*Dillinger's Page 20*

### **Exhibit H.: ESA Consultation Documents**

#### **See BA Section 7 and NMFS Biological Opinion Section 6.7.1**

The monitoring program and rationale for its design and how it will fit into the adaptive management plan are described in the BA and Biological Opinion. This approach was found acceptable to the agencies in the 2001 consultation process. As required through the terms and conditions of the Biological Opinions, the monitoring actions are detailed in more depth in the Corps implementation plan submitted to NOAA Fisheries and the USFWS. The Corps research and monitoring actions implement an expanded effort for juvenile salmon designed by NOAA Fisheries and other federal and state resource agencies. This information is available on the Corps website.



### Corps of Engineers Response

The “yardsticks” identified in the comment and discussed below are not contained in the BA and Biological Opinion as cited by the comment. Nonetheless, the Corps is responding to the substance of the comments. The monitoring actions associated with dredging and disposal includes six elements. Those elements are designated MA-1 through MA-6 and detailed descriptions can be found in Table 7-3 of the BA. In addition, the Corps is funding six ecosystem restoration research actions. See Table 8-1 in the Biological Assessment, page 8-11. The elements are as follows:

- Element MA-1 involves maintenance of three hydraulic monitoring stations. Parameters measured include salinity, water surface and water temperature.
- Element MA-2 measures annual dredge volumes to confirm dredging forecast.
- Element MA-3 is annual bathymetric surveys in the main channel to evaluate side-slope adjustment adjacent to the channel.
- Element MA-4 is a study of estuary habitat and juvenile salmon use in the lower Columbia River and estuary. The commenter does not specify the study to which his comments are directed. However, based on the reference to “salmonids,” the commenter is directed to MA-4 and the information detailed below.
- Element MA-5 is a review of contaminants database in the region as it applies to the Project.
- Element MA-6 is a study of juvenile salmon stranding in the Lower Columbia River.

Monitoring Activity MA-4 is a research program, which shall continue over a ten-year period. The study was designed and is being carried out by the Fish Ecology Division of the Northwest Fisheries Science Center, NOAA Fisheries. This research plan, which is being used as a monitoring element, has already collected two years of field data. It was designed by recognized experts in the field of estuary biology and salmon use of estuaries. The program will provide additional information on salmon use of the estuary and will also provide baseline information against which post-project changes can be evaluated. The study plan uses scientifically accepted statistical methods to design number, size and frequency of samples and includes appropriate methods to analyze the data. Additionally, the study has been reviewed by a multi-agency review group for salmonid research on the Columbia River. The study will compare trends in abundance and life histories of juvenile salmon at a landscape scale on representative transects of shallow-water habitat, between Puget Island and the Columbia River mouth. These goals will be accomplished through detailed studies at established sites and transects along the river and will include a time series study of juvenile salmon abundance. As an additional objective, the study will describe salmonid use and performance in selected emergent and forested wetlands and their relationship to local habitat features. To accomplish this goal, the study will select for intensive sampling, a representative suite of tidal channels and sloughs in emergent and scrub-scrub/forested tidal wetlands. In order to evaluate the potential and level of rearing by juvenile salmon species in these peripheral shallow water estuary and habitats, the study will also monitor the availability of invertebrate prey resources and food habits of juvenile salmonids and other select fish predators. Additional study elements will characterize historical changes in flow and sediment input to the Columbia River estuaries and change of habitat availability throughout the lower river and estuary. See Biological Opinion Implementation Plan on the Corps’ website.

The Corps believes Study MA-4 will provide an efficient and appropriate set of data and analyses for use in project monitoring. The data will be analyzed on an ongoing basis by the Northwest Fisheries Center, NOAA Fisheries. The Corps will report the results of this monitoring study, as well as other monitoring activities to the adaptive management team described in the Biological Opinion. This group will call in additional experts as needed to ensure that results are correctly interpreted. With respect to comments directed to the conceptual model, please see response to comment SS-170.

## Corps of Engineers Response

The commentator references Holling (ed), *Adaptive Environmental Assessment and Management*, 1978 (350 pages excluding references), but fails to provide any page citations to this reference: "Attempts to eliminate uncertainty are delusory and often counterproductive. The appropriate concept for both assessments and policy design is a recognition of the inevitability of uncertainties and the consequent selective risk-taking" (p. 5, emphasis added). In fact, Holling is clearly at odds with the commentator's repeated insistence that uncertainty must be eliminated through exhaustive baseline studies, extensive validation and similar practices: "No matter what combination of these any specific problem has, there is a [modeling] technique available." Page 14.

### *Dillinger's Page 23*

The Adaptive Management Plan required as part of the biological opinions will be available on the Corps' website as part of the biological opinion Implementation Plan.

### *Dillinger's Page 24*

#### **Exhibit E**

##### **General Comments**

The Corps has revised the 404(b)(1) evaluation in response to comments. See Final SEIS, Exhibit E. The Corps disagrees that the proposed ecosystem restoration features are set forth in insufficient detail to assess their potential. These features were jointly developed with the USFWS and NOAA Fisheries and include proposals by WDFW (Shillapoo Lake, tidegate retrofits) and ODFW (tidegate retrofits). We consider the restoration features to be outlined in sufficient detail to convey to the reader the objective of each feature and the basic manner in which they would be constructed. The restoration features will be developed in greater detail during the Planning, Engineering and Design phase.

The monitoring protocol has been developed and submitted to the NOAA Fisheries and USFWS for them to review and approve. The Corps has modified Lois Island embayment and Miller-Pillar in response to ODFW and others comments to feature tidal marsh habitat development. Please note that ecosystem restoration features do not constitute mitigation actions. They are voluntary actions by the Corps, utilizing existing authorities, to implement beneficial actions for listed species under Section 7(a)(1) of the ESA. HEP analysis was used for the wildlife mitigation effort and does not pertain to ecosystem restoration features. The Corps disagrees with comment regarding the Hinton study methodology. The NOAA Fisheries researchers who designed this study effort have extensive experience conducting research of this nature in the lower Columbia River.

### *Dillinger's Page 25*

#### **Pg 7**

##### **Aquatic Ecosystem and Organism Determination**

##### **Para 2**

The Corps disagrees. See our response to SS-170, 4.5.1.2 Biological Impacts.

##### **Exhibit I Essential Fish Habitat**

The Corps has revised its Essential Fish Habitat evaluation in response to public and agency comments.

##### **Pg 3 Para 2**

The statement made is true that the shallow areas near shore are generally more productive than the deeper channel areas, which have reduced light penetration and unstable bottoms.

## Corps of Engineers Response

### **Pg 4 Para 1**

The Corps disagrees. The ecosystem restoration projects are designed to provide additional juvenile salmon essential fish habitat. They will also provide essential fish habitat for groundfish species.

### **Para 2**

The Corps disagrees. See response to Pg 4, Para 1 above.

### **Pg 6**

#### **Para 1**

The comment is incorrect in stating that dispersal is central to our conclusion. The statement in the document is that dredging not disposal will not have minimal adverse effect on EFH. Dispersal is not associated with the dredging process but with the disposal process. The conclusion was based on the facts that the channel bottom does not provide much in the way of EFH and that deepening it will not decrease or increase it's value.

### **Pg 7 Para 2**

We disagree see response above for restoration projects.

*Dillinger's Page 26*

### **Para 3**

We concur that the statement does not include mobile epibenthos whose numbers can be large in this site at time. The site is still considered to be low in abundance of benthic organisms because of its erosive nature. You are correct in the statement that a productivity rate was calculated for the site. The term productivity in this case refers to presence or absence of organisms and their abundance, which is more meaningful in this case in describing the character of the site.

### **Pg 7-14 Groundfish EFH**

The Federal Government disagrees. The EFH assessment did consider the value and uniqueness of the habitat in the deepwater site and determined that though the habitat would be affected, it was not unique from a coast-wide perspective. Therefore, loss of this habitat by disposal would not likely affect the overall habitat available for the managed species. Information used was a NOAA Fisheries technical report on all available habitat information on the managed species and provided a wealth of information on the species. You are incorrect in the statement that additional information is available to assess the impacts to the species habitat. The only additional site specific information available is the data gather during our recent baseline survey of the deep water site. Though the final report of this survey will not be available until spring preliminary results confirm are conclusions on effects on EFH.

## **Exhibit K Technical Memoranda**

### **Technical Memorandum: Sturgeon**

#### **Pg 1**

#### **Pg 2**

#### **Para 4 Sturgeon Diet**

#### **Para 5 Benthic Invertebrate Sampling**

## Corps of Engineers Response

*Dillinger's Page 27*

### **Page 3, Para 1-6 Results**

The Corps disagrees with the statement on the quality of the study. The study used accepted sampling techniques and design by ODFW and WDFW agency personnel who have worked for years on study design and sampling of sturgeon and benthic invertebrate populations. The study was more than adequate for its purpose which was to assess sturgeon presence and absence in the deep water flow lane sites and give an indication of whether they were feeding on organisms in the deep water site.

### **Page 4, Para 2**

The Corps disagrees. The placement of material in-river in the deep-water disposal site will not be a preview of the restoration projects. The restoration projects will bring the bottom elevation up to inner and subtidal levels while the deep-water site will only be filled to depth of less than 60 feet, which are not comparable. The shallow water fill at the restoration sites is projected to be far more biologically productive than the in-river deep-water disposal site.

### **Pg 5 Action Plan**

See response on sturgeon evaluation reports above. In addition, the Final SEIS contains a description of the telemetry studies and the results of this year's effort.

### **Technical Memorandum: Eulachon**

#### **Pg 2**

The study used accepted sampling techniques and design by ODFW and WDFW agency personnel who have worked for years on study design and sampling of smelt populations. The study was more than adequate for its purpose, which was to assess smelt spawning areas and migration characteristics. The information has been revised and included in the Final SEIS, Exhibit K-2.

#### **Pg 4**

##### **Potential Impacts**

##### **Bullet 3**

The Corps disagrees. The physical models presented to and reviewed by the SEI panel are adequate to evaluate flow changes with deepening.

*Dillinger's Page 28*

### **Technical Memorandum: Dungeness Crab**

#### **Page 2 Para 2**

The crab evaluation report has been extensively revised based on coordination with the resource agencies and additional research done in summer, 2002. These revisions respond to your comments. The pilot study referred to in the comments has been superceded by the additional research conducted in the summer of 2002. See Final SEIS, Exhibit K-4.

#### **Page 3 Para 1**

See Technical Memorandum: Dungeness Crab above.

#### **Para 2 Data Preparation**

See Technical Memorandum: Dungeness Crab above.

#### **Para 3**

See Technical Memorandum: Dungeness Crab above.

**Corps of Engineers Response**

**Page 8 Conclusions**

**Para 3**

See Technical Memorandum: Dungeness Crab above.

**Para 4**

See Technical Memorandum: Dungeness Crab above.

**4. Entrainment Study**

**4.1 Methods of the Entrainment Pilot Study**

**Page 11, Para 1**

See Technical Memorandum: Dungeness Crab above.

*Dillinger's Page 29*

**Para 3**

See Technical Memorandum: Dungeness Crab above.

**Page 12**

**Para 1**

See Technical Memorandum: Dungeness Crab above.

**Page 13**

**Results from the Entrainment Pilot Study**

**Para 2**

See Technical Memorandum: Dungeness Crab above.

**Page 14**

**Potential Impacts of Dredging**

**Direct Impacts**

See Technical Memorandum: Dungeness Crab above.

**Pg 15**

**Para 1**

See Technical Memorandum: Dungeness Crab above.

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**Para 2**

See Technical Memorandum: Dungeness Crab above.

**Conclusions**

See Technical Memorandum: Dungeness Crab above.

**Pg 16 Disposal**

See Technical Memorandum: Dungeness Crab above.

**Page 17 Direct Impacts**

**Para 2**

See Technical Memorandum: Dungeness Crab above.

**Corps of Engineers Response**

**Pg 18**

See Technical Memorandum: Dungeness Crab above.

**Para 4**

See Technical Memorandum: Dungeness Crab above.

**Pg 18/19**

See Technical Memorandum: Dungeness Crab above.

*Dillinger's Page 31*

**Appendix B: Gaining Perspective on Dredge Entrainment Impacts to Dungeness Crab in the Columbia River Estuary**

See Technical Memorandum: Dungeness Crab above.

**Pg 3**

**Para 2**

See Technical Memorandum: Dungeness Crab above.

**Pg 4**

See Technical Memorandum: Dungeness Crab above.

**Pg 6**

**Para 1/2**

See Technical Memorandum: Dungeness Crab above.

**Technical Memorandum: Wildlife and Wetland Mitigation**

**Pg 2**

**Para 1**

The HEP analysis entailed nine species models. HEP was not used to analyze the interactive effects between and among species. The Corps disagrees with your approach to wildlife mitigation.

**Para 2**

Information on the wildlife mitigation effort was disclosed in the 1999 Final IFR/EIS, Appendix G.

**Para 4**

Information on the wildlife mitigation effort was disclosed in the 1999 Final IFR/EIS, Appendix G.

*Dillinger's Page 32*

**Pg 3-4**

Information on the wildlife mitigation effort was disclosed in the 1999 Final IFR/EIS, Appendix G.

**Page 4, Para 2**

Information on the wildlife mitigation effort was disclosed in the 1999 Final IFR/EIS, Appendix G.

## Corps of Engineers Response

### **Pg 9 Potential Impacts**

#### **Para 2**

The Corps addressed the principal species complex (waterfowl) that utilizes agricultural lands to be used for dredged material disposal in the Vancouver Lowlands. Use by other wildlife species is typically minimal. For instance, the agricultural lands at Gateway 3 typically were utilized for either silage corn or spring cereal grain production. Both operations entail spring tillage that results in a ground surface containing minimal debris cover and no vegetative cover until seed germination and crop growth occurs. Neither spring crop provides suitable nesting habitat for passerines, galliforms, or virtually all other upland species. Some nesting by killdeer prior to spring tillage would be expected to occur although production would be dependent upon initiation of tillage. Upon harvest, spring grain fields, in the absence of subsequent tillage, provide some forage resources for doves and passerines, and upon their arrival in the fall, waterfowl, to include sandhill cranes. Silage corn is not harvested until late September-October. The harvest operation cuts the corn stalk off typically 2-6 inches above the ground with virtually all production (stalk, leaves, ears) hauled off the field to storage. Some waste occurs from knockdown of stalks or spillage of loads but it is minimal. Post-harvest, little cover (essentially parallel rows of shorn stalks) remains in the field. Waterfowl usage, particularly Canada geese and to include sandhill cranes occurs, when they harvest what wasted corn kernels are available. Typically, Canada geese, given the numbers present in the Vancouver Lowlands, could clean a 40-acre tract of harvested silage corn in a few hours. Some harvest of greenup (grasses and weeds) may occur later in harvested corn fields by Canada geese. Also, post-harvest of silage corn, some use by migrant water pipits (spring and fall) may occur. Use by other migrant passerines (savannah sparrows, vesper sparrows) may occur in spring if there is a relatively substantial winter growth of weedy species (mustard, various grasses) on these harvested fields that provide them with some hiding cover. Killdeer could be expected to make use of the harvested field throughout the fall and winter as the large open tracts and minimal cover provide attributes sought by this species. For untilled, but harvested grain fields, some use by raptors and great blue herons seeking voles would be expected. For the pastureland at Adjacent Fazio, raptors and great blue herons would also hunt for voles.

### **Pg 10**

#### **Para 1**

Information on the wildlife mitigation effort was disclosed in the 1999 Final IFR/EIS, Appendix G, to include habitat impacts from upland disposal. Sandhill crane use occurs in the Vancouver Lowlands and the species does occur in the vicinity of disposal site W-101.0 during fall and spring migration. They would be expected to utilize waste grain at these locations, provided tillage operations post-harvest of cereal grain or silage corn, the predominant crops grown there, has not eliminated the waste grain. Their use of the location is dependent upon crop grown and tillage operations implemented.

#### **Para 4**

Information on the wildlife mitigation effort was disclosed in the 1999 Final IFR/EIS, Appendix G. The wildlife mitigation sites feature wetland, riparian forest and at Woodland Bottoms agricultural habitat development. Also, there are natural habitat components present (Martin Island, Webb) or immediately adjacent (Woodland) that will provide an edge component at each site.

### **Pg 12**

#### **Paras 1, 2, 3, 4**

Information on the wildlife mitigation effort was disclosed in the 1999 Final IFR/EIS, Appendix G.

## Corps of Engineers Response

*Dillinger's Page 33*

### **Pg 13 Actions Plans**

The Corps disagrees with the comment that habitat value and assessment should occur on a landscape matrix scale. Information on the wildlife mitigation effort was disclosed in the 1999 Final IFR/EIS, Appendix G. Field surveys were carried out to measure habitat variables described in the target species models.

### **Para 6**

The monitoring plan was included in the wildlife mitigation plan in the 1999 Final IFR/EIS, Appendix G. The adaptive management effort pertains to the elements of the Biological Opinion, not the wildlife mitigation plan.

### **Technical Memorandum: Consistency with Local Critical Areas Ordinances Appendix B Wetland Mitigation Plan**

### **Pg 3 Puget Island**

Puget Island within the Diking District is 3,865 acres in extent whereas the proposed disposal site is 100 acres (3% of the total within the Diking District). The disposal site W-44.0 impacts 5.4 acres of wetland best characterized as man-made drainage ditches and associated low lying ground in an agricultural pastureland subject to cattle grazing and/or harvest for grass silage.

### **Pg 5-6**

We disagree that the interagency derived HEP model is non-functional and that a more complex HEP model should be employed.

### **Pg 6**

#### **Para 1**

The Corps used the USFWS's HEP analysis to assess habitat value. It did not implement formal wetland delineation and that was clearly stated to resource agency representatives on the interagency wildlife mitigation team, which included the Washington Department of Ecology.

### **Pg 7/8**

These agricultural lands have limited vegetative cover and are currently subject to grazing by cattle and thus hold little wildlife value in their present condition. The Wildlife Mitigation Plan (1999 Final IFR/EIS; Appendix G) provides a detailed analysis of the wildlife value of these disposal locations.

*Dillinger's Page 34*

### **Conclusion**

The Corps strongly disagrees with the conclusory opinions expressed by the commentary. The conclusion expresses, in gratuitously argumentative form, various opinions previously expressed by the commentator. The Corps has responded in detail to those comments. Contrary to the commentator's suggestion, the analysis of this project has included extended study by nationally recognized independent experts, as well as agencies and scientists who have spent years studying the Columbia River ecosystem. The science involved with this analysis (including conceptual models, monitoring, and adaptive management) was careful, fair and thorough.

The Corps' detailed responses are noted above. Comments and opinions noted.



### **Corps of Engineers Response**

SS-171. The Corps disagrees with this comment. See response SS-170, Section 6.1.1.1 Ecosystem Model. The conceptual model functioned well in helping to ensure that parameters and linkages between parameters were considered. Contrary to the comment, the analysis was done using best available scientific information pertinent to the Columbia River system and the channel improvement project.

SS-172. See responses SS-170 and SS-171.

SS-173. See responses SS-170 and SS-171. The consultation process minimized uncertainty by gathering the best available science and applying this science to understand the types of risks posed by specific areas of uncertainty. Given the unprecedented work of the SEI panel and consultation process, NOAA Fisheries and USFWS concluded that the areas of uncertainty had been reduced and that the risks of that uncertainty could be addressed through monitoring and an adaptive management program. The level of uncertainty is consistent with that contemplated by the July 2000 NOAA Fisheries and USFWS guidance on adaptive management.

SS-174. See responses SS-166 and SS-170. The Corps disagrees with the characterization of the adaptive management program. The adaptive management program has been revised and included in the Final SEIS.

Corps of Engineers Response

SS-175. See responses SS-166 and SS-170.

SS-176. See response SS-170. The consultation process with NOAA Fisheries and the USFWS concluded that the restoration features would likely benefit listed salmonid species. In response to comments, the Corps has modified the proposed ecosystem restoration features for Lois Island embayment and Miller-Pillar to feature tidal marsh habitat development. See response S-9. The modified proposals will benefit a diverse array of fish and wildlife species in addition to salmonids. The “intent” is to use dredged material in a manner that benefits the ecosystem.

SS-177. See response SS-170. The Corps has explicitly identified what contingencies must be met in order to implement the Columbian white-tailed deer and Bachelor Slough projects. The Biological Opinion recognizes these contingencies and its determination that the project will not jeopardize listed species is made with the understanding that it may not be possible to implement these components of the project. The Biological Opinion also concludes that if the contingencies are addressed and the features are implemented, they will likely benefit listed species over the long-term. The BA includes baseline information on Lois Island embayment, Section 8.2.1. Ecosystem benefits for Lois Island were outlined in response to comment S-9. Terms and conditions of the Biological Opinion (NOAA Fisheries term and condition 5f; USFWS coastal cutthroat and bull trout term and condition 5f) require pre- and post-construction monitoring for ecosystem restoration features. Information attained through implementation of these terms and conditions will contribute to the baseline information already present for Lois Island. The ecosystem restoration features are part of the authorized project and it is the intent of the Corps and sponsor ports to implement them. The Draft and Final SEIS represent our public affirmation to implement these features subject to the contingencies discussed above.

SS-178. See response SS-170. The Corps BA could not have been more transparent. The Corps began by convening an independent science panel (SEI) to review issues that had been identified during the 1999 consultation and to otherwise confirm what science constituted the ‘best available science’ for the consultation. The SEI’s work was conducted in public. Representatives of the commenter attended most, if not all of the SEI meetings.

SS-179. The Corps disagrees with the comment’s characterization of the analysis of wetlands impacts and proposed mitigation for those impacts. An interagency team (USFWS, WDFW, ODFW, WDOE, and the Corps) addressed wetland mitigation through the Wildlife Mitigation process using the USFWS’s Habitat Evaluation Procedures (HEP) process to evaluate project impacts and their offsetting mitigation actions. The 1999 Final IFR/EIS and Final SEIS summarize this work. The proposed mitigation results in a ratio of 12:1 for wetland impacts. Specifically, the wildlife mitigation plan calls for development or substantial improvement to 194 acres of wetland habitat for the entire project to replace the approximately 16 acres to be filled. In contrast, most local plans require mitigation of the low value wetlands range from 1:1 to 6:1, depending on the wetland class impacted. Therefore, even if the Corps’ assessment were incorrect by several factors, the proposed mitigation would still substantially exceed the required ratios. In addition, the mitigation projects include 16 acres of freshwater intertidal emergent marsh, which is significantly more productive than the palustrine wetland that will be filled at the Puget Island and Mt. Solo disposal sites.

The Corps has failed to conduct this essential groundwork, without which its adaptive management program cannot be expected to result in management decisions that preserve or achieve properly functioning conditions. Id. at 23-25.

SS-175 | • The Corps’ monitoring program is likewise ill-defined and fails to provide the monitoring parameters that could support an adaptive management program. Id.

SS-176 | • The Corps’ “restoration plans” will not benefit, and may in fact hurt, the Columbia River ecosystem. The Corps proposes to dump fine grain sands into currently functional habitat systems. These plans are based on bad science and are likely not only to fail to create new habitat, but also to destroy functional existing habitat. The Corps’ restoration plans are not intended to create new shallow water habitat, but are in fact disguised opportunities to provide the Corps with additional dump sites for dredged materials. Id. at 3-7.

SS-177 | • Completion of the restoration plans is entirely contingent and unlikely to occur. The Corps provides no evidence that the delisting of Columbian white-tailed deer is imminent. The Corps also has not conducted any of the baseline studies necessary to determine whether the Lois Island and Bachelor Slough projects can be undertaken. As a result, the proposed restoration plans are entirely theoretical and are unlikely to provide any habitat benefits to the Columbia River ecosystem in the near future, if ever. Id.

SS-178 | • In addition to all these failings, the Corps’ biological analysis is insufficiently transparent to allow independent review and verification. See, e.g., id. at 16.

SS-179 | In addition, the Corps fails to address critical wetlands issues in its environmental analysis and proposal for wetlands mitigation. These criticisms are set forth at length in the Olmsted Report. In summary,

SS-180 | • The Corps’ modeling, monitoring and adaptive management plans are inadequate as applied to wetlands for the same reasons described by Dr. Dillinger in his overall criticisms of the Corps’ DSEIS (see above). See generally Olmsted Report.

SS-181 | • The Corps fails to undertake appropriate comparison of disposal sites on the basis of technical, logistical and economic criteria. Its selection of upland disposal sites is, therefore, arbitrary. Id. at 3.

[I 5690-0017/SBO22540.027]

## Corps of Engineers Response

SS-179 (con't). Finally, the goal for construction is to construct the mitigation features at the beginning of the project. In contrast, some of the wetlands will be filled during the maintenance phase of the project. In the case of the Puget Island wetland, the fill will occur in the third of the three site segments that will be filled approximately 15 years after construction of the project. The fact that the mitigation will be in place before some or all of the wetland fill occurs makes the mitigation ratios even more substantial. The Final SEIS includes a revised wetland mitigation plan that provides more detailed information regarding the mitigation projects.

Review of wetland impacts since the 1999 Final IFR/EIS has determined that fewer wetlands will be impacted than first estimated. Although the amount of impact from the project has decreased, the Corps' proposed mitigation has remained substantially the same. The WDOE and other federal and state resource agencies have been regularly consulted regarding the wetland impacts and mitigation and have expressed consistent support for the quantity of mitigation proposed.

Following is a detailed response to the specific comments presented in the Olmstead's Draft SEIS report. For ease of reference, the section descriptions below are taken from the Olmstead report. A copy of the Olmstead report is available for review at the Corps' Portland District office.

### Introduction

The Corps disagrees with the allegation that it "fails to explain how its proposals to mitigate wetland functional loss will actually restore or enhance functioning of the wetland systems." While the reviewer cites four wetland related documents on the project, it does not appear that the reviewer considered the Wildlife Mitigation Plan, Appendix G in the 1999 Final IFR/EIS, which is part of the EIS process for this project. That document contains additional information on the wildlife restoration actions, including the wetland mitigation component, and provides substantial information derived from the HEP analysis on impacted wetland habitat values and mitigation for such values. Functional loss, and gain, is predicated upon average annual habitat units, which were determined through an extensive interagency process for impacted wetlands and mitigation sites.

The Corps also notes that all of the documents reviewed by the commenter have been substantially revised in response to comments and are included in the Final SEIS. See Exhibit K-5 and Exhibit K-8.

The Corps also disagrees with the reviewer's allegation that there is insufficient baseline information. The Corps relied upon topography, 1996 color infrared aerial photo interpretations to determine wetland habitat acreage at disposal and mitigation sites and/or site visits. Appendix G contains maps depicting wetland, agricultural, and riparian habitat that occurs at both disposal and mitigation sites, including wetland habitat proposed to be developed with implementation of the wildlife mitigation plan. Two disposal sites, Mt. Solo and Puget Island contain wetland habitat.

The Mt. Solo disposal site lies behind a flood control dike where water is drained from the site to a pump station and then discharged to the Columbia River. The dike precludes flooding by the Columbia River. Cattle grazed the site during the analysis period for the wildlife mitigation plan presented in the 1999 Final IFR/EIS. The landowner had further altered the site through disposal and grading of waste material from an adjacent quarry operation. Wetland functional value for wildlife was analyzed through the HEP based upon these features.

### Corps of Engineers Response

SS-179 (con't). The Puget Island disposal site is pastureland used for commercial agricultural purposes. Wetland habitat associated with this site occurs in the form of a drainage ditch and associated low lying ground in the northwest corner of the 100-acre disposal site. They are subject to impacts by grazing cattle. Water in the drainage ditches flows to a pump station that exhausts the water to Welcome Slough. Thus, pumping affects water levels in the ditches and associated wetlands, particularly during summer when the ground is not saturated by precipitation. The Puget Island disposal site is located behind a flood control dike that precludes flooding by the Columbia River.

The Woodland Bottoms mitigation site contains agricultural row croplands, pasturelands and a 40-acre duck club. The row croplands are tilled annually. Cattle graze the pastureland area at the downstream end of the property that is a wetland habitat, although substantially altered by grazing pressure and isolation (by levees) from both the Columbia River and Burris Creek. Burris Creek bisects the mitigation area between levees on each bank and thus cannot fill the grazed wetland with overbank flooding, as it would have historically. The main flood control levee surrounding the entire Woodland Bottoms location precludes flooding by the Columbia River, which also would have historically occurred on the wildlife mitigation site. Drainage ditches funnel water from the site to a pump station, owned and operated by the diking district, which exhausts the water to a backwater channel of the Columbia River.

Martin Island is a naturally formed island in the Columbia River. It has been modified via clearing of riparian forest to develop pastureland for cattle grazing, excavation of a lagoon to provide fill material for an adjacent stretch of Interstate 5, and the presence of exotic plants such as Himalayan blackberry. It retains a relatively large stand of riparian forest. Low lying swales provide opportunity for wetland habitat development or improvement.

The Webb mitigation site in Oregon lies behind main flood control dikes. The dikes preclude flooding by the Columbia River. Drainage ditches that channel water to an adjacent slough bisect the site. A pump station on the slough exhausts the water to Westport Slough. The land is subject to intensive cattle grazing. Due to its low lying nature, wetland plants, particularly rush (*Juncus spp.*) which is not grazed, are present but most are suppressed due to grazing and drainage actions. The highest ground on the site, relatively speaking, occurs along the bankline of the natural slough channel.

The comment incorrectly asserts that the Corps expects dredged material disposal sites and dredging sites to "be immediately productive in terms of seeding of emergent plant life." The Corps has not stated anywhere that dredged material disposal sites or dredging areas will be immediately productive of emergent plant life. The Corps does note, however, that the mitigation projects will be constructed concurrent with construction of the project whereas wetland fill at Puget Island will not occur until much later. Accordingly, while it may take several years for some of the mitigation sites to become fully productive, the benefits from the mitigation will be realized long before the full impacts from filling wetlands occur. Further, dredging will occur in areas below -40 feet CRD - areas that do not support emergent plant life, which by definition must emerge from the body of water (e.g. cattails, softstem bulrush, etc.).

The Corps is also confident that tidal marsh vegetation will occur on the two ecosystem restoration sites and the Martin Island lagoon mitigation sites that utilize dredged material to attain the objective. This confidence is based upon field observations of actual dredged material disposal sites in the lower Columbia River that have successfully developed tidal marsh habitat.

## Corps of Engineers Response

SS-179 (con't). For instance, associated with the Lois Island embayment ecosystem restoration feature, presently targeted for tidal marsh development, are Lois Island, Mott Island and South Tongue. These three sites were all created from dredged material deposition associated with post-WW II development of a mooring basin (Lois Island embayment) for Navy ships. All three sites have now developed tidal marsh habitat on their fringes. Similarly, abutting the Miller-Pillar ecosystem restoration feature (tidal marsh/intertidal flat habitat objective) are Miller Sands Island, Miller Sands Spit and Pillar Rock Island. Miller Sands Island was formed in the late 1920's-early 1930's from material dredged from the navigation channel. It is now fringed by tidal marsh habitat. Miller Sands Spit, constructed from dredged material in 1976, is also now fringed with tidal marsh habitat along the south shore.

Habitat objectives at the Martin Island mitigation site and at the Lois Island and Miller-Pillar ecosystem restoration features will be achieved by developing the correct elevation for that community's development. We can determine that elevation through routine elevation survey procedures of adjacent, existing tidal marsh habitat. Accordingly, the Corps' confidence in success of these projects is based on reasonable reliance on observed examples of successful tidal marsh habitat that has developed on dredged material in the vicinity of the mitigation and ecosystem restoration features in the lower Columbia River. Sandy Island, a dredged material-formed island approximately 5 miles downstream from Martin Island, has substantial tidal wetland development present, an indication that the Martin Island effort will be successful. For Lois Island embayment, the fringing tidal marsh habitat that abuts Lois Island, Mott Island and South Tongue Point represents an excellent example of successful tidal marsh habitat development on dredged material. The Corps will mimic the elevation of this existing tidal marsh habitat to attain tidal marsh establishment on the 191 acres proposed for restoration in Lois Island Embayment. Data from the CREDDP atlas (1984) indicates that the low freshwater (tidal) marsh at South, Tongue Point produced 657-902 grams dry weight of marsh vegetation per meter squared (August 1981-July 1980 sampling periods). Data for natural low freshwater (tidal) marshes elsewhere in Cathlamet Bay were: Russian Island (1064-1093 gm dry wt/m<sup>2</sup>); Karlson Island (590-576 gm dry wt/m<sup>2</sup>); Lois Island east marsh (314-310 gm dry wt/m<sup>2</sup>); Tronson Island (499-592 gm dry wt/m<sup>2</sup>); and Quinns Island (717-778 gm dry wt/m<sup>2</sup>) plus Grays Bay (270-641 gm dry wt/m<sup>2</sup> and 530-391 gm dry wt/m<sup>2</sup>). Average primary production from low freshwater (tidal) marsh for these sites was 569-626 gm dry wt/m<sup>2</sup>. The tidal marsh restoration proposed at Lois Island embayment should attain comparable results to the tidal marsh that developed on dredged material at South Tongue Point, which demonstrated above average primary productivity in Cathlamet Bay. We believe comparable results will occur with tidal marsh restoration at Miller-Pillar given the existing tidal marsh habitat that has developed on dredged material at Miller Sands Island, Miller Sands Spit and Pillar Rock Island. We also believe comparable results will occur at Martin Island based on tidal marsh habitat that occurs at Sandy Island, a dredged material-formed island.

The adaptive management framework detailed in the ESA consultation process does not pertain to the wildlife mitigation effort, which includes a wetland mitigation component. However, the Corps and Ports are coordinating with the States of Oregon and Washington to implement adaptive management measures relative to state authorities for certain aspects of the project, as necessary.

## Corps of Engineers Response

SS-179 (con't). The expected value to be obtained through the entire wildlife mitigation plan, including the wetland component, is predicated upon the estimated net AAHUs (estimated value with management versus estimated extant value) to be obtained once management actions are implemented at the mitigation sites. Invariably, more acres are required for mitigation purposes than are impacted by project related actions, as the incremental gain in AAHUs is generally small on a per acre basis. Typically, regulatory agencies require mitigation of the low value wetlands range from 1:1 to 6:1, depending on the wetland class impacted. For this project, however, the Corps' mitigation plan results in a wetland mitigation ratio of 12:1.

The baseline and future projected functional assessment of wetland habitat was conducted through an extensive interagency process utilizing the USFWS's HEP. See the 1999 Final IFR/EIS, Appendix G and the Final SEIS, Exhibit K-5. The HEP analysis for this project covered a 50-year timeframe and evaluated projected values for impacted habitats, including wetlands, and for mitigation habitats. The objective of the analysis was to develop a mitigation plan that produced equal or greater average annual habitat units compared to impacted habitats over the same timeframe. Resource agencies from Oregon and Washington, as well as the federal government participated in the HEP process that resulted in the proposed mitigation plan.

### **Section 404(b)(1) Evaluation**

As noted above, since issuance of the Draft SEIS, the 404(b)(1) Evaluation has been substantially revised in response to comments. See Final SEIS at Exhibit E.

### **Pg. 1, para. 4**

The fact that precise flowlane disposal sites may vary from year to year does not prevent the Corps or the states from evaluating the potential water quality effects of this disposal because all of the flowlane sites are located at similar depths and in similar physical environments that are in or adjacent to the main channel of the Columbia River. Further, the Corps has been conducting such flow lane disposal for years as a part of routine maintenance for the 40-foot channel, and therefore has good information about its potential effects. The revised 404(b)(1) Evaluation fully addresses these issues. Further, as noted in the revised Section 404(b)(1) Evaluation, the project complies with state water quality standards. The Corps has applied to the States of Oregon and Washington for water quality certifications under Section 401 of the Clean Water Act for all discharges of dredged material into waters of the United States associated with the project. Issuance of these certifications will reflect the states' reasonable assurance of compliance with state water quality standards.

### **Pg. 2, Purpose and Need Pg. 3, para. 2.**

As the comment acknowledges, the channel improvement project is a "water-dependent" action. Nevertheless, the 1999 Final IFR/EIS contains detailed information on alternatives considered as a part of disposal site selection, specifically in Chapter 4, including engineering and environmental criteria that were invoked during disposal site selection. The Corps' least cost disposal plan evaluated the most cost-effective manner in which to dispose of dredged material from the navigation channel. The comment's assertion that ecosystem restoration features addressing "depleted subtidal and wetland systems" are not water-dependent and that such materials should therefore be disposed of at upland sites is illogical. The basic purpose of these features is to restore estuarine features (emergent and tidal marsh). These features, and therefore the restoration actions, are, by definition, water dependent. See Final SEIS, Exhibit E at Section III, Alternatives.

## Corps of Engineers Response

SS-179 (con't).

### **Draft Wetland Mitigation Plan (June 24, 2002)**

As noted above, since issuance of the Draft SEIS, the Wetland Mitigation Plan has been substantially revised in response to comments. See Final SEIS at Exhibit K-5.

### **General Comments**

The USFWS's HEP analyses habitat quantity and quality, based upon target species and their HEP models, including habitat suitability indices based upon existing and future projected habitat conditions and acreage. Upland disposal sites that contain wetland habitat acreage prior to disposal will not support wetland habitat or associated species in the future. The dredged material is medium to coarse-grained sand that is very permeable, thus water will not pool on it. Accordingly, the mitigation plan provides for complete replacement of the lost wetland habitat at the Puget Island and Mt. Solo disposal sites. Only one wetland mitigation site, Martin Island lagoon, is dependent upon dredged material to develop the appropriate elevation to support tidal wetland plants. Dredged material at Martin Island lagoon will be capped with topsoil borrowed from the adjacent upland habitat where blackberries will be removed via excavation. The final substrate elevation at Martin Island lagoon will be predicated upon the surveyed elevation of adjacent tidal marsh habitat.

We disagree with the comment regarding the mitigation plan's goals and design objectives for habitat conversion. Two of the three wildlife mitigation sites lie behind main flood control dikes. Drainage ditches, pump stations and tide gates currently maintain drainage on these properties and allow for agricultural uses. Water management, as proposed in the Wildlife Mitigation Plan, would provide for re-inundation of the acreage designated for wetland habitat development. A substantial portion of the property at Woodland Bottoms targeted for wetland habitat development has some wetland plants present but drainage and cattle grazing preclude full wetland vegetation expression in terms of species composition, height, and density. The presence of riparian forest on portions of Martin Island and adjacent Burke Island are direct indicators that, in the absence of clearing for agricultural purposes and the associated establishment of pasture and cattle grazing, riparian forest will develop and prosper on the mitigation lands. The mitigation concept presented for riparian forest entails conversion of agricultural lands through tillage to provide a proper substrate condition and to minimize competition for tree seedlings. That the lands are used for agricultural purposes speaks well of soil quality and fertility. The conversion of subtidal habitat to intertidal marsh habitat has been discussed in a previous response to a concern voiced by this commenter. As described before, elevation is the key for intertidal marsh habitat development. The wildlife mitigation plan contains a monitoring regime and performance standards for the wetland component of mitigation sites.

### **Reference to specific sections**

#### **Pg. 3 and 4**

See Corps response to Introduction, above.

#### **Pg. 5, para. 4**

The Wildlife Mitigation Plan (Appendix G to the 1999 Final IFR/EIS) contains detailed information on the HEP analysis, including information on the timing of impacts and benefits. The HEP analysis assumed that all disposal site habitats were impacted in full during the initial 2-year construction period.

## Corps of Engineers Response

SS-179 (con't). For the Puget Island disposal site, placement of dredged material will occur in three approximately equal increments (~33 acres each) with the last increment, which contains the wetland area, not receiving dredged material about 15 years into the O&M period for the improved channel. Further, topsoil will be borrowed from each cell at Puget Island and then replaced atop the dredged material upon completion of cell use. Neither the delay in fill of portions of this agricultural pasture site or topsoil replacement to allow the landowner to recoup agricultural pasture post-fill were accounted for in the HEP analysis or used to reduce the mitigation requirement. Similarly for the Adjacent Fazio disposal site, which is currently not scheduled to receive either construction or O&M material, full mitigation for the 8 acres of pastureland impacted would be provided. Riparian forest impacts were reduced during the ESA consultation process and these reductions are not reflected in the current wildlife mitigation plan.

### **Pg. 11, para. 2 through 5**

Contrary to the comment, the Corps is responsible for implementation of the wildlife mitigation plan. The sponsoring ports will cost share the development of the mitigation lands. The Wetland Mitigation Plan contains a monitoring element. As reflected in the revised Wetland Mitigation Plan (Exhibit K-8 to the Final SEIS), further refinements to the monitoring effort and performance criteria are being developed with the agencies comprising the interagency wildlife mitigation team. The Corps' intent is to turn the wildlife mitigation sites over to the state wildlife management agencies for operation and management, to include monitoring actions. A trust fund account would be established to cover the estimated costs of these actions. The Corps and the interagency HEP team have relied upon the HEP analysis to establish baseline habitat value of disposal and mitigation sites.

### **Pg. 12, number 3**

See response to SS-146. The WDOE and other state and federal resource agencies were represented on the interagency Wildlife Mitigation Team. They understood that HEP would be used to establish baseline and future conditions for disposal and mitigation sites and that wetland delineation would not be conducted. The Puget Island and Mt. Solo disposal sites that contain wetland habitat do not provide flood storage capability as main flood control dikes protect both locations. They are both used for agricultural purposes and active drainage of the sites is ongoing as a standard practice, thus water quality provisions in their present state are negligible. They do not provide refugia for aquatic species as the flood control dikes preclude access. The wetlands at these locations are subject to grazing and drainage at present. No change in the current condition at the Puget Island location is forecast. The Mt. Solo location is zoned for industrial development and that may occur in the future. We believe that the wildlife mitigation plan developed through the HEP analysis will result in wetland habitat conditions on the mitigation sites far in excess of the conditions existing at the two disposal locations with wetland acreage.

### **Pg. 18-20 Woodland Bottoms and Martin Island Site Descriptions**

See the Corps response to Introduction, above. Further, only the Martin Island lagoon would receive dredged materials as part of the mitigation actions at these locations. Existing conditions at wildlife mitigation sites, including Martin Island and Woodland Bottoms, were described in the 1999 Final IFR/EIS, Appendix G. The refinements during PED noted in the comment pertain to levee and water control structure designs.

### **Pg. 26, Table 2**

Comment noted.



## Corps of Engineers Response

SS-179 (con't).

### **Wildlife and Wetland Mitigation Document**

As noted above, since issuance of the Draft SEIS, the Wildlife and Wetland Mitigation Plan has been revised in response to comments. See Final SEIS at Exhibit K-5. As many of the comments regarding this document essentially repeat comments on the Draft Wetland Mitigation Plan, the commenter should review the responses above regarding the Wetland Mitigation Plan, together with the responses provided below.

### **General Comments**

Target species and other elements of the HEP analysis are presented in the 1999 Final IFR/EIS, Appendix G, Wildlife Mitigation Plan. As noted above, it does not appear that the commenter has reviewed this foundational document concerning the HEP analysis and mitigation plan. The Corps believes the HEP analysis was applied correctly. Habitats impacted and wildlife mitigation sites, even though covering an area from CRM 44 to CRM 101, were comparable in terms of habitat types and species use.

Baseline wildlife use and habitat conditions are addressed in the 1999 Final IFR/EIS, Appendix G, Wildlife Mitigation Plan and our second response to Olmsted's comments. Our response to Draft Wetland Mitigation Plan (June 24, 2002), pg. 12, number 3 above addresses concerns over information regarding other wetland functions.

### **Pg. 2, para. 1**

Baseline wildlife use and habitat conditions are addressed in the 1999 Final IFR/EIS, Appendix G, Wildlife Mitigation Plan.

### **Pg. 2, para. 4**

See generally the responses above regarding the Wetland Mitigation Plan. The 1999 Final IFR/EIS, Appendix G, Wildlife Mitigation Plan contains the background information on the mitigation effort which the commenter inaccurately alleges is missing. The Corps is addressing wetland habitat loss at only two locations, Mt. Solo and Puget Island disposal sites, and not the entire river system.

Only one mitigation site, Martin Island lagoon, will utilize dredged material to develop intertidal marsh habitat. The Martin Island lagoon site has been reduced to 16 acres of tidal habitat development and the location has more than adequate capacity for the dredged material targeted for disposal there.

The HEP analysis accounts for no or negligible gain in the initial target years (TY-0 and TY-1) for wetland mitigation habitat. The Corps and the HEP team are quite aware of the time delay associated with habitat development and have taken it into account in the HEP analysis that supports the mitigation plan.

### **Pg. 3, para. 3**

The Corps disagrees with your assessment that a pilot project should be undertaken to develop riparian forest on agricultural lands. The proposed riparian restoration is simple and straightforward and not revolutionary as implied in the comment. The Corps can provide a site tour to the commenter, specifically to Vancouver Lowlands and Salmon Creek in Vancouver to demonstrate that riparian trees can and regularly do establish on former agricultural lands or areas scarified to provide the proper substrate conditions.

### **Corps of Engineers Response**

SS-179 (con't). The agricultural lands we are targeting for mitigation purposes are fertile and formerly contained riparian forest habitat. Annual tillage or established pastureland presently preclude riparian forest establishment. Cottonwoods and willows, which distribute their seeds via the wind (the cotton you see in the air in May and June) readily establish on moist, mineral soil. We will simply be mimicking natural conditions that historically occurred when flood waters eroded land, drowned competitive herbaceous vegetation and/or deposited silt deposits, thus providing moist, mineral soil bereft of competitive plants facilitating the germination and establishment of riparian tree seedlings.

#### **Pg. 3, para. 5**

The presentation of the mitigation acreage ratio for wetland habitats was to demonstrate what the level of effort is compared to requirements established by the states. Riparian forest mitigation efforts are not included in the wetland mitigation ratio. The Corps and interagency HEP team are aware of the timeframe for development of riparian forest and that scenario is accounted for in the HEP analysis. See 1999 Final IFR/EIS, Appendix G. Further, the commenter states that we are filling Puget Slough when in actuality the correct location is a 100-acre parcel on Puget Island (Vik property) that is comprised primarily of agricultural lands bisected by constructed drainage ditches, which do not meet the qualifications of a slough.

#### **Pg. 3, para. 6**

Habitat values, present and future, for impact and mitigation sites are estimated in the HEP analysis and accounted for in the mitigation plan. See 1999 Final IFR/EIS, Appendix G. A monitoring effort will track each mitigation site.

#### **Pg. 4, para. 2-3**

The Corps did not arrive at the decision to implement mitigation on large blocks of wetland and riparian habitats independently. We suggested the approach to the full group of responsible federal and state resource agency representatives comprising the interagency wildlife mitigation team and they concurred that the approach was an appropriate one for mitigating the limited projected impacts of the channel improvement project.

#### **Pg. 5, para. 1**

The existing HEP analysis (1999 Final IFR/EIS, Appendix G) already addresses the net gain in AAHUs for wildlife target species associated with conversion of agricultural cropland to another habitat type. Any future HEP analysis would do the same, as it is inherent in the process.

#### **Pg. 5, para. 3**

Any data collection for HEP re-analysis would emphasize collection of key resource data based upon the habitat parameters being measured for each target species. The Corps' assumption is that the reduction in habitat impacts associated with disposal site modification would result in a commensurate reduction in mitigation requirements if the HEP analysis were revised.

#### **Pg. 9, para. 2**

Contrary to the comment, the HEP analysis for the Wildlife Mitigation Plan evaluated agricultural habitat for wildlife use. The Corps' HEP analysis did address the principal species complex (waterfowl) that utilizes agricultural lands to be used for dredged material disposal in the Vancouver Lowlands. Further, the HEP analysis also had savannah sparrows as a target species, which represents a ground-nesting bird. See 1999 Final IFR/EIS, Appendix G.

## Corps of Engineers Response

SS-179 (con't). Use of agricultural lands by wildlife species is typically minimal. For instance, the agricultural lands at disposal site W-101.0 typically were utilized for either silage corn or spring cereal grain production. Both operations entail spring tillage that results in a ground surface containing minimal debris cover and no vegetative cover until seed germination and crop growth occurs. Neither spring crop provides suitable nesting habitat for passerines, galliforms, or virtually all other upland species. Some nesting by killdeer prior to spring tillage would be expected to occur although production would be dependent upon initiation of tillage. Upon harvest, spring grain fields, in the absence of subsequent tillage, provide some forage resources for doves and passerines, and upon their arrival in the fall, waterfowl, to include sandhill cranes. Silage corn is not harvested until late September-October. The harvest operation cuts the corn stalk off typically 2-6 inches above the ground with virtually all production (stalk, leaves, ears) hauled off the field to storage. Some waste occurs from knockdown of stalks or spillage of loads but it is minimal. Post-harvest, little cover (essentially parallel rows of shorn stalks) remains in the field. Waterfowl usage, particularly Canada geese and to include sandhill cranes occurs, when they harvest what wasted corn kernels are available. Typically, Canada geese, given the numbers present in the Vancouver Lowlands, could clean a 40-acre tract of harvested silage corn in a few hours. Some harvest of greenup (grasses and weeds) may occur later in harvested cornfields by Canada geese. Also, post-harvest of silage corn, some use by migrant water pipits (spring and fall) may occur. Use by other migrant passerines (savannah sparrows, vesper sparrows) may occur in spring if there is a relatively substantial winter growth of weedy species (mustard, various grasses) on these harvested fields that provide them with some hiding cover. Killdeer could be expected to make use of the harvested field throughout the fall and winter as the large open tracts and minimal cover provide attributes sought by this species. For untilled, but harvested grain fields, some use by raptors and great blue herons seeking voles would be expected. For the pastureland at Adjacent Fazio, raptors and great blue herons would also hunt for voles. The pastureland at Adjacent Fazio would also receive some use by amphibians, principally tree frogs and possibly red-legged frogs and salamanders as there is an old inlet channel with a narrow fringe of riparian forest adjacent to the site. Moles, and possibly gophers would be present at Adjacent Fazio and the W-101.0 location. Incidental use by coyotes and raccoons would be expected also, more likely in harvested grain and pasture situations than the cornfields.

### **Pg. 10, para. 2**

The Corps is implementing ecosystem restoration features under our existing authorities. They are not mandatory actions nor are they intended to be comprehensive in nature to address all historic habitat losses associated with the lower Columbia River. Input from state and federal resource agencies were sought to identify potential restoration actions for implementation in conjunction with the channel improvement project. The ODFW and WDFW provided information on locations for tidegate retrofits. The WDFW's Shillapoo Lake wildlife management proposal was incorporated into the project. The USFWS recommendations for Bachelor Slough, purple loosestrife control and Columbian white-tailed deer reintroduction to Cottonwood-Howard Islands were incorporated. The Lois Island embayment and Miller-Pillar restoration features were also developed in consultation with the USFWS and NOAA Fisheries. Further, the Corps has modified the proposed features at Lois Island embayment and Miller-Pillar in response to State of Oregon and others concerns to feature tidal marsh development, thus addressing a habitat that has incurred significant, historic losses in acreage. Accordingly, the ecosystem restoration features as a whole incorporate the input and objectives of responsible federal and state resource agencies.

## Corps of Engineers Response

SS-179 (con't). The Corps is aware of the efforts of others to identify the key habitats to restore along the lower Columbia River in order to affect the recovery of salmonid stocks or other fish and wildlife objectives. However, the Corps' efforts in conjunction with the channel improvement project focused on lands that were available concurrently with the project and on features that were selected by or in consultation with the responsible federal and state resource agencies.

### Page 12, para 2

The analyses of others, e.g. Lower Columbia River Estuary Program, Duncan and Thomas, (1983) were also based on estimated quantity of habitats lost. The evaluation of the quality of these historic habitat losses is a more difficult proposition, fraught with more assumptions than acreage loss estimates for these habitats, and is not necessary for evaluating the potential impacts of and appropriate mitigation for the channel improvement project.

### Page 13, para. 1

The comment mistakenly assumes that there will be individual Section 404 permits issued for aspects of the channel improvement project. As noted in the revised Section 404(b)(1) Evaluation, all disposal of dredged or fill materials associated with the channel improvement project are activities undertaken by or at the direction of the Corps. See Final SEIS, Exhibit E. Federal regulations at 33 CFR 336.1 provide that a Section 404 permit will not be issued for such discharges of dredged material by the Corps. Accordingly, there will be only one monitoring and maintenance plan for mitigation actions, which will be implemented by the Corps.

### Page 13, para. 3

The Corps is aware of the importance of hydrologic and hydraulic analyses for wetland habitat development and is working in concert with the responsible federal and state resource agencies to determine the level and nature of effort to implement.

### Conclusions

The Corps strongly disagrees with the conclusory opinions expressed by the commentary, many of which appear to reflect the commenter's failure to review the foundational document on wildlife and wetland mitigation, which is found at Appendix G of the 1999 Final IFR/EIS. The conclusion merely restates various opinions previously expressed by the commenter. The Corps has responded in detail to the above comments. Contrary to the commenter's suggestion, the analysis of wetland impacts associated with this project and the resulting mitigation plan are based on an appropriate information base and sound science, including extensive analysis and review by an interagency team consisting of representatives of the responsible federal and state resource agencies.

SS-180. See generally response to SS-179. The adaptive management framework referred to in the comment and detailed in the ESA consultation process does not pertain to the wildlife mitigation effort. With regard to wildlife mitigation, the Corps has set out specific objectives, monitoring criteria, and management and contingency plans in the Wildlife Mitigation Plan. Further, the Corps and the Ports are coordinating with the States of Oregon and Washington to develop adaptive management for certain aspects of the project, including wetland mitigation, an element of the wildlife mitigation plan (See Exhibit K-8, Part II).

SS-181. See response to SS-179 at Section 404(b)(1) Evaluation, Pg. 2, Purpose and Need Pg. 3, para. 2. This comment misstates the Corps' approach to the selection of upland disposal sites. First, the Corps disagrees that the upland disposal sites are "non-water dependent" as the comment suggests.

Corps of Engineers Response

- SS-182 • The Corps has not undertaken appropriate baseline studies of the Mt. Solo and Puget Island sites, and cannot, therefore, assess the impacts of the proposed wetlands mitigation. At the time of the DSEIS' publication, the Corps had not yet even obtained wetlands delineations for these sites. Id. at 4-5.
- SS-183 • It is impossible to evaluate the HEP analysis used in the Corps' Draft Wetland Mitigation Plan. The process used to design the Corps' HEP analysis is not disclosed 'in any detail; without this information, it is impossible to provide an independent analysis of the HEP model's utility. Indeed, the little information available indicates that the Corps employs an overly simplistic HEP model that is entirely inadequate as a predictor in a system of the Columbia River's size and complexity. For instance, this HEP model focuses on wildlife habitat as a function of wetland health to the exclusion of all other relevant indicators. Id. at 5-6.
- SS-184 • As noted in the summary of Dr. Dillinger's general comments on the DSEIS, the Corps' wetlands analyses are plagued by conclusions based upon "best professional judgment," and is, therefore, unverified and unverifiable. The Corps ignores volumes of accepted scientific publications that would better inform its understanding of wetland creation and restoration within estuarine systems. Id. at 5-8.
- SS-185 • The Corps' mitigation ratios are questionable, and will be subject to yearly variation. Furthermore, the Corps does not undertake any qualitative analysis of the value of restored versus existing wetlands. Id. at 7.
- SS-186 • The Corps proposes to reject the "in-kind" and "on-site" mitigation typical of 404 programs and to instead provide mitigation on large acreages, but fails to substantiate its claims that this large block approach will in fact provide qualitative advantages. In addition, the Corps fails to analyze the likely impacts of the proposed wetland mitigation on upland birds, wading birds and nesting ground birds. Id. at 8.

\* \* \* \* \*

SS-187 Based on the significant scientific flaws in the DSEIS discussed above and in the Dr. Dillinger DSEIS Report and Olmsted Report, the Corps has not established the scientific integrity of its review as required by NEPA.

[I 5690-0017/SBO22540.027]

SS-181 (con't). The upland sites are an integral part of the water dependent activity of deepening and maintaining the navigation channel. Second, the Corps conducted an exhaustive review of upland disposal sites predicated upon six environmental and six engineering criteria during the feasibility phase. Table 4-4 in the 1999 Final IFR/EIS contains the assessment data for these criteria for each disposal site considered. Sections 4.4.3.4 through 4.4.3.9 of the 1999 Final IFR/EIS provide background information on the upland disposal site screening and selection process for the 157 potential disposal sites initially considered. Thus, the process was comparative in nature and entailed technical, logistical and economic criteria with the aforementioned information provided to all interested parties in a public involvement process, including public meetings. As a result, the Corps minimized the impact of upland sites by using previously used disposal sites to maximum extent possible. The two new upland sites that have wetland impacts are located in parts of the river that have constraints for other disposal methods and were selected consistent with the above criteria.

SS-182. See response to SS-179 at Introduction, and at Draft Wetland Mitigation Plan (June 24, 2002), Pg. 12, number 3. As discussed in the responses noted above, the Corps has obtained appropriate baseline information for assessing the potential impacts of dredged material discharge at the Puget Island and Mt. Solo disposal sites and the potential benefits of the proposed mitigation.

SS-183. See generally response SS-179. As noted there, the comment appears to reflect Olmstead's failure to review the foundational document on wildlife and wetland mitigation, which is found at Appendix G of the 1999 Final IFR/EIS, and which contains the detailed description of the HEP analysis requested by the comment. The HEP analysis for the Wildlife Mitigation Plan evaluated agricultural habitat for wildlife use.

SS-184. See generally response to SS-179. Dr. Dillinger's comments on the wetland analysis do not assert that it is based on "best professional judgment," as this comment suggests. In addition, Dr. Dillinger's concerns are based on a misunderstanding of the HEP analysis used. Again, Dr. Dillinger fails to explain why replacing approximately 16 acres of highly degraded farmed wetlands with 194 acres of wetlands is inappropriate.

This comment and Dr. Dillinger's general comment appear to pertain principally to the ecosystem restoration features at Lois Island embayment and Miller-Pillar and the mitigation feature at Martin Island lagoon. The Corps has modified both the Miller-Pillar and Lois Island embayment ecosystem restoration features to develop tidal marsh habitat in response to comments, including follow up meetings with ODFW, ODEQ, ODLCD and CREST as well as NOAA Fisheries and USFWS. This habitat type has incurred the second most significant loss in acreage of estuarine habitats; thus, these agencies and others desire to emphasize tidal marsh habitat development.

The modifications to Miller-Pillar and Lois Island embayment ecosystem restoration features to develop tidal marsh habitat will be based upon developing the correct elevation for that plant community's development. The Corps can determine that elevation through routine elevation survey procedures of adjacent, existing tidal marsh habitat. Regarding the commenter's concern that we are ignoring scientific publications on wetland mitigation and estuarine restoration, the Corps is aware of this literature, but is relying on observed successful examples of tidal marsh habitat that have developed on dredged material at locations near the Martin Island mitigation site and the Lois Island and Miller-Pillar ecosystem restoration sites. Again, see generally response to SS-179.

### Corps of Engineers Response

SS-185. See generally response to SS-179. Detailed quantitative and qualitative analysis of wetland mitigation habitat, including habitat values, is contained in the 1999 Final IFR/EIS, Appendix G, which, as noted above, the Olmstead report indicates was not reviewed. The ratios result from dividing the acreage of the wetland areas to be filled (a total of 16 acres at Puget Island and Mt. Solo disposal sites) by the acreage of wetland areas to be created or restored (a total of 23 acres at Martin Island, 97 acres at Woodland Bottoms and 74 acres at the Webb Diking District location). There is nothing uncertain about the ratio. Page 7 of the Olmstead Report, on which this comment is based, does not support the assertion that the mitigation ratios are “questionable.” Page 7 of the Olmstead Report, however, includes a number of inaccuracies, which are discussed above in response to SS-179.

SS-186. See generally response to SS-179. The Corps has coordinated extensively with the responsible federal and state resource agencies throughout the feasibility phase and wildlife mitigation planning efforts for the channel improvement project. These agencies strongly endorse the approach of mitigating wildlife habitat losses, including wetland habitat, on large acreage blocks rather than on small acreage blocks in an in-kind, on-site manner.

The large mitigation acreage projects comprised of several habitat types developed for this project offer an inherent advantage to many wildlife species over smaller, isolated “in-kind, on-site” projects. Sufficient area for larger and more diverse wildlife populations, acreage substantial enough to encompass the range requirements of numerous individuals, continuity with adjacent habitat, and a lessened human interference (roads, industrial and agricultural development, trespass, etc.) are all advantages gained for wildlife resources through the proposed mitigation on large tracts of land. The Corps therefore believes that the proposed larger blocks of mitigation habitat confer a qualitative advantage for wildlife resources compared to small acreage, on-site, in-kind mitigation sites.

Further, as discussed in response SS-179, the Corps has analyzed impacts to wildlife, including upland birds, wading birds and nesting ground birds from mitigation site development. See Section 5.2.6.2, Section 6.6.2.3, and Section 6.6.2.4 of the 1999 Final IFR/EIS and Final SEIS. The HEP process described in detail in Appendix G to the 1999 Final IFR/EIS analyzes such impacts to wildlife and provides a statement of net gain from the proposed mitigation development over existing wildlife value utilizing target species for reference. The HEP analysis, using the selected target species, calculates a net gain in average annual habitat units for mitigation sites. While mitigation sites were selected that are currently used for agricultural purposes, which lessens the potential for impacts to upland birds, wading birds and nesting ground birds, it is impossible to avoid impacts to all species when contemplating a land management effort. Nevertheless, the proposed wildlife improvements well exceed the existing value at these mitigation locations plus they ensure a secure habitat base for wildlife for the long-term.

SS-187. The Corps strongly disagrees with the comment’s characterization of the scientific underpinnings for the Corps’ evaluation of the channel improvement project’s potential biological effects. The Corps’ extensive investigation of potential impacts and, as appropriate, mitigation, has been extensively coordinated with the responsible federal and state natural resource agencies and has been open to public review and comment on many occasions. As a result, based on the best available scientific information, the Corps has developed a robust scientific understanding of the project, its potential impacts, and the anticipated benefits of proposed mitigation and ecosystem restoration.

**IV. THE ECONOMIC ANALYSIS FOR THE PROJECT  
CONTAINS CRITICAL ERRORS**

- SS-188 Ernie Niemi of EcoNorthwest reviewed the Corps' revised economic analysis for the Channel Deepening Project and prepared a report, which is submitted with these comments.
- SS-189 "Ambiguities and Errors in the Corps of Engineers' Economic Analysis of Its Proposal to Deepen the Channel of the Lower Columbia River" (September 2002) identifies several critical errors and omissions in the Corps' economic analysis and justification for the project. For example,
- SS-189 • The cost-benefit ratio for the project must be based on costs and benefits to the United States' economy. Under the national economic development ("NED") approach, most, if not all, of the benefits of the Channel Deepening Project are efficiencies that will accrue to foreign vessel owners and operators outside the scope of NED. Little or no savings will be passed on to shippers within the United States due to the bargaining power of the vessel owners and strong competition among West Coast ports. Niemi Report at 8-1 1.
  - SS-190 • The "benefits" of more efficient export of agricultural commodities are outweighed by the costs of production subsidies for those commodities. *Id.* at 12-14.
  - SS-191 • The Corps' projections for future growth in commodity exports and container shipping are overly optimistic and cause unjustified inflation of the project benefits. *Id.* at 16-20; *see also* Dylan Rivera, "Panel: Dredging Could Backfire," *The Oregonian* (Aug. 10, 2002) <[http://www.oregonlive.com/news/oregonian/index.ssf/?xml/story.ssf/html\\_standard.xls?/bas](http://www.oregonlive.com/news/oregonian/index.ssf/?xml/story.ssf/html_standard.xls?/bas)> (accessed Aug. 12, 2002) (attached as Exhibit J) (detailing questions raised by Corps' Technical Review Panel regarding Corps' overestimation of Channel Deepening Project benefits).
  - SS-192 • The Corps' analysis omits or underestimates substantial costs from its calculation of the cost-benefit ratio. *Id.* at 25-39.
  - SS-193 • The Corps' economic analysis raises more questions than it answers for decision makers and the public. *Id.* at 41-45.

SS-188. Following is a detailed response to specific comments found in the Niemi/SEIS report, which was provided as an attachment to the CRANE comments. The responses use the section headings used in the Niemi Report, and include page references to the Niemi Report. The complete attachments to the CRANE comment letter are available for review at the Corps' Portland District Office. Additional responses to specific issues raised in the Niemi report are shown in responses SS-189 to SS-193.

*Niemi's Page 1*

**Chapter 1: Introduction and Summary**

Detailed responses to issues summarized in this introductory section of the Niemi report are provided below.

*Niemi's Page 8*

**Chapter 2: Ambiguities and Errors in the Corps' Analysis of Benefits**

Detailed responses to issues summarized in this introductory section of the Niemi report are provided below.

*Niemi's Page 8*

**Failure to Isolate those Benefits that Would Accrue to the U.S. Economy**

The Corps analysis is consistent with Corps policy, which requires that all transportation costs be accounted for in the analysis. The comment ignores the realities of the container export market. In general, the container shipping industry is in a state of over-capacity, and U.S. exports are outnumbered by imports to such an extent as to lead to extremely marginal export rates. Rates are so low that shippers are concerned about the viability of continued service (Agricultural Ocean Transportation Trends, July 2002, USDA, [http://www.ams.usda.gov/tmd/AgOTT/July2002/July2002\\_content.htm#Introduction](http://www.ams.usda.gov/tmd/AgOTT/July2002/July2002_content.htm#Introduction)). The assertion that all cost reductions would automatically go to vessel owners is inconsistent with market realities.

*Niemi's Page 10*

**Failure to Consider Factors that Might Reduce the Benefits, or Even Cause the Project to Harm the National Economy**

Much of this section of the Niemi report has little, if any, relevance to the Columbia River and the channel improvement project benefit analysis. Niemi fails to recognize the role that the Port of Portland plays in the Pacific Northwest as a niche port serving regional agricultural exports. Niemi again fails to acknowledge the realities of an extremely competitive container export market. Further, Niemi incorrectly assumes that the Corps analysis induces tonnage in the with-project condition.

*Niemi's Page 12*

**Failure to Consider the Project's Stimulus to Inefficient Activities**

Detailed responses to issues summarized in this introductory section of the Niemi report are provided below.

*Niemi's Page 12*

**The Value of Exported Grain is Less than Production Costs**

Niemi incorrectly states that the Corps has assumed that channel improvement will have a stimulus effect on grain exports. Niemi's suggestion that the Corps should perform an analysis on U.S. agricultural policies is inconsistent with Corps policy.

[I 5690-0017/SBO22540.027]

## Corps of Engineers Response

SS-188 (con't).

*Niemi's Page 14*

### **The Value of Port Services is Less than Production Costs**

Niemi fails to acknowledge that the vessels that require a deeper channel are already here. The Port of Portland is already accommodating 46-foot draft container vessels. The Niemi speculation regarding port profitability has no relevance to the Corps analysis.

*Niemi's Page 17*

### **Failure to Fully Explain Assumptions and Calculations of Benefits**

Detailed responses to issues summarized in this introductory section of the Niemi report are provided below.

*Niemi's page 17*

### **Ambiguities Regarding Commodity Forecasts**

Forecasting is a highly complex and difficult endeavor, and no single document is likely to completely inform a layperson of all the intricacies of forecasting. In order to provide some confidence in the forecasts, a review panel consisting of four independent economists studied and commented on the analysis. According to the review panel, the Corps' projections are not only reasonable, but are likely understating the benefits of the project.

*Niemi's Page 21*

### **Ambiguities Regarding Cost Savings Larger Vessels Would Enjoy Because of the Project**

Deep draft vessel operating costs have been finalized and are shown in the Final SEIS.

Niemi incorrectly states that the analysis is based primarily on industry opinion. In fact, the analysis is based very directly on current data for vessel characteristics, commodity movements, and departure drafts, as was stated in the Draft SEIS.

Niemi incorrectly states that the Corps is assuming that much larger vessels will call on the Columbia River due to channel deepening. In fact, the Corps' analysis assumes that vessels on the Columbia River are unlikely to significantly exceed the size of current vessels.

Niemi incorrectly states that the Corps is assuming that all vessels will be fully loaded within the depth limits of the channel. In fact, the analysis assumes that vessel operators will operate at equivalent levels of efficiency with and without the project.

The uncertainties that Niemi identifies in this section of his report are primarily the result of Niemi misstating the actual methods used in the Corps' analysis.

Niemi incorrectly states that the Corps relied on interviews to establish container delay benefits. The Corps analysis is based on an analysis of actual departure data and actual river stages. Regardless, total average annual container delay benefits are \$4,000 out of \$18.8 million, rendering them inconsequential.



## Corps of Engineers Response

SS-188 (con't).

*Niemi's Page 23*

### **Ambiguities Regarding Constraints, Other Than Channel Depth**

Niemi asserts that global climate change should be addressed in the SEIS. The uncertainties associated with global climate change and any potential impacts to Pacific Northwest exports are so great that any integration of the assumption would be irresponsibly speculative.

Niemi incorrectly asserts that the analysis fails to consider supply-side constraints on production of export products. The export projections specifically considered the supply-side constraints of each specific commodity group of containerized cargo exports.

Niemi inappropriately mixes costs and rates, asserting that rates will go down and that, therefore, the benefits should go down as well. The benefit analysis is based on costs, rather than rates. It should also be noted that this portion of Niemi comments contradicts his earlier statements regarding the competition within the container transportation industry.

Niemi lists a number of other issues associated with the analysis.

- Empties Ratio. This issue is addressed in more detail in the Final SEIS.
- Ship Schedules. There is no evidence or indication that vessels would be unable to load additional cargo due to time constraints.
- Vessel Delay. Average annual container vessel delay benefits are \$4,000 out of \$18.8 million.
- Large Vessels. The assertion that vessels will be too large to transit the Columbia River appears unfounded. Currently, 46-foot draft container vessels are calling the Columbia River.
- Supply-Side Constraints. As noted earlier, supply-side constraints are included in the export projection.

*Niemi's Page 25*

### **Chapter 3: Ambiguities and Errors in the Corps' Analysis of Costs**

Detailed responses to issues summarized in this introductory section of the Niemi report are provided below.

*Niemi's Page 25*

### **Uncounted Project Costs**

Niemi incorrectly asserts that the Corps ignores uncertainty in the cost estimate. The Corps' initial construction cost estimate is actually inflated by a 15 percent contingency factor to account for uncertainties.

*Niemi's Page 26*

### **Ambiguous Derivation of Cost Estimates**

Niemi confuses the fully funded cost estimate (which is used for budgetary purposes) with the NED cost estimate. Table S4-4 has been corrected in the Final SEIS. For proprietary and contracting reasons, the Corps does not publicly distribute the detailed cost estimate produced for the SEIS. The detailed cost estimate is available for review, however, upon request, at the Portland District office.

Detailed responses to the remainder of the Niemi report are provided in response SS-192.

## Corps of Engineers Response

SS-189. The comment misstates the current situation in the transpacific container trade. Contrary to the comment, container vessel owners are currently receiving extremely low margins, and westbound rates are so low that analysts are unsure that rates could possibly go lower. The comment seems to rely on the belief that vessel owners are not in a competitive environment, and that the vessel owners are enjoying monopoly profits. There is no data that supports that belief.

SS-190. The issue of agricultural subsidies and the impact of such subsidies are far outside the scope of this analysis. This issue would need to be addressed to Congress for consideration.

SS-191. The comment states that the commodity projections are overly optimistic and cause unjustified inflation of the project benefits. A review panel consisting of four independent economists came to a completely different opinion. According to the review panel, the Corps' projections are not only reasonable, but are likely understating the benefits of the project.

SS-192. The referenced sections of the Niemi report discuss a number of issues, and our responses to those issues are shown below. In general, the Corps disagrees with the assertion that any non-zero impact is a significant or even measurable impact that can be enumerated with an economic or environmental value. Therefore, we have used the terms: insignificant, minor, short-term, limited and transitory to characterize impacts. The following responses refer to the comments outlined in the Niemi report that was submitted as part of the attachments to the CRANE comments.

### *Niemi's Page 26*

#### **Ambiguous Derivation of Cost Estimates**

An error in a cost table has been corrected in the Final SEIS. Also, the Corps' economic analyses are calculated using a real, rather than a nominal, interest rate. It is appropriate, when doing an economic analysis, to make sure that all costs are calculated using a common point in time for cost and benefit values. In this case, for the purposes of the economic analysis, costs and benefits are calculated using 2001 price levels. The fully funded estimate is a budgetary calculation that uses OMB inflation factors to predict budgetary needs. Since the economic analysis includes no inflation, it would be inappropriate to use a fully funded cost estimate in the economic analysis.

### *Niemi's Page 27*

#### **Higher Costs that Might Aries if the Project's Dredging and Disposal Task Become More Difficult than Anticipated**

There are line item contingencies placed on each item of the cost estimate. We believe that the cost estimate represents a very realistic estimate of what it will take to implement this project. The costs have been reviewed prior to producing the 1999 Final IFR/EIS and again with a panel convened in August 2002. The Corps presented site-specific estimates for mitigation actions, including monitoring actions, in our cost estimate. The 1999 Final IFR/EIS, Appendix G, contains monitoring and O&M costs by mitigation site over the project life. As noted above, there are line item contingencies placed on each item of the cost estimate.

### *Niemi's Page 28*

#### **Higher Costs that Might Result from Project Delays**

The Niemi report speculates about potential cost increases if funding is delayed. These concerns will be forwarded to Congress, as they are not appropriate to integrate into an economic analysis, but could be appropriate for Congress to consider, as national funding priorities are set.

## Corps of Engineers Response

SS-192 (con't).

*Niemi's Page 29*

### **Uncounted Project Benefits**

Detailed responses to issues summarized in this introductory section of the Niemi report are provided below.

*Niemi's Page 30*

### **Potential Costs to the Corps**

The entrance to the Columbia River was analyzed in the 1999 Final IFR/EIS, Appendix A. The conclusion of that evaluation was the entrance depth was adequate to accommodate the vessels forecasted to use the Columbia River both with and without the project.

*Niemi's Page 30*

### **Potential Costs to Workers**

Potential problems in the labor market with regard to adequate insurance coverage for on-the-job injuries are outside the scope of Corps analyses.

*Niemi's Page 31*

### **Potential Costs to Local Sponsors**

The Port of Vancouver has confirmed and updated their plans for their proposed Columbia Gateway project. Please reference the amendment letter to the biological assessment (see Exhibit H to the Final SEIS). At this point in time, the Port of Vancouver could receive 587,000 cubic yards of material at disposal site W-101.0 from construction of the 43-foot channel. Over the long-term, including 20 years of operation and maintenance of the 43-foot channel, a total of 2.3 million cubic yards could be placed at the site. Please review the City of Vancouver's August 2002 Draft Columbia Gateway Sub-area Plan EIS for the Port's alternative development plans for the Gateway property.

The Niemi report assumes that new larger vessels will come in the future because of channel deepening. A careful reading of the Draft SEIS would reveal, however, that those new larger vessels are already here today, but are not fully loaded, and they are successfully operating in the Columbia River navigation channel. The Columbia River pilots have a very good safety record navigating these vessels on the river system and we do not expect this to change when the project is implemented. Additionally, there are numerous aids to navigation in place and used on the Columbia River. The Columbia River is maintained by dredging activities on an annual basis. Although during construction there may be additional dredges on the river, we do not believe this or the associated disposal actions will create a hazard for small boats.

*Niemi's Page 35*

### **Potential Costs to Vessel Operators**

See previous paragraph regarding vessel size in the with-project condition.

*Niemi's Page 36*

### **Negative Externalities**

In general, the Corps disagrees with the assertion that any non-zero impact is a significant or even measurable impact that can be enumerated with an economic or environmental value. Therefore, we have used the terms: insignificant, minor, short-term, limited and transitory to characterize impacts.

## Corps of Engineers Response

SS-192 (con't).

If the commenter is referring to the Deep Water site in the ocean, which the Corps only intends to use if the estuary restoration sites are not fully implemented, then please refer to response S-9. The Miller-Pillar Restoration will not affect the select area fisheries (net pens); if you were actually referring to the Lois Island Restoration site, please refer to response S-10.

In their May 2002 Biological Opinions, NOAA Fisheries and USFWS determined that an unquantifiable but low amount of incidental take of listed salmonids will occur over the life span of the Project as a result of the proposed action. The Corps believes this determination is also applicable to unlisted salmonids. Consequently, the Corps' analysis concludes that a loss of fishery resources will occur at a level that would not constitute an adverse impact to commercial and recreational fishing interests. Disturbances associated with dredging and disposal in the river are localized and short term in nature and the Corps does not believe they affect commercial and/or recreational fishing activities. Sturgeon and smelt have been studied under Corps contract by ODFW and WDFW for over 3 years (See Exhibits K-1 and K-2 to the Final SEIS). The conclusion of the smelt research is that dredging of the navigation channel would not significantly impact smelt or their spawning habitat.

Sturgeon will continue to be studied and if they are affected, the use of the in-water, deep-water disposal sites will be managed to minimize or avoid impacts to sturgeon.

The Corps has concluded that the proposed dredging and disposal operations will not significantly impact the Columbia River ecosystem. Impacts resulting from upland disposal will be fully mitigated. Additionally, the proposed project includes six new ecosystem restoration features and research actions, which will ultimately benefit the ecosystem.

All physical and chemical information resulting from the 1997 sediment quality evaluations are presented in the 1999 Final IFR/EIS, Appendix B, which includes 34 plates indicating sample locations. Further, the main report, 1999 Final IFR/EIS, Section 7.0 on pages B-8 and B-9, discusses four "samples of interest" which contain fines and had detectable contaminants. Three are not within the proposed navigation channel and will not be dredged. The remaining sample is material dredged the previous year from the Willamette River and placed at Morgan's Bar and is not representative of the Columbia River sediments. Contaminates when detected in these samples are well below DMEF screening levels. These four samples do not represent the material to be dredged from the navigation channel, which is clean, well-washed sand. Fine-grained material in the turning basin in Astoria will require testing prior to dredging. Additional testing by the Corps has been conducted in the Columbia River. Sediment quality reports are posted on the web at <https://www.nwp.usace.army.mil/ec/h/hr/>.

Much of the Corps data and data from other sources such as dredged material disposal permits and state clean-up actions are available in a regional GIS linked database managed by the WDOE called SEDQUAL. SEDQUAL is provided free of charge by WDOE. Sediment testing throughout the navigation channel has shown that the material is clean sand. Over 100 separate Corps studies representing more than 4,000 samples on the Columbia River have been identified. This information was analyzed as part of the Corps' amendment to the Biological Assessment. This information continues to be updated. The Corps is actively populating the SEDQUAL database to include these Corps studies. During ESA consultation, the sediment quality information presented in the 1999 Final IFR/EIS and from other sources was reviewed in detail. The information was compared with the DMEF screening levels as well as the threshold limits used by NOAA Fisheries.

## Corps of Engineers Response

SS-192 (con't).

One area (Vanalco near Vancouver) was found that exceeded the DMEF screening levels and NOAA Fisheries threshold limits for PCBs. This area was outside of the area to be dredged for the channel improvement project. In 2001, the area offshore of the Vanalco site was sampled and 25 samples were collected and analyzed for PCBs; samples above levels of concern were only found in the nearshore area next to the plant

([http://www.nwp.usace.army.mil/ec/h/hr/Reports/VANALCO/Columbia%20River\\_VANALCO\\_01.pdf](http://www.nwp.usace.army.mil/ec/h/hr/Reports/VANALCO/Columbia%20River_VANALCO_01.pdf)). Because of the lack of sufficient information about the nature of the fine-grained material in the Astoria turning basin, additional chemical and possibly biological testing will be required for the turning basin material.

Turbidity associated with dredging and/or disposal activities are expected to be localized and ephemeral. The numerical modeling conducted for this action does not indicate that there would be any change to the water temperature as a result of a three-foot deepening.

The Niemi report, without providing substantiating data, opines that mitigation has been inappropriately called ecosystem restoration. Mitigation has been appropriately identified in the Corps' analysis.

*Niemi's Page 39*

### **Spillover Effects on Other Ports**

The Niemi report confuses regional with national benefits. From a national perspective, it is inappropriate to describe regional transfers as a benefit to the nation. Niemi seems to have the opinion that the benefits of the Columbia River project are a result of increased port revenues at the Port of Portland, which should then be offset by decreased port revenues at the Puget Sound ports. This is not the case. The benefits of the project are based on transportation costs savings, rather than rate transfers.

*Niemi's page 42*

### **Chapter 4: Ambiguities and Errors in the Corps' Comparison of Benefits and Costs**

The report has been revised to include a detailed sensitivity analysis on multiple factors, quantitatively describing the potential impact on the benefits of various assumptions.

The Corps' revised economic analysis raises the following additional questions:

**A. Why did the Corps exclude \$20 million in restoration project costs and what happens to the cost-benefit ratio when those costs are added to the project costs?**

The Corps explains that \$20 million in ecosystem restoration costs were excluded from the cost-benefit analysis "per Corps regulations." See DSEIS at 4-9. The Corps regulations are not identified and no additional rationale is provided for this significant cost oversight. Clearly, the Corps is implementing the ecosystem restoration projects as part of the mitigation for the Channel Deepening Project, yet the Corps seeks to exclude these costs from the calculation of the Channel Deepening Project's cost-benefit ratio.

SS-194

If it is the Corps' intent to claim that the \$20 million in restoration projects are not part of the Channel Deepening Project, then these separate restoration actions must be fully and independently analyzed under NEPA. Yet, the Corps has made no effort to describe the purpose and need for these restoration actions, to develop and consider a range of alternatives for these actions, or to consider the baseline and effects of these actions across several alternatives for restoration. The restoration projects are implied to be mitigation for the Channel Deepening Project while they are also disclaimed as such in order to keep down project costs. The Corps cannot have it both ways. This treatment of the restoration plans is misleading, and cannot lead to sound decision making or responsible project economics as intended by federal law.

**B. Why are there discrepancies within the DEIS cost and benefit figures?**

The SEIS contains several peculiar and unexplained discrepancies in reported benefits and costs. Table S4-2 reports \$20 million in annual benefits while Table S4-3 reports \$18.3 million in annual benefits. See DSEIS at 4-15. Similarly, the total project costs reported in the DSEIS at Table 4-4 (see DSEIS at 4-16), and the project cost figures reported in the Corps' revised Cost Estimate Summary (see DSEIS, Exhibit M: Cost Estimate Summary (hereinafter "Cost Estimate Summary")) cannot be reconciled. In addition, the project implementation cost in Table S8-1 totals over \$140 million and is not consistent with the project cost of \$129 million reported at in the text of the DSEIS. Compare DSEIS at 4-15 and 8-1.

SS-195

SS-193. The Niemi report confuses regional with national benefits. From a national perspective, it is inappropriate to describe regional transfers as a benefit to the nation. Niemi seems to have the opinion that the benefits of the Columbia River project are a result of increased port revenues at the Port of Portland, which should then be offset by decreased port revenues at the Puget Sound ports. This is not the case. The benefits of the project are based on transportation costs savings, rather than rate transfers.

The Niemi report also fails to recognize that the Port of Portland is primarily developed to facilitate the region's exports, while the Puget Sound ports are primarily import ports. The idea that the Puget Sound ports would have stranded infrastructure if they do not capture much of the Portland hinterland is inaccurate. While the general statement quoted from the IWR report is interesting, it does not apply in this regional context. The Niemi report also fails to recognize that the Corps benefit calculation assumes that the Puget Sound increases its market share in the Portland hinterland, which also makes the 'stranded infrastructure' argument moot.

SS-194. The ecosystem restoration features that were included in the 1999 Final IFR/EIS have never been considered or analyzed as mitigation for offsetting project-related impacts. The remaining ecosystem restoration features that are analyzed in the Draft SEIS and Final SEIS are voluntary actions under Section 7(a)(1) of the ESA. As noted in the 2002 BOs, the ecosystem restoration features are not compensatory mitigation for project-related impacts.

The Corps has analyzed the proposed ecosystem restoration features under NEPA. The purpose of the ecosystem restoration component is consistent with Corps of Engineer Circular 1105-2-210 dated June 1, 1995 Ecosystem Restoration in the Civil Works Program. The purpose and need is expanded in the Final SEIS.

The Corps has evaluated alternatives for the ecosystem restoration features. The ecosystem restoration features included in the 1999 Final IFR/EIS were initially discussed and conceptually developed in 1997 with a multi-agency team. All of the ecosystem restoration features described in the 1999 Final IFR/EIS, and Lois Island embayment and Miller-Pillar were a direct outcome of these interagency meetings. Miller-Pillar ecosystem restoration feature was circulated and comments addressed in our October 1998 Draft IFR/EIS. Miller-Pillar was not included in the 1999 Final IFR/EIS due to NOAA Fisheries concerns regarding avian predators utilizing the pile dikes associated with the feature. NOAA Fisheries concluded that with resolution of the avian predation problems (cormorants perching on pile dikes and foraging on juvenile salmonids), their concern over implementation of Miller-Pillar feature would be negated. The Corps, through use of avian excluders placed on pilings and spreaders, pile dike features used by perching cormorants, has resolved this issue to the satisfaction of NOAA Fisheries. Discussion of the evaluation of alternatives for the proposed additional ecosystem restoration features has been added to Section 4.8.6.

**C. What happens to the cost-benefit ratio when the cost contingencies in the Cost Estimate Summary and non-federal costs are added to the project costs?**

In calculating the cost-benefit ratio, the Corps used the minimum estimated cost and excluded contingency costs. See generally Cost Estimate Summary. However, the Corps did not use the minimum expected benefits. *Id.* Had the Corps considered cost contingencies, the cost of the Channel Deepening Project would increase from \$129 million to \$142 million.

SS-196

The costs are further inflated if the Corps considers costs incurred by the non-federal partners for the project. The Corps has excluded the non-federal costs, but non-federal match is an essential part of the Channel Deepening Project. When non-federal costs are added, the benefit-cost ratio is further eroded.

**D. Has the Corps overlooked costs to fisheries and externalities imposed on other federally-funded restoration and mitigation projects?**

The Corps states that the Channel -Deepening Project's restoration measures will directly eliminate a net pen and commercial fishery at Tongue Point, Oregon. See DSEIS at 4-11-4-12, 6-53. Yet, the economic analysis does not recognize this direct economic cost impact to commercial fisherman. Similar adverse effects on sturgeon and crab fisheries can be expected, but the costs of these adverse impacts are never considered by the Corps. In addition, the Channel Deepening Project will adversely impact anadromous fish. The Corps claims that it has mitigated these adverse impacts and relies, in part, on estuary restoration and improvement projects that are supposed to be implemented as mitigation for another federal action—the FCRPS action. In other words, the Corps claims the benefits of FCRPS mitigation without internalizing the costs to the Channel Deepening Project analysis. This masks the true cost of the Channel Deepening Project and also demonstrates that many of the FCRPS costs are being incurred for the benefit of Channel Deepening. In fact, the Channel Deepening Project is counterproductive—it negates many of the benefits sought by the FCRPS mitigation package and it adds extra costs to a recovery program that is already costing the federal government several hundred million dollars each year. See General Accounting Office, "Columbia River Basin Salmon and Steelhead: Federal Agencies Recovery Responsibilities, Expenditures and Actions," CAO-02-612 (July 2002) (attached as Exhibit K). How many other direct economic impacts and external

SS-197

SS-194 (con't). The additional ecosystem restoration features were a direct result of the ESA consultation. The Corps, NOAA Fisheries, and USFWS vetted these restoration features during development of the consultation BA and Biological Opinions. The Corps, through participation in the June 2001 workshop for restoration of Columbia River estuarine habitats, participation in LCREP, and through coordination with local entities regarding other Corps authorities (e.g., Sections 1135, 206 and 536) for restoration purposes, is well aware of the nature and scope of potential restoration projects in the Columbia River estuary. We are also aware of limitations, yet to be overcome, on land availability, easements, monies, sponsors and other physical and/or social/political constraints that make implementation of these restoration alternatives impractical at this time. The restoration features presented in the Draft SEIS were targeted for federal and/or state refuges and management areas or other lands which were considered readily available in the timeframe of the channel improvement project and that provided benefits to the ecosystem. In response to comments, the Corps has modified two of the ecosystem restoration features (Lois Island and Miller-Pillar), the final proposals for which are presented in the Final SEIS.

Finally, the Corps has evaluated the potential effects of the ecosystem restoration features. See Final SEIS, Section 6, and response SS-170.

SS-195. The cost tables have been revised in the Final SEIS.

SS-196. The comment is incorrect. The Corps does include contingency costs in the cost-benefit analysis. Non-federal costs are included in the cost-benefit analysis as well.

SS-197. The Corps never stated the restoration would eliminate a net-pen fishery. See responses S-7 and SS-192(k). With regard to the comment on restoration, see response SS-194. As noted in response SS-194, the ecosystem restoration features are not mitigation to offset the effects of this project on salmonids. The two ecosystem restoration projects in the lower estuary (Lois Island and Miller-Pillar) use dredged material in a beneficial manner and therefore have been included in the benefit-to-cost ratio for this project. Further, though not included in the benefit-to-cost ratio, detailed cost estimates were developed for all of the ecosystem restoration features and are included in the Final SEIS. The Corps disagrees with the unsupported allegation that the deepening project would undermine mitigation associated with the FCRPS.

costs were overlooked by the Corps because it made no attempt to consider project-induced costs outside of Channel Deepening Project construction?

**E. Did the Corps' construction costs include the transaction costs and mitigation costs of local, state and federal permitting?**

SS-198 Although the Corps included engineering and design costs in its revised economic analysis, it is unclear whether the Corps included the costs of environmental review and permitting at the federal level and environmental review and permitting required by state and local governments. See Cost Estimate Summary. For example, do the Corps' cost figures include fees for private consultants and attorneys who assisted the Corps in preparing the DSEIS? See e.g., DSEIS List of Preparers (including Pacific International Engineering and the law firm of Preston, Gates & Ellis).

SS-198. Projected future costs include the cost of environmental review and permitting at the federal, state, and local level.

**F. Did the Corps net out the expected growth in import/export volume that would occur without the Channel Deepening Project?**

SS-199 It appears that the Corps assumed that all future growth in shipping volume would benefit from lower average cost efficiencies derived from larger ships. For example, the Corps' analysis of container ship traffic assumes that all future container shipments will be made on ships drafting 42 feet or more and that these ships will be fully loaded to benefit from efficiencies allowed by Channel Deepening. See, e.g., Revised Economic Analysis at 31. It is implausible that smaller ships will not benefit from any growth in shipping volume or that larger ships will not continue to operate at less than capacity with or without the Channel Deepening.

SS-199. The comment is incorrect. The Corps' analysis does not assume that container vessels will be fully loaded. Also, there is no induced tonnage in the with-project condition, meaning that there is no reason to 'net out' the with-project and without-project volumes.

**G. Did the Corps use unrealistic assumptions in projecting the growth of container traffic for the Port of Portland, which has actually been in decline and may suffer a long-term structural decline caused by economies of scale advantages for the Puget Sound ports?**

SS-200 Projections by the Port of Portland and the Corps acknowledge that the Port of Portland will likely suffer a long-term decline in market share for shipping from Portland's regional hinterlands. See Port of Portland, Container Transportation Benefit Study (Aug. 5, 2002). More competitive deepwater ports on the west coast will continue to gain in market share. The Port of Portland's loss of market share is a structural phenomenon caused by the logic of economies of scale. The Port of Portland's own data show that the Ports of Seattle and Tacoma have lower average

SS-200. The comment asserts, without providing any supporting facts, that the ocean transportation cost disadvantage in Portland relative to the Puget Sound will, at some point in the future, become "severe." There is no evidence that this will be the case, and the comment ignores inland transportation costs that are a significant factor in regional cargo movements.

Today, there are 46-foot design draft vessels transiting the 40-foot Columbia River navigation channel. This is a good indication that, with a 43-foot channel, larger vessels in the world fleet will continue to call on the Columbia River.

The comment is incorrect with regard to the Corps' projections. The Corps' projections for container exports show a 30-year growth rate of 1.61% and a fifty-year growth rate of 0.96%. Even in the first decade of the analysis, the growth rate is only 2.4%. The comment also attempts to predict the future based on a trend since 1995, including a long period of economic downturn in Japan and Southeast Asia. The Corps' projections are based on a much larger body of information regarding both the U.S. economy and the economies of the nations that buy U.S. products. A short-term trend analysis that consists primarily of an economic downturn for importers of U.S. products is not an appropriate means of projecting the future of U.S. exports.

All benefits associated with the Willamette were removed from the benefits analysis.



shipping costs per ton because of the time and size efficiencies associated with operating out of those natural deepwater ports. Id. The logic that is used to justify the Channel Deepening Project in the near term is also its undoing in the long term. As ships become larger and shippers seek greater economies of scale, the average cost disadvantages for the Port of Portland will become more severe. The Channel Deepening Project may reverse that trend temporarily during a phase of increased ship size, but channel depth will again become a limiting factor as ships become too large to use the 43-foot channel.

SS-200

The Corps' own projections for Transpacific Intermodal Exports from the Port of Portland show a consistent decline in absolute volume since 1995. Id. Yet, the Corps projects growth of between 2.6 percent per year to 6.9 percent per year. Based on the trend since 1995, it seems equally probable that the Port of Portland's container volume could remain stable or decline. This point is critical in a cost-benefit analysis where most of the benefits are estimated based on growth in container traffic. Furthermore, it is not entirely clear that the DSEIS excludes all benefits associated with the Port of Portland berths that lie on the Willamette River. If Willamette River benefits have been used to calculate the Corps' projected growth in Port of Portland container volumes, those projections will not only be suspect but improperly derived.

\* \* \* \* \*

For all of the above reasons, and based on the more detailed discussion provided in the Niemi Report, the Corps' revised economic analysis for the Channel Deepening Project contains serious flaws that inflate benefits associated with Channel Deepening and discount the Channel Deepening Project's costs. The Corps' analysis is selective in its approach and assigns great weight to information that is highly uncertain; as a result, it is arbitrary and capricious and does not provide an adequate basis for the Corps' conclusion that the benefits of the Channel Deepening Project will outweigh its costs.

SS-201

SS-201. The Corps disagrees with the comments allegations regarding the Corps economic analysis. The Corps detailed responses are found above in responses SS-188 to SS-200. As discussed there, the Niemi report contains numerous factual flaws and unsupported statements. Further, the Corps cost benefit analysis has been revised in response to comments and is presented in the Final SEIS at Chapter 3 and Chapter 4, Exhibit L.

**V. THE BIOLOGICAL OPINIONS AND PROJECT MITIGATION ARE DEFICIENT**

Dr. Robert Dillinger has, in addition to reviewing the DSEIS (see above), also reviewed the NMFS and USFWS Biological Opinions for the Channel Deepening Project. Dr. Dillinger has prepared a report of his findings, which is submitted with these comments ("Dr. Dillinger BiOp Report"). These comments supplement

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comments dated March 26, 2002 (“BA Comment Letter”) submitted on behalf of CRANE in response to the Corps’ Biological Assessment for the Channel Deepening Project.

Dr. Dillinger has identified a number of critical failings in the Biological Opinions. For example:

- The Biological Opinions rely far too heavily on the Corps' vague plan for monitoring and adaptive management to assess the Channel Deepening Project's effects. Because the effects of the action are highly uncertain, the agencies have no basis to conclude that the action will not jeopardize the species or adversely modify critical habitat. See Dr. Dillinger BiOp Report at 15-23.
- The Corps' adaptive management program is key to the agencies' conclusions, but cannot be implemented in the absence of a research design that includes a baseline, test hypotheses and monitoring and research methods. Without these critical elements, the adaptive management plan cannot predict, identify or correct flaws in the Channel Deepening Project. The adaptive management plan is also fatally inadequate because it contains no specified pathway or process for adaptation of the Channel Deepening Project. Id. at 22-25.
- The Biological Opinions are based on studies and plans that are not yet complete or available for review. Id. at 24. The agencies rely on the Corps' conceptual model of the interaction between salmonids and lower Columbia River habitat qualities, but the model has not been quantified or verified. See e.g., id. at 6. This model provides nothing more than a rudimentary concept of how a very complex ecosystem may function, and is entirely inappropriate as a basis for the agencies' no jeopardy conclusion. Id. at 11-12.
- The NMFS BiOp describes proposed mitigation/habitat restoration measures as beneficial for listed anadromous fish, but provides no explanation of the baseline conditions and expected habitat improvements that justify this conclusion. Id. at 29-30.
- The Biological Opinions describe a state of uncertainty and incertitude concerning nearly all of the effects of the project on listed fish species. Id. at 15.

SS-202 to SS-209. These comments express conclusions about NOAA Fisheries Biological Opinion for this project, and include comments on NOAA Fisheries application of its policies and guidance regarding Section 7 consultation. The Corps prepared the Draft SEIS to solicit comments on the Corps’ proposed action. It is not appropriate for the Corps to respond to comments that are actually directed to the Biological Opinion prepared by NOAA Fisheries or questions of NOAA Fisheries policies. The Corps understands that NOAA Fisheries will respond to comments in this section in the future in an appropriate forum. To the extent that the comments address the Corps underlying assessment of potential effects of the project as reflected in the BA and Final SEIS, the Corps has provided detailed responses in its responses SS-170 through SS-178.

SS-203-209

- Given the extreme conditions of uncertainty and incertitude, one would expect the agencies to require a highly rigorous and precise monitoring and adaptive management plan as a basis for formulating any biological conclusions. However, even after nearly two years of reinitiated consultation, the Corps has prepared neither a monitoring plan nor an adaptive management program. See id. at 22-29. The agencies require that these protocols be completed by a date certain in the future, but offer their Biological Opinions in advance of obtaining that information. Under this approach, neither the agencies nor the public are able to scrutinize the all-important monitoring and adaptive management plan before the Biological Opinions are issued or the Corps completes its environmental review and issues a record of decision. It strains understanding that the agencies can determine with the requisite certainty that the Corps' Project will not jeopardize listed fish species without this information.

In addition to the problems identified by Dr. Dillinger, we note several additional deficiencies in the biological review for the project.

**A. NMFS' "no jeopardy" determination is arbitrary and capricious under NMFS' Habitat Approach and PFC framework.**

In this consultation, NMFS adheres to its methodology known as the "Habitat Approach" and Properly Functioning Condition ("PFC") framework. See NMFS, "The Habitat Approach" (1999) (attached as Exhibit L). Under this approach, NMFS evaluates whether an action will likely jeopardize a listed fish species based on the condition of the environmental baseline and whether the action improves the baseline. NMFS BiOp at 6. If the baseline is "not PFC" or "PFC impaired," NMFS' policy dictates that an action be found to Jeopardize the species unless it would improve conditions toward the restoration of PFC.

SS-210 to SS-213. These comments express conclusions about NOAA Fisheries policy concerning PFC and compare the conclusions NOAA Fisheries reached in the Biological Opinion prepared for this project with Biological Opinions for other unrelated projects. The Corps prepared the Draft SEIS to solicit comments on the Corps' proposed action. It is not appropriate for the Corps to respond to comments that are actually directed to the Biological Opinion prepared by NOAA Fisheries or questions of NOAA Fisheries policy concerning PFC. The Corps understands that NOAA Fisheries will respond to comments in this section in the future in an appropriate forum.

SS-210

NMFS finds the baseline to be not PFC within the Channel Deepening action area. See NMFS BiOp at 34. NMFS must, therefore, find that the project moves the Lower Columbia River toward PFC or restoration to avoid jeopardy. Neither the NMFS BiOp nor the Corps' DSEIS provide any factual basis that would reasonably support a conclusion that Channel Deepening helps to restore properly functioning habitat conditions. Nevertheless, NMFS concludes that the project helps to restore PFC, and will, therefore, be no jeopardy to 13 species of listed salmon and steelhead. See NMFS BiOp at 85-86. NMFS' conclusory finding of restoration is baseless and without justification.

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For purposes of comparison, we submit for the record two biological opinions issued by NMFS which find likely jeopardy to listed salmonids on the basis of proposed actions and effects that are miniscule in comparison to the Channel Deepening and maintenance project.

**1. Coos Bay North Bend Water System Improvements.**

NMFS' Biological Opinion for the Coos Bay-North Bend Water Board Water Supply Expansion Project (December 14, 1999) (attached as Exhibit M) considered a proposed upgrade to an existing municipal water system. The most significant feature of this project was the enlargement and raising of an existing 45-foot dam to a height of 69 feet. The dam was located on Pony Creek, a tributary to the Coos Bay, Oregon estuary, and formed a complete barrier to fish passage on Pony Creek. The dam had historically prevented any instream flows in Pony Creek below the dam during low-precipitation times of year. Virtually no listed fish inhabited Pony Creek below the dam, where tributaries to the creek were named the "K-Mart Fork," "Hospital Fork" and "AAA Fork."

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The enlarged dam had an added footprint of 75 acres and the elevated reservoir would have expanded from 130 acres to 273 acres in size. The total amount of fill was 317,000 cubic yards.

In addition to the proposed dam enlargement, the project included restoration features. First, the owner of the dam committed to a minimum instream flow in Pony Creek below the dam and placement of clean gravel and daylighting of culverted stream channels below the dam. In addition, the proposed action included the breaching of a dike and restoration of a 20 acre wetland within the estuary.

In consultation with the Corps, NMFS examined the effects of the project on three listed fish species and focused, in particular, on Oregon coastal coho salmon. NMFS defined the action area as 119,000 acres of the Coos Bay estuary including over 25 watersheds outside the watershed where the dam was located and the upland cities and human settlements throughout the area. As in its Channel Deepening Biological Opinion, NMFS applied the Habitat Approach and determined that the baseline conditions were "at risk" or "not properly functioning" requiring significant improvement to ensure the likelihood of the survival and recovery of coho salmon.

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In its consideration of the project's effects, NMFS found the restoration actions good but insufficient to promote the recovery goals for the species and its habitat. NMFS noted that the State of Oregon was planning and implementing several excellent restoration actions in the Coos Bay estuary, but the benefits of the restoration activities were in the future and not yet realized. NMFS expressed concern that continued urban growth and development in the metropolis of Coos Bay-North Bend would result in additional impervious surfaces and stormwater run-off with adverse water flow and quality effects on the Coos Bay estuary and tributaries. NMFS concluded that the project would result in low levels of unquantified "take" and jeopardize the continued existence of Oregon coastal coho salmon.

**2. Inland Land, Inc. Irrigation Pumping Station.**

NMFS' Biological Opinion for Inland Land, Inc., Columbia River (May 16, 1997) (attached as Exhibit N) considered a proposed irrigation pumping station to be constructed in the Columbia River reservoir pool behind John Day Dam. The proposed action would have required some excavation, dredging and blasting on the bottom of the Columbia River during the in-water construction windows allowed by NMFS. A total of 2,000 cubic yards of fill were required for a pumping facility located on the river bottom. The pumping station would have removed a maximum instantaneous flow of 330 cfs of water for farm irrigation with average withdrawals of smaller amounts. The Corps determined that the effect of the water withdrawal on the Columbia River, which flows at well over 200,000 cfs, would be undetectable and the action would have no effect on listed species.

SS-212

In consultation, NMFS examined the effects of the action on many of the same salmonid species considered in the Channel Deepening Biological Opinion. As in the Channel Deepening Project, NMFS determined that the baseline conditions were such that improvements in the habitat were needed for the survival and recovery of the species. NMFS determined that the action would have a minimal potential for unquantifiable take of listed salmonids, but concluded that the action would jeopardize listed salmonid species.

NMFS reasoned that even though the effects of the action on Columbia River flows were undetectable, NMFS was compelled to apply a zero-tolerance standard for new water withdrawals because the incremental impact would be added to the cumulative impacts of all water withdrawals in the Columbia River Basin.

\* \* \* \* \*

When we compare NMFS' biological opinions finding jeopardy for the Coos Bay and Inland Land Co. projects with the Channel Deepening Project Biological Opinions, we fail to see how NMFS could conclude that the Channel Deepening Project is not likely to jeopardize the continued existence of a listed salmonid species.

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**Comparison of NMFS Biological Opinions**

<b>Project</b>	<b>Coos Bay Water</b>	<b>Inland Land Co.</b>	<b>Channel Deepening</b>
<b>Description</b>	Upgrade existing water system and enlarge dam that already is a complete barrier to fish passage. Enhance instream flows, restore creeks below dam, restore 20 acre estuarine wetland	Construct irrigation pumping station on mainstem Columbia River at John Day Pool. Temporary dredging and blasting. Withdraw up to 330 cfs of water from river flowing at well over 200,000 cfs.	Construct and maintain navigation channel stretching over 100 miles from mouth of the Columbia River through the Columbia River estuary. Also dredge and maintain berths and turning basins.
<b>Fill Volume</b>	317,000 cy	2,000 cy	190,000,000 cy
<b>Acres Affected</b>	75 acres	Not described (Est. < 5 acres)	1,755 acres for upland dredge disposal  In-water and ocean dredge disposal  Channel 43-48' by 600-700' for 100 miles
<b>Action Area</b>	119,000 acres covering 30 small watersheds and	Not described	Columbia River bank-to-bank from Bonneville Dam to

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	upland urban areas served by the water system		mouth and 12 miles out to sea. Also upland disposal sites, but excludes upland port areas or cities served by navigation channel.
<b>Affected Species</b>	3 ESUs of coastal coho, steelhead, and cutthroat	3 Snake River sockeye, fall chinook, and spring/summer chinook	13 ESUs of Columbia Snake Salmon and steelhead
<b>Baseline Condition</b>	At risk or not PFC-needs improvement	Needs improvement	Not PFC – needs improvement
<b>Effects</b>	No species present and minimal unquantified take.  Restored habitat not good enough.  Adverse effects from urban growth, impervious surfaces, and stormwater effects in action area.	Effect on river flows immeasurable  Minimal unquantified take.	Effects are unknown but expected to be minimal.  Restoration features expected to outweigh any adverse effects.  May take species, but will not appreciably reduce population. Some unquantified take and some quantified take estimates for blasting
<b>Cumulative Effects</b>	Adverse effects from urbanization and restoration efforts not yet effective	Zero tolerance for any new water withdrawal based on cumulative effects of all water	Some adverse effects expected from urbanization, water withdrawal and water quality problems

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		use in the Columbia River Basin.	
<b>Determination</b>	Jeopardy	Jeopardy	No Jeopardy

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The Corps has an independent duty under Section 7(a)(2) to ensure that its actions are not likely to jeopardize the continued existence of listed species or adversely modify or destroy their critical habitat. Because the NMFS BiOp is baseless in finding no jeopardy or critical habitat modification and destruction, the Corps may not rely on the opinion. The Corps must refrain from proceeding with the Channel Deepening Project or it will violate the Endangered Species Act.

**B. The Corps' restoration projects do not support NMFS' no jeopardy conclusion.**

In its new Biological Opinion, NMFS relies heavily on seven new restoration projects proposed by the Corps. NMFS does not evaluate the restoration projects under its estuary conceptual model to determine their effects on pathways and indicators for listed species and the properly functioning conditions for their habitat. Rather, NMFS makes a qualitative judgment that the restoration projects will be beneficial without explaining why that it so. See NMFS BiOp at 66. Two of the projects have little or no relationship to anadromous fish. Two of the projects involving retrofitting of tide gates to open up more juvenile fish rearing habitat may have benefits for fish, but NMFS fails to explain baseline condition or expected improvements. At least three of the "restoration" projects appear to involve moving dredge spoils from the navigation channel to side channels in the river. In essence, the Corps proposes as restoration the disposal of dredge materials in certain areas to create hypothetical productive shallow estuary waters. These "restoration" projects appear to be added disposal sites not so cleverly disguised as restoration projects. See NFMS BiOp at 68-72. There is no valid explanation of the baseline habitat conditions at the proposed restoration sites or the reasoning behind expected long-term benefits for listed fish species.

SS-214

In fact, NMFS' description of the proposed action is a useful point of reference for understanding the magnitude of dredge disposal that is now called restoration. According to NMFS and the Corps, construction of the deeper channel will take about two years and result in a one-time slug of additional dredge material estimated to be

SS-214. The Corps will not respond to the comment as it pertains to NOAA Fisheries Biological Opinion. With regard to the merits of the restoration projects, see responses SS-91 through SS-100.

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19.3 million cubic yards. Thereafter, the 43-foot channel would be maintained for 50 years just as the 40 foot channel would be maintained. Over the 50-year maintenance life of the Channel Deepening Project, NMFS and the Corps claim that 190 million cubic yards of dredge material will be moved (including the 19 million cubic yards for construction) as compared to the 160 million cubic yards that would be moved due to maintenance of the 40-foot channel.

SS-214 Compare the one-time construction dredge volume of 19.3 million cubic yards with the amount of dredge disposal that will go to restoration (16 million cubic yards) (See NMFS BiOp at 15). Nearly all of the Channel Deepening Project's one-time increment of channel construction dredge material will be relocated into other portions of the estuary to bring about the alleged restoration. The proposition that dredge disposal can lead to restoration is not validly established in the NMFS BiOp. Instead, the descriptions of each restoration project identify benefits in very little detail. The descriptions of these restoration project descriptions concede that it may take ten or more years to realize the benefits of restoration because disposal, initially, will be destructive to existing plant and animal communities in the vicinity of the "restoration" disposal of dredge materials. What is completely lacking in this analysis is a description of the areas that will be "restored." See Dr. Dillinger BiOp Report at 29-30. There is no accounting for what is already there, what level of ecological function it currently provides, why it is in need of restoration, and what the expected increase in ecological function or benefit will be as a result of the disposal of millions of cubic yards of dredge material on those sites. Id. Yet this is the pillar on which NMFS issues a no jeopardy opinion and expresses its belief that earlier concerns about restoration have now been addressed.

It is also noteworthy that NMFS, at the behest of the Corps, repeatedly calls restoration projects an integral part of the proposed action, but clarifies that the restoration projects are not mitigation for the effects of the project. This curious disclaimer is made as some sort of justification of the Corps' exclusion of restoration project costs from the cost-benefit analysis for the Channel Deepening Project. See discussion supra at Section II(A)(3)(c), Section III and Section IV(A). It seems that the Corps will exclude the costs of restoration from the cost-benefit analysis because restoration is a separate proposal under the Corps' ESA 7(a)(1) conservation program and not mitigation for the action. As we have already noted, this merely creates a whole new set of analytical and legal problems for the Corps. If the restoration projects are independent federal actions, the Corps has utterly failed to analyze these actions under NEPA. Their purpose and need, alternatives, baseline conditions and

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effects of the alternatives have never been examined or disclosed to the public. For all NMFS knows, the "restoration" projects may have extraordinary adverse environmental impacts or could be entirely ineffective, or there could be far more effective alternatives that the Corps failed to consider.

**C. NMFS must consider interrelated and interdependent port development before reaching its no jeopardy conclusion.**

As we have already noted, the Corps has improperly segmented and excluded interdependent and interrelated port development and urban development actions that are driven by the Channel Deepening Project. See discussion supra at Section I(A) and Section II(A)(3). The Corps' parsing of these actions and effects also infects NMFS' concept of the action and effects.

SS-215

The NMFS BiOp references related federal actions such as the Federal Columbia River Power System, channel maintenance dredging and expected future dredging of berths by port districts. However, the NMFS BiOp states that future development of port facilities and activities is not an interdependent or interrelated action. See e.g., NMFS BiOp at 63. NMFS explains that future port development is caused by economic development factors outside the development of the waterway. This reasoning undercuts the economic benefits that the Corps claims for the project. It also appears to be in conflict with the development of the Port of Vancouver's Gateway Project, which depends on the Channel Deepening Project for almost three million cubic yards of fill.

The NMFS BiOp leaves no doubt that dredge materials from the Channel Deepening Project will be disposed of at the Gateway site. Given that the Port of Vancouver has already made public its plans to use the filled site for port development, it is impossible to escape the conclusion that the Gateway project is an interdependent and interrelated action.

**D. The Corps and NMFS appear to improperly segment the relationship between Channel Deepening, maintenance dredging and dredging of the Columbia River Bar at the MCR.**

As noted above, step-wise or segmented ESA consultation is not permitted in the Ninth Circuit. There is no doubt that the Channel Deepening Project and channel maintenance actions are strongly related and will become one and the same action

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SS-215. The Corps disagrees with the comment's unsupported assertion that potential future port and urban development is interrelated to or interdependent with the channel improvement project. See responses SS-140 through SS-142 and SS-157 through SS-161. However, because the comments is actually directed to the Biological Opinion prepared by NOAA Fisheries, it is not appropriate for the Corps to provide a more detailed response. The Corps understands that NOAA Fisheries will respond to comments in this section in the future in an appropriate forum.

SS-216. The Corps disagrees with the comment's unsupported assertion that the effects of maintenance dredging and the MCR project have not been considered. See responses SS-155 through SS-156. However, because the comments is actually directed to the Biological Opinion prepared by NOAA Fisheries, it is not appropriate for the Corps to provide a more detailed response. The Corps understands that NOAA Fisheries will respond to comments in this section in the future in an appropriate forum.

after the initial deepening construction is completed. See NMFS BiOp at 12. By treating them as discrete actions, however, there is a risk that NMFS and the Corps address only the direct effects of Channel Deepening, improperly making maintenance a part of the baseline and excluding its cumulative effects from the analysis. In addition, it appears that the Corps has omitted any analysis of and consideration for dredging and dredge disposal necessary as a part of deepening and maintenance of the MCR. This appears to be a closely related action that is essential for the utility of the Channel Deepening, but its environmental, biological and economic effects were entirely omitted from the Corps' analysis, disclosure of effects and decisionmaking. See discussion supra at Section II(A)(2)(c). NMFS' no jeopardy conclusion was made without considering these significant effects on the species.

**E. NMFS ignores the Corps' lack of detail or final approval for “robust” monitoring and adaptive management.**

NMFS and the Corps make much of the SEI process and the SEI panel's conclusion that the estuary is a dynamic system filled with uncertainty (which, according to NMFS and the Corps, precludes estimating any effects now for lack of information). Under circumstances of uncertainty, SEI recommends and NMFS accepts that “robust” monitoring and adaptive management programs are necessary. See NMFS BiOp at 74. However, the monitoring and adaptive management process described in the NMFS BiOp are anything but robust.

SS-217. With regard to the general issue of adaptive management, see response SS-170. The adaptive management plan will developed in concert with NOAA Fisheries and USFWS and will be consistent with the NOAA Fisheries guidance.

SS-217

The life of the Channel Deepening Project is fifty years, and adverse effects are likely to be realized in the long term as well as during the two years of construction. Nevertheless, most of the monitoring for the project is based on measurements two years before construction, two years during construction, and three years after construction. See NMFS BiOp at 19. NMFS' habitat condition survey, the monitoring parameter that is arguably most important for ESA-listed fish, is repeated only one time three years after construction. Such monitoring may only confirm the destruction of habitat and adverse impacts to fish with no apparent consequences. Only two of the monitoring programs continue for the life of the project. One is the annual measurement of dredge disposal volumes and the other is screening of dredge materials for pollutants. It is difficult to see how NMFS will achieve a robust long-term monitoring and adaptive management program for anadromous fish by looking at annual data on dredging volumes. The only management change trigger mentioned for this parameter is an increase in dredge volume above predicted quantity. Such a

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trigger may never occur even while dramatic changes in estuary habitat and the condition of listed species are occurring.

The other baffling feature of the monitoring and adaptive management program is that the program described in the NMFS BiOp is not yet finally approved or completed in detail. It appears that NMFS and the Corps will manage environmental uncertainty using an uncertain monitoring and adaptive management process. The terms and conditions require the Corps to prepare a detailed monitoring and adaptive management plan for NMFS by December 15, 2002, which NMFS will then approve. One wonders why the plan was not prepared as part of the proposed action that is subject to the consultation and biological opinion and subject to public notice and comment through the DSEIS. Why didn't the Corps and NMFS figure this out in the interim between biological opinions? How can NMFS and the Corps ensure no jeopardy when the essentials of the monitoring and adaptive management program have not yet been designed or approved? The Corps asserts that "[l]ong term monitoring and adaptive management programs indicate the project will not jeopardize listed fish species." DSEIS at 6-51. The Corps' inadequate monitoring and adaptive management process constituted one of the key problems with the first biological opinion for Channel Deepening. The Corps has not corrected these failings and the NMFS BiOp should be withdrawn until these corrections are made. See Dr. Dillinger BiOp Report at 18-25, 30.

**F. The Corps and NMFS use "front-loading" as an excuse for ignoring effects.**

SS-218 One of the more unusual features of the NMFS BiOp is its description of the Corps' "front-loading" of monitoring and project adjustment as a sure means to avoid environmental effects. See NMFS BiOp at 43. NMFS appears to be convinced that the Corps can ensure that the action will not affect certain pathways and indicators for listed species because the Corps will implement monitoring during construction. Accordingly, NMFS states that it need not address the presumptively avoided effects; this approach amounts to blind faith in the Corps' ability to avoid environmental effects, which is not acceptable under the requirements of the Habitat Approach. See discussion supra at Section V(A).

SS-218. See responses SS-210 to SS-213.

**G. The USFWS BiOp literally duplicates errors contained in the NMFS BiOp.**

SS-219 | For purposes of analyzing effects of the Channel Deepening Project on bull trout and cutthroat trout, USFWS simply cuts and pastes from the NMFS' BiOp. As a result, the USFWS BiOp suffers all of the same flaws laid out in Section V. CRANE's objections to the NMFS BiOp apply equally to the USFWS BiOp.

SS-219. See responses SS-202 through SS-218.

\* \* \* \* \*

SS-220 | For the reasons set forth above and in the BA Comment Letter, the FEIS Comment Letter and the DEIS Comment Letter, the DSEIS' analysis of the likely environmental and economic effects of the Channel Deepening Project is inadequate and fails to meet the requirements of federal law. Not only does the DSEIS rely on bad science and bad economics to reach its conclusion that Channel Deepening should proceed, but it is based upon Biological Opinions from agencies that reached their no jeopardy conclusions in a manner that was arbitrary and capricious. As a result, CRANE requests that NMFS and USFWS withdraw their consultations, and that the Corps develop a Channel Deepening Project proposal that addresses the failings described in this letter and complies with federal law.

SS-220. The Corps disagrees. Contrary to the comment, the Final SEIS relies on sound science and a thorough economic analysis to reach its conclusion the channel improvement project should proceed. Further, the Biological Opinions were the product of a thorough and innovative consultation process that assembled and confirmed the best available science to be used for consultation.

Sincerely,

*Mark W. Schneider/srk*

Mark W. Schneider

Enclosures

MWS/SRK/vc

cc: (with enclosures) CRANE  
(without enclosures - *Enclosures Available Upon Request*)

- The Honorable Gary Locke
- The Honorable John Kitzhaber
- The Honorable Maria Cantwell
- The Honorable Patricia Murray
- The Honorable Gordon Smith
- The Honorable Ron Wyden
- Congressman Brian Baird

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Congressman Earl Blumenauer  
Congressman David Wu  
Stephanie Hallock, Oregon Department of Environmental Quality  
Jeff Koenig, Washington Fish & Wildlife Commission  
Tom Fitzsimmons, Washington Department of Ecology  
The Honorable John Iani, U.S. Environmental Protection Agency  
Ms. Nan Evans, Oregon Coastal Management Program

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# NORTHWEST ENVIRONMENTAL ADVOCATES



September 15, 2002

U.S. Army Corps of Engineers  
Portland District  
CENWP-EM-E ATTN: Bob Willis  
P.O. Box 2946  
Portland, Oregon 97208-2946

Corps of Engineers Response

**Re: Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the Columbia River Channel Improvement Project (SEIS)**

SS-221 Northwest Environmental Advocates (NWEA) appreciates the Army Corps of Engineers (Corps) agreement that the agency was required to issue a Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the Columbia River Channel Improvement Project (DSEIS). However, the DSEIS, as proposed, is so deficient in so many respects that it does not begin to remedy the deficiencies discussed by NWEA and others in comments provided in response to the previously-released draft and final Integrated Feasibility Report and Environmental Impact Statement for the Columbia River Channel Improvement Project as well as other regulatory documents related to the underlying project.

**I. Public Disclosure**

SS-222 Under federal law, the DSEIS is to serve two key purposes. The first is to require federal agencies thoroughly and objectively to investigate, evaluate and disclose environmental consequences associated with any major federal action in sufficient detail to assist the agencies in determining whether and how to proceed with a proposed action. The second is to provide the public with a full and accurate disclosure of the likely environmental impacts of a proposed action, thereby encouraging full public involvement in the development of such information. *See, e.g., Baltimore Gas and Electric Company v. NRDC*, 462 U.S. 87 (1983). In order to fulfill these purposes, an EIS must describe the purpose and need for the proposed action, analyze the direct and secondary environmental and economic impacts of a range of alternative means to fulfilling that purpose, and, if mitigation, is proposed, analyze the effectiveness of the proposed mitigation.

**A. Failure to Timely Provide Requested Information Renders Full Public Participation Impossible**

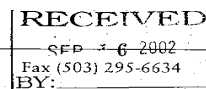
SS-223 NWEA is hampered in its ability to respond to this DSEIS within the time frame allowed for public comments due to the ongoing failure of the Corps and other federal agencies, namely the National Marine Fisheries Service (NMFS), to timely respond to numerous requests for documents made pursuant to the Freedom of Information Act (FOIA). In fact, FOIA requests made to both the Corps and to NMFS as far back in time as May of

SS-221. The Final SEIS discusses changes to the proposal and new information regarding project impacts as required by NEPA. The Corps disagrees that the Final SEIS is deficient.

SS-222. Comment noted. NEPA does not require an analysis of economic impacts as the comment suggests, but the Final SEIS includes updated economic information. The Final SEIS fully analyzes environmental impacts, including proposed mitigation.

SS-223. The Corps disagrees with the implication that FOIA is an integral part of the NEPA process. The Corps has synthesized relevant information in the Draft SEIS. Commenters need to focus their comments on that document. There is a separate process for pursuing information under FOIA, including the timeliness of information.

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## Corps of Engineers Response

this year have not been fully or, in some cases, even partially responded to. The Corps has responded with documents to only three requests. It has provided one seven-page document copied from the previous FEIS for the project in response to a request regarding various aspects of the relationship of the depth of the MCR to the 43-foot channel. It has provided four pages in response to a request for all financial work sheets on annualized costs. And, it has provided a copy of a specific study requested by name. For this reason, we request that you extend the timeframe for public comments until such time as information requested and required to fully understand the Corps' own report is made publically available.

SS-223

Likewise, five days before the close of the comment period the Corps issued the "Technical Review of the Benefit and Cost Analysis in the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement Dated July 2002: Summary Report of the Technical Review Process and Results," September 9, 2002. It is unreasonable to expect the public to review this document, which is highly critical of the Corps' benefits analysis at such a late date. Moreover, due to the timing of this outside review, nothing in the DSEIS indicates, let alone incorporates, the Corps' response to this document. Notwithstanding the obvious limitations of the review process, the panel evaluating the reasonableness of the alleged benefits of the project raised many questions and cast many doubts. To prevent public access to this information during the period when the public is allowed to comment on the SEIS is to preclude providing the public with full disclosure of biases, contradictory information, professional analyses, etc. identified by these experts that would assist it in commenting. To request that the public comment on the DSEIS when the Corps itself has remained silent about the findings of the panel, is unfair. On these bases, we also request that you extend the timeframe for public comments on the DSEIS.

### **B. Failure to Develop Necessary Data and Information Upon Which Analyses Rely Defeats the Public Disclosure Purposes of NEPA**

Public disclosure in the process of developing an EIS is also seriously hampered when the Corps has not completed the studies that are necessary to fully evaluate the cumulative effects of the proposed action. For example, twenty years ago, Washington state requested the Corps perform studies on the following issues:

SS-224

1. Potential mitigation measures need to be selected and evaluated so losses can be replaced.
2. Impact of salinity changes on the 151,000,000 plus salmonids migrating downstream annually must be evaluated for such things as:
  1. Are there sufficient other areas for these fish to condition their osmoregulatory systems to salt water? If not, what happens to them since fish are already stressed out when they enter salt water?
  2. Does changing areas where fish condition themselves to salt water impact timing of movement into ocean?
  3. How much food will be lost in places like Youngs Bay and what will this do to overall production?

SS-223 (con't). The Corps disagrees that it was required to provide a public comment period on the 'Technical Review of the Benefit and Cost Analysis' in the Draft SEIS. The Technical Review is itself a comment to the draft that the Corps will consider in the Final SEIS. The Final SEIS includes these responses. There is a 30-day comment period on the Final SEIS. The Technical Panel to review benefits and costs met the week of August 5-9, 2002. The panel's meetings were open and transparent and the public was invited to attend. All information provided to the panel was posted on the Corps' website prior to the meeting. All presentations made by the Corps' facilitator, the Corps, Port of Portland and consultants were posted to the Corps' website after the event. The panel's findings were also posted to the Corps' website prior to the close of the public comment period. The public has had approximately five months to digest the outcomes of the panel meeting and will have 30 days to comment on the Final SEIS and how the Corps has considered the panel's work.

SS-224. Each of the enumerated comments, which appear to have been originally made to another Corps project, has been thoroughly reviewed for this action. A variety of mitigation and restoration measures are proposed in both the 1999 Final IFR/EIS and in the Final SEIS. Salinity changes expected with the deepening have been modeled by both the Corps and the Oregon Graduate Institute. The impacts included in this list from salinity changes have been addressed, using the modeling data, in the Final IFR/EIS, Final SEIS, the Biological Assessment and the Biological Opinions.



**Corps of Engineers Response**

3. Before and after habitat inventories should be done in places such as Youngs Bay where salinity could change and effect types of vegetation. These impacts to wildlife from changes should be evaluated.

Letter to Joseph R. Blum, U.S. Fish & Wildlife Service from James G. Fenton, Washington Department of Game, July 29, 1982. Likewise, twenty years ago the U.S. Fish and Wildlife Service recommended the following studies be conducted in order to “obtain adequate information on significant impacts of this proposed [MCR deepening] project”:

SS-225

1. Existing salinity data (from the Corps of Engineers, CREDDP, and NOS) should be evaluated.
2. A numerical model, to be used to predict salinity distribution changes, should be developed from the data evaluated in recommendation 1.
3. If a significant change in salinities is indicated, then biological studies of key species in Youngs Bay should be initiated.
4. Previously undredged materials should be tested for grain size, heavy metals, and other contaminants.
5. Studies should be undertaken to determine the possibility of entrainment of juvenile Dungeness crab, rates of entrainment, and location and timing of migration across the bar.
6. Consideration should be given to initiation of a study to determine the timing and migration over the bar of juveniles of commercially important marine fish.
7. Effects of disposal on the present offshore disposal sites should be determined, especially the physical aspects.
8. Studies should be initiated for the identification of one or more additional offshore disposal sites. Alternative disposal methodologies should also be explored.

Letter to Colonel Robert L. Friedenwald, Army Corps, from Russell D. Peterson, U.S. Fish and Wildlife Service, August 27, 1982.

SS-226

Nine years ago, NMFS told the Corps that “studies should be conducted to determine timing restrictions and the best blasting techniques practicable for reducing fish kills from blasting in large river systems,” [studies] to address the probably increase in salinity of the estuary and its effect on important fishes,” and “[studies] to better understand the habitat value of the proposed disposal areas and to determine the best ways that these habitats can be duplicated.” Letter from Merritt E. Tuttle, National Marine Fisheries Service to Colonel Charles E. Cowan, Army Corps of Engineers, September 7, 1990 at 1, 2.

SS-227

These three examples are just a few among many requests made by local, state, and federal agencies to the Corps for additional data and analysis, many of which were made one to two decades ago. Today, the Corps reports it is in the middle of a three year study on white sturgeon. It is obtaining additional information on Dungeness crab. It has not, however, completed those

SS-225. As indicated above, all of the issues raised have been addressed and the studies done. These are described in detail in the Final IFR/EIS, Final SEIS, Biological Assessment and Biological Opinions.

SS-226. The items of concern expressed by the commenter were addressed in the ESA consultation with NOAA Fisheries and USFWS. The Services’ Biological Opinions have concluded in the Terms and Conditions the following regarding blasting. The blasting plan, outlined on page 6-20 of the 1999 Final IFR/EIS, will be developed in conjunction with federal and state agencies and submitted to the Services for approval 30 days prior to blasting. The blasting plan will include specific monitoring actions to determine if any listed fish are killed or injured, and include a clause that, if the blasting results in a take of listed salmonids, the Corps will discontinue blasting until such time as that take can be assessed and measures enacted to minimize impacts.

SS-227. Since the 1999 Final IFR/EIS, the Corps and USEPA have worked with the states to conduct additional studies regarding sturgeon, smelt, Dungeness crab entrainment, and stranding. The Corps also began the baseline studies were also begun for the Deep Water Site. All of these issues have been studied and discussed in the 1999 Final IFR/EIS, Biological Assessment and the Biological Opinions, and the Final SEIS includes information regarding sturgeon, smelt and Dungeness crab. Please read our responses to the state comments. It seems that the letters you referred to previously were the letters in response to the scoping process for the project. All these issues were used to develop the studies and form the work groups established to address these issues.

SS-227 studies despite the issuance of the DSEIS for public comment. It has yet to respond to the requests from the State of Oregon for answers to questions and concerns about the entrainment risks and impacts to white sturgeon, the impacts of the project on smelt, the impacts of disposal on sturgeon rearing habitat in the estuary, the ocean disposal sites, the effects of ocean disposal on the development of unsafe wave activity, how the Corps intends to use so-called “adaptive management” to monitor and address problems with the deep water site, the lack of baseline biological information for the deep water site, effects of dredged spoil disposal on the crab fishery, etc. The failure of the Corps to conduct studies both at all, and specifically in advance of the development of final environmental impact statements, is an on-going and long-term problem that is contrary to the requirements of NEPA, the Clean Water Act, the Endangered Species Act, the Coastal Zone Management Act, and other federal laws. While some or all agencies may be willing to allow the Corps to study issues for which insufficient data and information exist to issue conclusive findings, the law requires the development of this information in advance of the proposed action. In point of fact, the Corps cannot argue that these issues are new concerns that it can only attend to in the future. Its failure to respond to the issues in the past is its own fault. The public, other agencies, and the environment should not be made to pay for the Corps’ recalcitrance. The lists above are not an exhaustive catalogue of all of the concerns and questions and requests for data and analysis made by local, state, and federal agencies. They are merely illustrative. Many of these and other issues are over twenty years old and yet remain, not only unanswered but entirely unaddressed by the Corps.

**C. Failure to Fully Respond to Public Comments on FEIS, DEIS, and Other Regulatory Documents Renders the DSEIS Inadequate**

SS-228 As with the requests made by numerous local, state, and federal agencies, some but not all of which are discussed above, the Corps has failed once again, in its DSEIS, to respond to the comments made by members of the public on the FEIS and the DEIS for this project, and on similar regulatory documents for related proposed projects, including operation and maintenance dredging for the river and the MCR. It defies imagination why the Corps does not believe that it is required to respond in a scientific and meaningful way to these comments and it underscores the extreme cynicism that is being displayed, not only by members of the public but by representatives of other government agencies. It is time that the Corps recognize it can no longer flaunt the requirements of federal law with impunity.

**D. The Proposed Adaptive Management Scheme is Not Based on Baseline Information, a Monitoring Program, Clear Project Responses to Identified Problems, or an Established Remedy to Overall Project Failure to Protect the Environment**

SS-229 The proposed adaptive management scheme in the DSEIS is a flawed response to the Corps’ ongoing failure to obtain sufficient information to meet the requirements of NEPA, and other federal laws that require information and analysis in advance of an environmentally destructive and costly project such as the proposed channel deepening. Although agreed to by NMFS, in an egregious abdication of its responsibilities pursuant to the Endangered Species Act, the proposed

SS-228. The studies referred to in SS-227 respond in a scientifically meaningful way to issues identified by the state and other commenters. A number of studies specifically address the cumulative impacts of channel improvement with the Mouth of the Columbia River project.

SS-229. The reference to the estuary as “highly degraded” oversimplifies the existing conditions. Impacts to existing conditions need to be considered on specific parameters and species. The consultation on listed salmonids explicitly addressed the NOAA Fisheries and USFWS’s earlier concerns that the project’s impacts were high in light of the condition of the system from the standpoint of salmonids. After extensive work with an independent science panel, NOAA Fisheries and USFWS concluded that the impacts would not likely jeopardize the continued existence of the species and further, safeguard techniques will be employed through Best Management Practices. This process also developed monitoring measures and an adaptive management framework to respond to new information.

adaptive management approach is intended to overcome the Corps' having failed to produce basic information regarding much of anything related to likely project impacts. In the absence of baseline information, which, as discussed elsewhere in these and others' comments, is absent with regard to many issues, the adaptive management approach cannot know what negative impacts are unacceptable nor be able to detect them.

Likewise, the Corps has not demonstrated that small incremental negative effects are either tolerable, given the highly degraded state of the estuary and the status of many species, or measurable. If they are not tolerable when measured against the baseline conditions -- an analysis the DSEIS fails to conduct -- but they are not measurable, the proposed adaptive management scheme is no more than a hoax. It certainly cannot be thrust forward as a solution to either inadequate analysis or unacceptable project impacts. Similarly, the DSEIS cannot rely upon a monitoring program that, despite plenty of interagency activity (excluding, as we understand it, the state agencies), has yet to be developed. The public cannot comment on the benefits of proposed adaptive management which itself relies wholly on detection of impacts, if there is no information on how those impacts will be identified or the level of commitment that will be made by the Corps to monitoring. The proposed monitoring scheme, to the extent that it is set out in the DSEIS and other project documents, only demonstrates a completely inadequate longevity to the monitoring, given the time frame in which project effects are likely to appear and the length of the project itself, and a completely inadequate frequency of monitoring. It is clear that NMFS has simply capitulated to the desires of the Corps to continue its multi-decade approach to learning as little about the Columbia River Estuary and the impacts of its many projects as it can.

Finally, the DSEIS does not establish clear project responses to problems that may be identified but rather suggests that the public should once again trust the same agencies that have cut this and previous deals on the Columbia River navigation and power system to solve those problems. This is unacceptable particularly in light of the extremely high environmental and economic cost associated with pushing threatened and endangered species to the brink of extinction. Finally, the DSEIS has entirely failed to explain what a possible remedy could be if the project fails to protect the environment. Is the Corps proposing that if the project is found to exacerbate the current unacceptable ecosystem impacts of dredging and other related projects that it will allow the three feet to fill back in?

#### **E. NEPA Law Requires New Analysis Where There is New Science**

NEPA case law requires new analysis where there is new science. The EIS for the MCR was finalized in 1983. Since that time significant new science and new information have become available that the Corps is required to incorporate in a supplement to the existing EIS. Safe transit issues related to the MCR have been significantly altered since 1983 by the Corps own actions. The deepening of the bar, along with dredging disposal locations and methods, have altered the dynamics of the MCR making previous studies obsolete. Likewise, there is new science on the effects of toxic contaminants on salmon which is completely ignored in the DSEIS.

#### **Corps of Engineers Response**

SS-229 (con't). The extensive work on the SEI panel to address issues concerning impacts to salt water intrusion, hydrology, sediment quality and contaminant, and fisheries demonstrates the Corps' commitment to investing considerable resources in understanding the Columbia River. Similarly, the work since 1999 on sturgeon, smelt, and crab involved significant investments in resources.

Adaptive management is used throughout the scientific community to deal with uncertainties that may arise in any assessment process. It is the Corps' intent to use this process to identify and resolve unforeseen impacts. The Final SEIS has been revised to include additional information on the adaptive management process.

SS-230. The comment does not identify a specific case that stands for the proposition that "new analysis is required where there is new science." The comment also does not identify specific new science that the Corps and USEPA have not analyzed. The Corps and USEPA have analyzed new information regarding impacts of disposal from the MCR in the DMMP EIS and the 1999 Final IFR/EIS for the channel improvement project. The Corps has also analyzed impacts from dredging in the Environmental Assessments for the MCR project. In addition, the Corps has recently assessed the impacts of MCR on coastal erosion and crab entrainment.

The comment's reference to toxic contaminants is inaccurate. The SEI process used for consultation reviewed the issue regarding toxics systematically. Appendix B of the BA summarized the results of this analysis. The Corps provided the Services with additional data reflecting over 1,300 stations during the consultation process. Over 100 separate Corps studies representing more than 4,000 samples on the Columbia River have been identified to date. This information was analyzed as part of the Corps' amendment to the Biological Assessment. This information continues to be updated. The Corps is actively populating the SEDQUAL Database to include these identified Corps studies. The Biological Opinion includes a discussion of all of this information in reaching its conclusion that the project does not have an unacceptable impacts on salmonids.

## II. Cumulative Effects Analysis is Required.

## Corps of Engineers Response

### A. A Comprehensive EIS is Required Where Several Proposals Have Cumulative or Synergistic Effects and Direct and Reasonably Foreseeable Indirect Effects Must be Considered in the DSEIS.

Federal law requires the Corps to evaluate a project's direct, indirect and cumulative impacts, including "impacts on the environment which result from incremental impact on the action when added to other past, present, and reasonably foreseeable future actions." 40 C.F.R. § 1508.7. The Corps is obligated to identify "all other actions—past, proposed, and reasonably foreseeable—that have had or are expected to have impacts in the same area" and "the overall impact that can be expected if the individual impacts are allowed to accumulate." *City of Carmel-by-the-Sea v. United States Dep't of Transp.*, 95 F.3d 892 (9th Cir. 1996). Despite these federal requirements, the Corps continues to omit identification and analysis of the effects of past, current, and future actions that affect the same area, the species that use the area, and the economics related to the project area.

Cumulative impact "is the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions." 40 C.F.R. §1508.7. Cumulative impacts are one of the factors in determining the significance of the action. "Whether the action is related to other actions with individually insignificant but cumulatively significant impacts. Significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment." 40 C.F.R. §1508.27(7). Significance of proposed action requires evaluation of effect on society, nation, region, locality, and affected interests.

SS-231

Recent Ninth Circuit cases stress the importance of cumulative impacts discussion in NEPA analysis, and have remanded assessments back to the agencies for failure to complete adequate cumulative effects analysis. *See Blue Mountains Biodiversity*, 161 F.3d 1208, 1214-16 (9th Cir. 1998) (reversing and enjoining timber sale evaluated under EA for failure to consider cumulative impacts); *Carmel by-the-Sea v. U.S. Dept. of Transp.*, 123 F.3d 1142, 1160-61 (9th Cir. 1997) (ordering Federal Highway Administration to re-evaluate its cumulative impacts analysis for a highway project in California because EIS "fails both to catalogue adequately past projects in the area, and to provide useful analysis of the cumulative impacts of past, present and future projects and the [proposed project]"); *Muckleshoot Indian Tribe v. USFS*, 177 F.3d 800, 811 (9th Cir. 1999) (enjoining Forest Service land exchange for failure to consider cumulative impacts, and rejecting Forest Service analysis which amounted to "very broad and general statements devoid of specific, reasoned conclusions"); *Idaho Sporting Congress v. Thomas*, 137 F.3d 1146, 1152 (9th Cir. 1998) (noting that "sparse" discussion of cumulative impacts in a timber sale EA may be inadequate, but enjoining sale on other grounds). In *Neighbors of Cuddy Mountain v. USFS*, 137 F.3d 1372 (9th Cir. 1998) the court enjoined Forest Service timber sales for deficient cumulative impacts analysis. The Ninth Circuit stated in plain terms what NEPA requires of cumulative impacts analysis: to "consider" cumulative effects, some quantified or detailed information is required. Without such information, neither the courts nor the public, in reviewing the Corps decisions, can be assured that the Corps provided the hard look that it is required to

SS-231. The Corps agrees that federal law requires review of direct, indirect and cumulative impacts. *See* 40 C.F.R. §1508.7, 1508.8. The Corps further acknowledges that federal courts in the Ninth Circuit have addressed the discussion of cumulative impacts in NEPA documents.

The Draft SEIS specifically addresses cumulative impacts (both direct and indirect) in §6.12 discussing cumulative impacts and in other sections, specifically those addressing alternatives, the affected environment, and impacts in general (as opposed to only cumulative impacts). Moreover, the cumulative impacts section of the Final SEIS (as well as other sections) has been expanded to address specific comments and concerns raised during the public comment process.

The term 'cumulative impacts' is defined in NEPA regulations as:

[T]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

40 C.F.R. §1508.7. The terms 'impacts' and 'effects' as "used in [NEPA] regulations are synonymous." 40 C.F.R. §1508.7. The term 'effects' is defined as:

- (a) Direct effects, which are caused by the action and occur at the same time and place.
- (b) Indirect effects, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.

40 C.F.R. §1508.8.

The Corps also notes that the case *City of Carmel-by-the-Sea v. United States Dep't of Transp.*, 95 F.3d 892 (9th Cir. 1996) was withdrawn and superceded by *City of Carmel-by-the-Sea v. United States Dep't of Transp.*, 123 F.3d 1142 (9th Cir. 1997).

provide. *Id.* at 1379.

## Corps of Engineers Response

### 1. The Corps has Improperly Segmented Columbia/Willamette/Snake Navigation Projects in its NEPA Reviews

SS-232 NEPA requires that proposals "which are related to each other closely enough to be, in effect, a single course of action shall be evaluated in a single impact statement." 40 C.F.R. 1502.4(a). A NEPA document is supposed to analyze the impacts of "[c]onnected actions," including actions that are "interdependent parts of a larger action and depend on the larger action for their justification." *Id.* §1508.25(a)(1). In the instant case, the "larger action" is at the very least the Corps' decision to maintain the entire Columbia/Willamette/Snake navigation channel. As each portion of this channel, including berths and basins, is "upgraded" by increasing its depth each is an "interdependent part" of that larger action and therefore must all be addressed together in one NEPA document. NEPA requires the government to prepare a comprehensive impact statement if several projects are significantly interdependent. *Kleppe v. Sierra Club*, 427 U.S. 390, 408, 96 S. Ct. 2718, 2730, 49 L. Ed.2d 576, 590 (1976). For example, the Ninth Circuit and other courts have time and again rejected segmentation of road projects, and have remanded to the agencies for preparation of a comprehensive NEPA document. *See, e.g., Daly v. Volpe*, 376 F. Supp. 987 (W.D. Wash. 1974), *aff'd*, 514 F.2d 1106 (9th Cir. 1975); *Named Individual Members of San Antonio Conservation Soc. v. Texas Highway Dept.*, 446 F.2d 1013 (5th Cir. 1971), *cert. denied*, 406 U.S. 933, 92 S. Ct. 1775, 32 L. Ed.2d 136 (1972); *Swain v. Brinegar*, 517 F.2d 766 (7th Cir. 1975); *Swain v. Brinegar*, 542 F.2d 364 (7th Cir. 1976); *Indian Lookout Alliance v. Volpe*, 484 F.2d 11, 16 (8th Cir. 1973); *Ecology Center of Louisiana v. Coleman*, 515 F.2d 860 (5th Cir. 1975); *Sierra Club v. Volpe*, 351 F. Supp. 1002 (N.D. Cal. 1972); *Dickman v. City of Santa Fe*, 724 F. Supp. 1341 (D.N.M. 1989); *Appalachian Mountain Club v. Brinegar*, 394 F. Supp. 105, 114 (D.N.H. 1975); *Conservation Society of Southern Vermont v. Secretary of Transportation*, 362 F. Supp. 627 (D. Vt. 1973), *aff'd*, 508 F.2d 927 (2d Cir. 1974), *vacated on other grds.* 423 U.S. 809, 96 S. Ct. 19, 46 L. Ed.2d 29 (1975); *Thompson v. Fugate*, 347 F. Supp. 120 (E.D. Va. 1972); *Committee to Stop Route 7 v. Volpe*, 346 F. Supp. 731 (D. Conn. 1972); *Citizens Expressway Coalition v. Lewis*, 523 F. Supp. 396 (E.D. Ark. 1981). *See also Thomas v. Peterson*, 753 F.2d at 758-60 (EIS for road must address other projects related to the road, such as timber sales); *Save the Yaak Comm.* 840 F.2d 714 (same). Deepening portions of a river/estuarine system that the Corps has arbitrarily divided into separate units, and analyzed as separate entities, is identical in its effect on both the environment and the NEPA process as segregating portions of road development.

At the very least, the dredging projects of the MCR, the upriver portions of the Columbia, the Willamette, and the proposed project should be addressed together in a single NEPA document. The river channel cannot be used without the MCR, the navigation system not fully utilized without the upstream segments dredged, the value of continued shipping to the Port of Portland not realized without the Willamette. Yet in no NEPA document has the government analyzed the Columbia/Willamette navigation system in its entirety. Instead, it has committing the classic NEPA segmentation violation by preparing separate EAs and EISs for each separate project. Courts have noted that taking this piecemeal approach when analyzing road impacts avoids

SS-232. The Corps and USEPA agree that NEPA's implementing regulations require the consideration of connected actions (as well as cumulative and similar actions). The Corps and USEPA, however, disagree with the comment that the MCR, upriver portions of the Columbia River, the Willamette River, and the channel improvement project are all connected actions that have been improperly segmented and that should instead be considered in a single NEPA document. The specific comments regarding alleged segmentation are addressed below. Further, as discussed above, Section 6.12 of the Final SEIS does review the cumulative impacts of the project. This cumulative impacts analysis reviews the project's impacts together with impacts of other actions, including the MCR, upriver portions of the Columbia River, and the Willamette.

The Corps and USEPA note the case law referenced in the comment. The majority of the cases cited apply to road projects, and how certain lengths of road were subjected to NEPA review and therefore, have limited value in determining whether and to what degree diverse projects along the Columbia River and Willamette River should be considered in the same NEPA document. Moreover, many of the cited cases involve situations where a project proponent was alleged to have segmented a larger project into smaller projects as a way to evade NEPA review altogether. Accordingly, these cases are of limited value in the context of the channel improvement project, potential future activities in the Willamette River, the MCR, and management of the upstream dams and maintenance dredging because all of these projects and activities are considered in Section 6.12 of this Final SEIS; additionally, they have been subjected to a complete NEPA review (MCR, maintenance dredging, management of the upstream dams), are being subject to a complete NEPA review (the channel improvement project), or will be subjected to additional NEPA review when appropriate (Willamette River activities). Final SEIS, Section 6; *see also* response SS-234 regarding the Willamette River. In contrast, the comment merely complains about the way the Corps has exercised its discretion to conduct its NEPA review of the different projects. The Corps and USEPA note that its review of these different projects reflects the distinctions between such projects established by Congress.

Actions that have "independent utility" are not connected actions and need not be analyzed in the same EIS. *Wetlands Action Network v. United States Army Corps of Engineers*, 222 F.3d 1105, 1118 (9th Cir. 2000); *Morongo Band of Mission Indians v. Federal Aviation Administration*, 161 F.3d 569, 579-80 (9th Cir. 1998); *Northwest Resource Information Center, Inc. v. National Marine Fisheries Service*, 56 F.3d 1060, 1067-68 (9th Cir. 1995) (*NRIC*). An action has independent utility from another action if it will take place with or without the other action. *Wetlands Action Network*, 222 F.3d at 1118; *Morongo Band*, 161 F.3d at 580; *NRIC*, 56 F.3d at 1068. An action can have independent utility even when another later potential action cannot occur without the first action so long as the first action is independent of the potential subsequent action. *Trout Limited v. Morton*, 509 F.2d 1276, 1285 (9th Cir. 1974).

As demonstrated by the revised economic analysis for the project (See Final SEIS, Chapter 3), the channel improvement project has utility independent of all potential future changes to the other currently authorized projects mentioned in the comment, and will take place regardless of any such future changes to these other authorized projects, including the Willamette River. Again, the cumulative impacts analysis in the Final SEIS reviews the Project's impacts together with impacts of other actions, including the MCR, upriver portions of the Columbia River, and the Willamette.

consideration of the environmental costs and a thorough study of alternatives. One court wrote:

National environmental policy requires a detailed analysis of the long-range environmental costs of proposed action and a thorough study of the available alternatives before any action is taken. Planning and building highways in a piecemeal fashion threatens to frustrate this policy by allowing a gradual, day-to-day growth without providing an adequate opportunity to assess the overall, long-term environmental effects of that growth. . . . Placement of one highway segment tends to limit the range of alternatives for placement of succeeding segments. . . . As a practical matter, commitment of resources in one section tends to make further construction more likely.

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*Patterson*, 415 F. Supp. at 1282. The fact that there are several maintenance projects planned for this system is evidence that improper segmentation is occurring. *Id.* at 1283.

The courts have considered three criteria in deciding whether a NEPA document has considered a proper length of highway: (1) whether the segment connects logical termini; (2) whether the segment has an independent utility; (3) whether the length of the section assures an adequate opportunity for consideration of the alternatives to the proposed action (both whether and where to build). *Daly v. Volpe*, 376 F. Supp. 987 (W.D. Wash.1974), *aff'd*, 514 F.2d 1106 (9th Cir. 1975); *River v. Richmond Metropolitan Authority*, 359 F. Supp. 611, 635 (E.D. Va), *aff'd*, 481 F.2d 1280 (4th Cir. 1973); *Sierra Club v. Froehlike*, 534 F.2d 1289 (8th Cir. 1976). The various dredging projects at issue, including the proposed channel deepening, only make sense when they are considered together. Therefore, the Corps is required in its DSEIS to analyze these segments together in one combined NEPA document.

**a. The Federal Columbia River Power System is a Required Part of the Cumulative Effects Analysis**

SS-233

In the DSEIS, the Corps has failed to evaluate the cumulative effects related to the Federal Columbia River Power System (FCRPS). The FCRPS actions will occur directly upriver from the proposed channel deepening project; as part of the same Columbia River ecosystem, FCRPS actions will have foreseeable cumulative effects when considered in conjunction with the channel deepening project. In particular, FCRPS actions affect the health of the Columbia River estuary, as does the proposed project. If the Corps has underestimated the actual effects of the proposed FCRPS actions, the estuary may be in significantly worse condition at the time of channel deepening than has been assumed in the DSEIS. If it fails to execute the proposed FCRPS actions, it will surely be in worse condition. The environmental impacts of the FCRPS actions and the channel deepening project cannot be evaluated in isolation; as a result, the Corps has improperly excluded the FCRPS actions from its assessment of the cumulative impacts associated with channel deepening.

The DSEIS must address the impacts of oil spills, leaks, and discharges from Columbia River dams operated by the Corps. Oil, in addition to containing PCBs historically, contains PAHs

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SS-232 (con't). Concerns over sediment contamination and uncertainty regarding the scope and timing of remedial investigations and actions in the Willamette River led the Sponsor Ports to ask that the Corps delay deepening work on the Willamette channel. Subsequent to the issuance of the 1999 Final SEIS and Chief's Report to Congress, USEPA designated Portland Harbor, which includes a 5.5-mile portion of the navigation channel, as a federal Superfund cleanup site. The Superfund listing creates uncertainty surrounding the timing and details of any channel improvements in the Willamette River.

Cleanup under the Superfund program will involve extensive study of the area, evaluation of alternatives, and public involvement in the selection of a final cleanup plan. The final cleanup plan selected by EPA may result in changes to the previously proposed channel improvements for the Willamette River – changes that cannot be anticipated at this time. Any improvements to the channel in the Willamette River will therefore, take place under conditions different from those found today – i.e., conditions reflecting the Superfund cleanup. Accordingly, the Sponsor Ports and the Corps will not move forward on deepening in the Willamette River channel until plans are fully in place for any necessary remediation. *See* Final SEIS, Section 1 (explaining deferral of Willamette River plans). Further, once remediation plans are in place, the Corps plans on re-evaluating the costs and benefits of the Willamette River reach to ensure that deepening it is still justified. Finally, at such time as the Sponsor Ports and the Corps may proceed with channel improvement activities for the Willamette River, the Corps will conduct appropriate additional NEPA review. For these reasons, as previously mentioned, the Final SEIS economic analysis does not include any benefits based on Willamette River deepening. A discussion of the cumulative impacts of reasonably foreseeable actions on the Willamette River is included in the Final SEIS. Final SEIS Section 6.12.

SS-233. The Corps disagrees with the comment that the Draft SEIS fails to consider the cumulative impacts of the FCRPS. The potential cumulative impacts of the FCRPS are fully evaluated in the Draft SEIS, and the expanded cumulative impacts section in the Final SEIS. Furthermore, the effects have been evaluated in more detail in the December 2000 NOAA Fisheries and USFWS Biological Opinions for the FCRPS.

which have been shown in recent studies done by NMFS following the Exxon Valdez spill, to far exceed present-day notions of safe levels for salmon and to have rendered current water quality criteria entirely irrelevant.

## Corps of Engineers Response

### b. Willamette River Toxic Contamination is a Part of the Required Baseline Conditions

NEPA requires that the Corps take past, present, and reasonably foreseeable future activities into account in its analysis. To segregate the evaluation of the Columbia and Willamette channel deepening projects is to seriously jeopardize the integrity of the analysis. The effect of activities and pollution within the Willamette flow directly into the Lower Columbia River and indirectly to the Columbia through the Multnomah Channel. The Willamette is a substantial source of Lower Columbia River pollution, even in the absence of the proposed project. *See e.g.*, Lower Columbia River Bi-State Program, Reconnaissance Survey of the Lower Columbia River, Task 2 Data Analysis Report, March 4, 1992, at 119. There is no doubt that the Willamette River is a substantial source of the toxic contaminants that are causing violations of Oregon water quality standards in the Lower Columbia, discussed below. This is true regardless of whether the toxins pass into the Columbia in the water column or bound to sediments. The unacceptably high levels of toxic contamination in the estuary are largely the result of upstream pollution, including from the Willamette. Information now exists that the Lower Willamette River is more contaminated than previously believed and, in fact, is contaminated sufficiently to have been designated a federal Superfund site. Regardless of the clean-up approach chosen, substantial pollution loads are likely to enter the Columbia River in the near future, during the life of the proposed channel deepening project. Therefore, the proposed project must be evaluated in conjunction with these imminent new loadings of toxic pollutants, rather than in feigned ignorance of them. Instead, the DSEIS takes the position that they are irrelevant.

SS-234

The Corps does not yet have sufficient information about the nature and extent of this Willamette River contamination upon which to evaluate the risk posed to Columbia River beneficial uses. *See e.g.*, National Oceanic and Atmospheric Administration (NOAA) Preliminary Natural Resource Survey for the Lower Willamette River, September 8, 1999 at 18. NOAA found that it could only make preliminary findings about the risks posed to natural resources in the Willamette River because it lacks three areas of information necessary to make a complete evaluation. Those are as follows: 1) “there is little comprehensive information regarding the areal and temporal distribution of contaminants,” 2) “there is little information about the toxicity of site-related substances to the aquatic species of interest to NOAA,” and 3) “little is known about the effects of exposure to the combination of substance that may be in the study area.” *Id.* at 18-19. The same analysis of risks to beneficial uses, including but not limited to the threatened and endangered species that are the topic of NOAA’s primary concern, is necessary for the Corps to determine the costs associated with the proposed project.

There are at least three ways in which the Corps’ failure to evaluate the effect of the Willamette undermines its analysis of the Columbia. First, there are bird and mammal species that use both rivers as food sources. Second, species that transit both rivers are subject to contamination from

SS-234. The Willamette River is listed as a Superfund site under CERCLA. The remedial investigation and feasibility study necessary to develop a cleanup plan for the Willamette River have not been completed. Accordingly, the Final SEIS properly acknowledges that remediation of the Willamette River is reasonably foreseeable and notes that at this time, it is not known what actions will be taken to remediate the Willamette River or what the effects of any remediation may be. See Final SEIS §6.12. Given the uncertainty that arose from the Superfund listing over the precise nature and duration of any future actions necessary to remediate the Willamette River, the Final SEIS also properly acknowledges that determining the nature and magnitude of any potential impacts stemming from any future deepening of the Willamette River channel are largely speculative at this time. However, those effects that are reasonably foreseeable are discussed in the cumulative effects analysis in the Final SEIS. See Final SEIS §6.12. Given the uncertainty associated with the cleanup, deepening of the Willamette has been deferred at this time. Accordingly, the Final SEIS economic analysis does not include any benefits based on deepening of the Willamette River navigation channel or construction of port facilities. See response SS-4 and SS-232.

both. Third, there are additional loadings to species that use the depositional areas of the estuary or are dependent upon biota that are contaminated by depositional areas. For example, analyses of the effect of toxic contaminants on out-migrating salmonid must evaluate the duration of the exposure. Salmonids using both rivers will receive different exposures than those that do not. Studies on Puget Sound salmonid have demonstrated that use by juveniles of contaminated habitat for just three weeks causes a range of disorders including immune deficiency problems. The duration of exposure to toxic contaminants of salmonid stocks rearing in the Willamette River could be longer depending upon the status of the dredging project. The amount of biologically-available toxins in the Lower Columbia River will be increased if the Willamette River shipping channel is also deepened. On the basis of existing information about contamination of the Willamette, including but not limited to shipping berths and turning basins, this increase would likely be significant. The additional toxic loading to the Columbia must be evaluated. Finally, species, such as birds, that use both rivers as a source of food will be affected by the two projects being done in tandem as well as if only the Columbia portion moves forward. The DSEIS simply cannot pretend these issues away.

SS-234

Even if the Willamette portion of channel deepening does not go forward, some form of remediation, whether removal or capping will have to be done. Any decision to remove sediments from specific sites and/or the river will result in contributions of toxic contamination to the Lower Columbia River. Any decision not to remediate will result in storm-driven contributions downstream. Any decision to cap sediments will also have an impact on beneficial uses. To proceed with channel deepening in complete ignorance of the likely toxic burdens on species, including threatened and endangered species whose status has already been made more precarious by this particular form of environmental pressure, is contrary to the requirements of federal law. Even without complete knowledge about the Portland Harbor, its contaminants, the levels of those contaminants, and the clean-up options that will be chosen, the Corps is fully capable of obtaining sufficiently improved data upon which some analysis could inform the DSEIS process.

**c. Columbia, MCR, Willamette, and Snake River Operation and Maintenance Dredging, Berth & Turning Basin Dredging, and Dredge Spoil Disposal Must be Evaluated Together for Their Cumulative Impact on the Ecosystem and Speices**

SS-235

The Columbia, MCR, Willamette, and Snake River operation and maintenance dredging, berth and turning basin dredging, and dredge spoil disposal must be evaluated together for their cumulative impact on the affected ecosystem and the affected species

**3. The EIS for the Mouth of the Columbia River is Grossly Outdated and a Supplemental EIS is Required**

SS-236

In response to public comments on the Environmental Assessment for Maintenance Dredging at the Mouth of the Columbia River New Disposal Site, Oregon-Washington, May 2002, the Corps states that its 1983 MCR EIS “adequately addresses the requirements under the National Environmental Policy Act for maintenance of the MCR entrance channel to its currently

SS-235. The cumulative effects analysis in the Final SEIS has been revised in response to comments. The revised analysis addresses the effects of maintenance dredging at the MCR and the Willamette and Snake Rivers. See Final SEIS §6.12. For purposes of evaluating the effects of the channel improvement project, the 1999 Final IFR/EIS and Final SEIS address the effects of maintenance dredging as well as the effects of deepening the channel to 43 feet. Throughout the 1999 Final IFR/EIS and Final SEIS, the quantities of material to be dredged and disposed include construction and maintenance quantities, as well as incremental changes in future maintenance quantities associated with deepening. Similarly, the evaluation of potential effects of the channel improvement project covers both construction and maintenance activities. Additional analysis of the effects of maintenance dredging for the 40-foot channel is contained in the June 1998 *Dredged Material Management Plan and Supplemental Environmental Impact Statement* (DMMP).

SS-236. The action the Corps is reviewing is the channel improvement project, not the MCR. The Corps has responded to comments regarding cumulative impacts in SS-231 through SS-234. This comment, however, simply restates objections to the MCR Environmental Assessment. This is not the appropriate forum to discuss the MCR EA or the need for an SEIS for the MCR project. Similarly, the NEPA process is not the proper place to discuss NWEA’s complaints about the Corps’ response to a FOIA request where the Corps indicated it had no documents.



authorized depth.” As discussed at length below, the 1983 document is grossly outdated and no longer – if it could even be argued that it was ever sufficient – remains a sufficient basis upon which to continue MCR projects. NEPA case law requires that the Corps update this document with a supplemental EIS.

SS-236

In addition to the issues discussed elsewhere in these comments, the shipping channel at about river mile 4-5 is experiencing a severe migration to the north. The Corps has remained silent about this change in the channel and whether it intends to alter the location of the existing channel on paper or in the river. In response to a Freedom of Information Act (FOIA) request sent by NWEA on August 12, 2002 the Corps responded to a request for documents question regarding this change in channel alignment by stating it had no documents. That answer, however, defies belief. If lay people and commercial users of the channel are discussing the problem, how could the Corps not have any documents whatsoever regarding it? The Corps has an outstanding requirement pursuant to NEPA to prepare an EIS discussing the environmental and economic ramifications of either realigning the channel or dredged where it was designed to be, both in terms of dredging and spoil disposal.

#### **4. The Corps has not Complied with NEPA Regarding Ocean Disposal Sites**

Public comment in response to the Environmental Assessment for Maintenance Dredging at the Mouth of the Columbia River New Disposal Site, Oregon-Washington, May 2002, requested that the Corps prepare and EIS for the MCR including ocean disposal sites. In response, the Corps stated that the combination of its extremely outdated 1983 MCR EIS, Environmental Assessments in 1993 and 1997 for expansion of ocean dumping sites, and the 1999 EIS for the channel deepening project were sufficient to address the requirements of NEPA with regard to ocean disposal sites. A determination of significance of the impact of an action is the basis for determining whether an EIS is required to designate ocean disposal sites. The Corps has determined that there will be no significant impact on the environment by designating an ocean disposal site. It has done this in the absence of any baseline data on the populations of crab that depend on the 14-15 square miles the Corps and U.S. Environmental Protection Agency (EPA) are proposing to designate. Yet, ocean disposal in essence sterilizes the an active dump site (and beyond) for commercial crab production. For example, at Site B, the loss of production has been over 90 percent. We understand the Corps is conducting an inventory of crab in the ocean at two sites (deepwater and site E), yet site E has now been used for 5-6 years so it is now impossible to obtain a pre-dump abundance level at and beyond the site. These, and many other issues regarding ocean dumping, have been set out by numerous commenters in the last few years. However, the Corps has failed to address significant issues related to the environmental and economic impacts of the ocean dumping sites in the combination of these documents. Therefore, the Corps is required to prepare a Supplemental EIS for ocean disposal.

SS-237

#### **B. The Past: Establishing Baseline Conditions is Essential to Comply with NEPA’s Requirements to Evaluate the Cumulative Impacts of Past, Present, and Reasonably Foreseeable Future Actions**

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#### **Corps of Engineers Response**

SS-236 (con’t). Recently, there has been unusually heavy shoaling of the existing 40-foot navigation channel in the vicinity of CRM 5. Maintenance dredging has increased accordingly at this location. This recent shoaling increase has not been investigated to determine the cause or predict future shoaling rates. Due to the high, steep side-slope of this cutline shoal, future shoaling should not be significantly different with the existing 40-foot channel or the proposed 43-foot channel. There currently are no plans to realign this reach of the channel.

SS-237. The channel improvements project and the MCR project are separately authorized projects. The need for an MCR EIS is beyond the scope of this Final SEIS.

With regard to comments regarding the Deep Water Site for ocean disposal, the USEPA and Corps disagrees with the comments. The 1999 Final IFR/EIS, Appendix H, addressed the need and impact of ocean disposal of dredged material from the MCR and proposed channel improvement project. Biological baseline information was identified as required necessary for monitoring and management and revision of the SMMP for the proposed sites but not for designation (see response to S-18 and S-57). Since 1999, the USEPA and Corps have collected additional baseline information, which has been presented to interested agencies, stakeholders, and disclosed through this Final SEIS, Exhibit N.

The USEPA and Corps disagrees with the commenter that disposal at the Deep Water Site, not proposed for this project under the preferred option, will “sterilize” the site (see response to S-19, SS-33, and SS-67). With regard to your comment on “sterilization” please refer to response SS-67.

Portions of the proposed Shallow Water Site (also known as “Expanded Site E”) have been used heavily since interim designation in 1977 and predisposal baseline information is not attainable; however, biological information also has been collected at this site (Exhibit N). The biological baseline information for the Deep Water Site includes benthic infauna, as well as crab and fish inventories.

The Corps is required to "describe the environment of the areas to be affected or created by the alternatives under consideration." 40 CFR § 1502.15. The establishment of the baseline conditions of the affected environment is a practical requirement of the NEPA process. In *Half Moon Bay Fisherman's Marketing Ass'n v. Carlucci*, 857 F.2d 505, 510 (9th Cir.1988), the Ninth Circuit stated that "without establishing . . . baseline conditions . . . there is simply no way to determine what effect [an action] will have on the environment, and consequently, no way to comply with NEPA." The Council of Environmental Quality has agreed: "The concept of a baseline against which to compare predictions of the effects of the proposed action and reasonable alternatives is critical to the NEPA process." Council of Environmental Quality, *Considering Cumulative Effects under the National Environmental Policy Act* (May 11, 1999). The CEQ also stated:

SS-238

Characterizing the affected environment in NEPA analysis that addresses cumulative effects requires special attention to defining baseline conditions. These baseline conditions provide the context for evaluating environmental consequences...The description of the affected environment...should include all potentially affected resources, ecosystems, and human communities.

<http://ceq/eh/doe/gov/nepa/ccenepa/ccenepa.htm>. Without any discussion of the baseline conditions, the foreseeable environmental consequences of a Corps decision pursuant to this SEIS will have failed to use the adequate information to make a reasoned decision or take a "hard look" as required by NEPA.

**1. Baseline Conditions Include Changes in Sediment Transport, Erosion, and Accretion**

The DSEIS does not discuss the significant and controversial issues regarding the total amount of sediment removed from the estuarine/near shore system. Therefore, it omits discussion of possible erosion of ecosystem features in the estuary as well as the economic and environmental ramifications of erosion of Longbeach. The DSEIS does not, nor does any other project document, address the cumulative effect of past and present dredging and other projects that have affected sedimentation processes within the estuary and near/shore area, including the creation of the MCR channel and the installation of the jetties. The Corps has not even obtained a complete and up-to-date bathymetric survey of the estuary. Despite the brevity of this paragraph, we cannot emphasize enough the importance of this issue and the serious deficiency of the DSEIS in not addressing the issues of sedimentation processes.

SS-239

**2. The Evaluation of Increased Salinity Intrusion Caused by the Proposed Project Must be Based on Sound Science and Done in Conjunction with the Appropriate Baseline Conditions Caused by Past Actions**

Salinity intrusion is a key issue with regard to the overall ecosystem functioning of the Columbia

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SS-238. The description of the baseline condition, or "Affected Environment" section of the 1999 Final IFR/EIS, and the Final SEIS describe currently existing conditions with associated physical, biological and human alteration.

SS-239. The 1999 IFR/EIS, the 2001 BA and the Final SEIS, Exhibit J, all have addressed the potential sedimentation impacts on the river, estuary, and coast from the proposed 43-foot channel. Past sediment responses to navigation channel development, MCR jetties, and flow regulation are described in Exhibit J to provide the technical foundation for predicting potential impacts from the proposed 43-foot channel.

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SS-240 River Estuary as well as its effect on individual species, including threatened and endangered species and the food chain upon which they depend. The Corps has never evaluated the effects of baseline conditions of salinity intrusion on the action area and has not remedied this failure in the DSEIS. Salinity intrusion associated with deepening the MCR to 55 feet was evaluated in the 1983 MCR EIS but only as an incremental change to the then-existing conditions. The Corps failed in that analysis to evaluate the baseline conditions of salinity intrusion but restricted its analysis to the incremental effect of additional salinity intrusion caused by that particular proposed project. Likewise, because the effects of other actions, such as construction of the jetties, has not been evaluated at all or fully in previous environmental impact statements, the Corps must conduct that evaluation in order to construct the baseline conditions upon which the proposed channel deepening will be added. To the extent that the current DSEIS relies upon any previous flawed analyses, it too then constitutes a flawed basis upon which to conduct a cumulative impacts analysis.

### 3. Baseline Conditions Include Loss of Estuary, Riverine, and Ocean Habitat

SS-241 The Corps, and NMFS, have given lip service to the issue of habitat losses in the Lower Columbia River, including from Corps projects. However, neither agency, including in the DSEIS, has drawn any conclusions about what this exceedingly degraded baseline means for the ecosystem, the species that depend upon it, or the impacts of further degradation caused by the proposed channel deepening project. Deep shipping channels carved into the river bed have diverted the nutrient-rich clouds of biota upon which salmon and other species rely. Nine years of data on the Lower Columbia River on the Estuarine Turbidity Maxima (ETM) show that this cloud of organic material has been displaced; it is now trapped within the 40 foot-deep shipping channels instead of spread out across the river bottom. Under normal circumstances, the ocean would keep the material suspended and churning in the turbidity maxima where organisms have an opportunity to feed on it and pass it up the food web before it gets washed out to sea. The organic detritus is fed on by bacteria, which are in turn fed on by copepods, an important food source for salmon, sturgeon and other aquatic species. Simenstad, et al, 1990, Consumption processes and food web structure in the Columbia River estuary. Prog. Oceanogr. 25:271-298; Wissmar and Simenstad 1998, Variability of estuarine and riverine ecosystem productivity for supporting Pacific salmon; G.R. McMurray and R.J. Bailey (eds.) Change in Pacific Northwest Coastal Ecosystems; NOAA Coastal Ocean Program. Decision Analysis Series No. 11. Pp. 253-301. As the Science Center states, “[p]rey availability and habitat suitability within the estuary are strongly influenced by factors such as food web structure, including detrital food chains that support salmon production, the supply of nutrients and organic matter, and salinity and turbidity distributions.” Science Center memo, Appendix 1 at 4. The Center concludes: “Channel deepening may also have critical effects on the estuarine turbidity maximum (ETM) and the detrital food chains that support salmon production. Fish and invertebrate community surveys in the Columbia River estuary provide strong evidence that the feeding environment for estuarine fishes is controlled by physical processes that promotes concentration of organic matter and the maintenance of zooplankton populations within the estuary (Bottom and Jones 1990). By altering salinity conditions and locations of the ETM, where organic matter is concentrated, channel construction may alter a key

SS-240. The baseline conditions for salinity have been established in the salinity intrusion analysis for this action and are well documented in the CREST studies referenced in this analysis. The Corps disagrees that NEPA requires the Corps to review the specific impacts of its historic actions. The description of existing conditions includes the cumulative impacts of historic actions.

SS-241. The potential changes to the ETM and related salmonid habitat raised in the referenced NOAA Fisheries Science Center memo were addressed during the SEI expert panel review that was conducted as part of the ESA consultation in 2001. In the south channel, the ETM has been found to range between CRM 5-20 under existing conditions. To the extent that the ETM is related to salinity intrusion, the proposed 43-foot channel may result in an upstream shift of up to one mile in the upstream and downstream limits of the ETM in the south channel. The effect of the potential shift in ETM location on distribution of nutrients in the estuary is expected to be so small that it cannot be measured. These potential effects to the ETM are not anticipated to measurably affect salmonids. The ETM processes and these results are presented in the 2001 BA and confirmed in the NOAA Fisheries and USFWS’s 2002 Biological Opinions.

SS-241 process that supports estuarine food chains.” *Id.* at 5.

This combination of changes in the river flow combined with the deep shipping channels have displaced this vital food source of the estuary both horizontally and vertically. This change affects the support of beneficial uses and will be exacerbated by the proposed project. The DSEIS is required to evaluate the likely detrimental effect of the project on resident biological communities through alteration of the ETM because the proposed activities will cause, in combination with other human activities, further impairment of ETM. This is particularly true given that threatened and endangered species depend upon this food web for their existence. *See e.g.*, Science Center memo, Appendix 1 at 4-5. To fail to address the cumulative impacts of habitat impairment in the DSEIS is a violation of NEPA requirements.

#### 4. The Corps Must Address Lack of Compliance with Existing State and Local Laws

SS-242 The Corps is out of compliance with the Clatsop County Comprehensive Plan and the Oregon Coastal Program because it is using Welch Island for dredge spoil disposal, although it does not carry such designation in the CREST 1986 Columbia River Estuary Dredged Material Management Plan. It is presently zoned as Aquatic-2 for Aquatic Conservation. The Corps' history of dumping here has caused the area to become an upland site. The Corps plans to continue dumping on Welch Island with no mitigation, despite knowing that "Columbian white-tailed deer use occurs on the site," as well as "some nesting by passerine birds. \* \* \* Placement of dredged material would destroy the limited wildlife habitat present and reduce wildlife use to minor levels." FEIS at 6-32. The Corps' disregard for local law and ignoring of conditions in previous §401 certifications for dredging of the Lower Columbia River, e.g. the Mouth of the Columbia River for 1997, must be factored into its analysis of reasonably foreseeable cumulative impacts.

#### 5. MCR Operation and Maintenance Dredging

SS-243 The only study and technical analysis upon which the discussion in the project FEIS refers is the Tetra Tech "Columbia River Entrance Channel Deep-Draft Vessel Motion Study" (VMS) prepared in 1980 and included in the 1983 EIS for the MCR deepening. The VMS is now outdated for two reasons. First, it was based on an older technology for determining the behavior of ships under conditions present in the MCR. The method was highly variable depending on the location of measuring instruments on the ships. This method of analysis has been superceded by methods using Global Positioning Systems (GPS). For example, in January 1998 a team of waterway design engineers, led by a 29-year Corps veteran, conducted an in-depth study of the physics of water displacement for the Panama Canal using GPS technology. <http://www.orbi.net/pancanal/press/study.html>. While, at that time, it was reported that the technology for collecting such extremely accurate information had only just been developed, that was over four years ago. Yet, according to the Corps' response to NWEA's FOIA request of August 12, 2002, the agency has given no consideration whatsoever to improving the data upon which the MCR depth was originally chosen, ensuring its continuing validity, and establishing the

SS-242. The CREST Columbia River Estuary Dredged Material Management Plan has stated that the identification of disposal sites in the DMMP, "is not intended to be an exhaustive list of all possible disposal sites and it in no way restricts disposal to designated sites only" (Columbia River Estuary Dredged Material Management Plan, September 1986). In addition, CREST is revising the plan to include Welch Island. The CZMA consistency analysis notes this proposed change to the CREST plan. Columbian white-tailed deer and passerine bird use of the Welch Island disposal sites were addressed in the 1999 Final IFR/EIS, 6.6.2.3, page 6-32. The USFWS has fully reviewed all potential effects to Columbia white-tailed deer, 1999 Biological Opinion. No terms and conditions were set forth for disposal site impacts at Welch Island by the Service. See response SS-231 regarding cumulative impacts.

SS-243. The Corps concurs that the technology and fleet used in the 1980 "Columbia River Entrance Channel Deep-Draft Vessel Motion Study" (VMS) are now outdated. The VMS was a groundbreaking study when it was conducted. However, the study's inconsistencies with actual MCR operations are described in the 1999 Final IFR/EIS, Appendix A. The design parameters developed during the VMS appear to over-predict ship responses to waves and the amount of time the MCR would be closed to navigation. The Corps has recognized a general need for better guidance on entrance channel design and the Corps' Engineering Research and Development Center has begun a study of vessel motion in entrance channels utilizing GPS and physical modeling. The initial results of this study are described in the Corps' Coastal and Hydraulic Engineering Technical Note IX-7, December 2001.

compatibility of the MCR 55 foot channel with the proposed 43 foot river channel. Over 20 years have passed since the VMS was developed, necessitating a revision of the analysis. Chapter 2 of Appendix A to the FEIS is not based on new data or new studies but merely on conjecture and the DSEIS adds nothing on the subject.

The GPS technology is needed for, among other reasons, to determine vessel squat. Squat is affected by ship's shape, speed, and movement, by the depth of water under its keel, and by the movement and squat of other ships' vessels in the same vicinity. Squat is greatly influenced by a vessel's design and by the way it is loaded. Current understanding of squat now includes among the major factors that affect it as ship form and initial trim. It is very sensitive to the former, which alters where the maximum squat for a particular vessel is likely to occur. The original study did not use technology that was sensitive to the varying locations of data collection devices. Squat is also influenced by the speed of the vessel through the water with increased speed creating greater squat. The depth/draft ratio affects squat in that as water depth under the keel decreases, squat increases. Sudden changes in depth, such as sills and banks, increase squat, as does passing and overtaking, situations in which speed increases squat. Fluid density also affects squat with muddy bottoms decreasing squat and rock bottoms increasing it.

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GPS also accurately measures a vessel's settlement, trim, roll, pitch, and heading and can provide the position of a vessel's keel to within 10 centimeters relative to the bottom of a shipping channel. In contrast, the VMS study by Tetra Tech sought to measure 53 vessel crossings of the bar. Two failed, leaving 51 data sets. Of these 51, only 23 included wave data due to equipment damage. MCR EIS at a-5. In addition, the vessel types used in that document's Table a-2 are now completely outdated.

Second, the discussion in FEIS Chapter 2 itself points to the need to reanalyze this crucial issue for safety and environmental reasons and to ensure that the 43-foot channel will be used as claimed in the DSEIS. As the Corps concludes in this document: "Given the conflict in information on excursions and bar closures, **there is much uncertainty in future MCR operations with a 43-ft river channel.**" Appendix A at 17 (emphasis added). This issue was not even placed before the Technical Review Panel analyzing costs and benefits of the proposed channel. Like the proposed river channel deepening, the deepening of the MCR to 55 feet was based, not on increased shipping but accommodating larger vessels and by decreasing the costs of shipping by alleviating delays. See, e.g., Appendix B at 5, 20, 21. Therefore, if the current 55 foot MCR inhibits in any way obtaining either or both the use of the river channel by larger vessels or decreased delays, the DSEIS analysis is inherently flawed. Further discussion regarding this issue is presented below.

#### 6. Existing Water Quality Conditions are a Part of Baseline Conditions that Must be Considered in the Cumulative Impacts Analysis

SS-244 | The proposed project will cause alterations to the chemical, physical, and biological properties of the Lower Columbia River that can be predicted, in combination with other forms of pollution, to continue to render the waters unsafe for native species of fish and wildlife, and the food chains

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SS-243 (con't). As stated in the 1999 Final IFR/EIS, the safety of MCR transits will be evaluated on a ship-by-ship basis, with the Bar Pilots making their decision based on the entrance conditions and the characteristics of the individual ship. The Bar Pilots expect the with-project operating practices to be very similar to the current practices. Since the underkeel clearance in the channel is normally the limiting factor, the 43-foot channel should allow 43-foot draft ships to transit the Astoria reach during higher tide stages. The Bar Pilots are confident that MCR can handle 43-foot draft ships without significant delays. There is a likelihood that the Pilots will initially be cautious with the deeper drafts, resulting in some small increase in delays over those currently experienced by 40-foot draft ships, but this is not expected to last long or to be significant.

upon which they rely. The Corps has failed to consider the baseline condition of Columbia River water quality in its analysis of the cumulative effects of the action. Segments of the Lower Columbia River have been determined to be water quality limited -- i.e., violating water quality standards -- for the following parameters: temperature, bacteria, dissolved oxygen, pH, and toxics. 1998 Oregon §303(d)(1) List. In addition, Oregon and Washington have failed to list the Lower Columbia River for violations of water quality standards based on lack of beneficial use support and violation of narrative criteria. These violations include, but are not limited to, reproductive failure of bald eagles, probable reproductive failure of mink, toxic-induced deformities of river otter, tissue residue levels found in a variety of animals, and the threatened and endangered status of a large number of salmonids that is linked to anthropogenic changes in the Lower Columbia River. Therefore, not only is the Corps required to evaluate the effect of this baseline condition of numerous violations of numerous water quality standards upon the species and ecosystem, but it must then factor in the increased pollution from the proposed project in order to evaluate the cumulative impacts. The DSEIS does not discuss the baseline conditions but merely mentions that the effects of the proposed dredging will be temporary and insignificant.

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The DSEIS ignores water quality issues but is the document upon which the Corps expects the states' water quality agencies to rely when they issue their 401 certifications for the project. In addition, the DSEIS does not recognize the shortcomings of the 401 process itself. The current numeric criteria Oregon and Washington apply to determine whether water quality standards have been violated, have been developed, with extremely few exceptions, to assess the "safe" level of pollutants to certain beneficial uses on a pollutant-by-pollutant basis. Nonetheless, as discussed elsewhere in these comments, these pollutants have additive and possibly synergistic effects on those uses. In addition, the "safe" level has been determined on the basis of what an ordinary population of a target species can tolerate. However, the populations of threatened and endangered, as well as candidate, species are not ordinary; they are severely depressed. As such they cannot be exposed to the same level of risk from pollutants, individually or collectively, as ordinary non-depressed populations. Even individually, not one numeric criterion for toxic chemicals in Oregon or Washington has been the subject of a consultation with the Services pursuant to the Endangered Species Act. In addition, Oregon has not updated its numeric criteria for toxics since their initial adoption, now the subject of litigation by NWEA against the U.S. Environmental Protection Agency and NMFS. The Corps is on notice, just as the states, EPA, and the Services, that the state numeric criteria are not protective of uses under even ordinary circumstances as discussed elsewhere. Publically identified as defective by the State of Oregon itself are the criteria for such parameters as temperature, DDT, DDE, bromoform, chlorodibromomethane, endosulfan sulfate, endrin aldehyde, methyl bromide, pyrene, ammonia, aluminum, tributyltin, among others. See Oregon Department of Environmental Quality 1999-2002 Water Quality Standards Review, Draft Workplan, December 13, 1999, at 4-5.

The DSEIS fails to include discussion of the effects on salmon by the project, such as temperature's effects on timing of migration and reproductive effects, that will reduce genetic diversity of the species. Removing life history types reduces the ability of the species to cope with environmental changes and fluctuations. Therefore, any incremental addition of adverse effects to salmon that will affect life history types must be identified in the DSEIS. The DSEIS also fails to

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SS-244. The 401 Certifications will be obtained from Washington and Oregon as part of the permitting process. The 401 Certification is an independent certification, separate and apart from the Final SEIS. The 401 Certifications will provide reasonable assurance that water quality standards will be met. The process for setting water quality standards is undertaken through rulemaking and is subject to public notice, comment, and challenge. The existing water quality standards are the appropriate standards to apply in an EIS. As the commenter acknowledges, determining whether water quality standards are violated is undertaken on a parameter-by-parameter basis. Analyzing additive or synergistic effects is speculative given the absence of resuspended contaminants and, therefore, not necessary or appropriate for an EIS. The criterion for toxics in Washington and Oregon are established by rulemaking, after public notice and comment. The toxics criterion contained in the promulgated state regulations are the appropriate criterion for purposes of an EIS analysis. Comment noted regarding NWEA's litigation against the USEPA and NOAA Fisheries.

Potential effects on salmon, bald eagles and other listed species were addressed through the 1999 and 2002 consultations under ESA.

evaluate the existing low productivity of Lower Columbia River bald eagles, the identification that high fish and mammal levels exist despite relatively low sediment contamination levels, the existence of toxic effects as a baseline condition that is required to be included in the NEPA analysis, new data from the Exxon Valdez spill on the significant effects on salmon at extremely low levels of PAHs, toxic contamination of the berths that are an integral part of the project, the prospect that side slope erosion will make bioavailable buried toxic contaminants, the belief that clay layers underlie areas that will be subject to dredging and/or adjustment.

**a. The DSEIS Fails to Consider the Baseline Effect of Temperature on the Project Area**

SS-245 The Columbia and Willamette Rivers violate state water quality standards for temperature. The river is significantly warmer than it once was. In fact, the Columbia used to freeze over in winter. Increased temperatures are the result of anthropogenic activities through the Columbia River Basin as well as the hydroelectric dams which are believed to have caused increase in the temperature of the river two to four degrees. Preferred salmonid spawning temperatures range from 10° C to 14° C, well below state criteria of 17.8° C. Sub-lethal effects such as reproductive failure, prespawning mortality, residualization and delay of smolts, decreased competitive success, disease resistance will occur even where waters meet state criteria. U.S. EPA. Biological Assessment of the Revised Oregon Water Quality Standards For Dissolved Oxygen, Temperature, and pH, September 15, 1998 at 83, 85, 87, 90, 92, 93. More recent evidence indicates that 64° F (17.8° C) is at the upper range at what is protective for all salmonid life stages and may cause sublethal effects. Letter from Randall F. Smith, EPA to Michael T. Llewellyn, Oregon DEQ, July 22, 1999. For this reason, EPA has determined that Oregon's rearing criterion of 64° F (17.8° C) is "likely to adversely affect" all species of listed threatened salmonid in Oregon, including the following stocks that use the Lower Columbia River and, in some cases, the Lower Willamette River: Snake River Spring/ Summer Chinook Salmon, Lower Columbia River Spring Chinook Salmon, Upper Willamette River Spring Chinook Salmon, Upper Columbia River Spring Chinook, Snake River Fall Chinook Salmon, Lower Columbia River Chinook Salmon, Snake River Basin Steelhead, Middle Columbia River Steelhead, Lower Columbia River Steelhead, Upper Willamette River Steelhead, Upper Columbia River Steelhead, Snake River Sockeye, and Columbia River Chum Salmon. Biological Assessment, *supra*. In addition, there is a candidate species, the Lower Columbia River/Southwest Washington Coho, and a proposed listing, Southwestern Washington/Lower Columbia River Coastal Cutthroat Trout. Endangered Species Act Status of West Coast Salmonids, September 9, 1999, <http://www.nwr.noaa.gov>. NMFS agrees that waters meeting the 64° degree criterion are likely to cause adverse effects to salmonid populations such as increased mortality of adults, pre-hatch mortalities and developmental abnormalities, reduced disease resistance, and increased incidence of disease. Further, NMFS recognizes that the environmental baseline shows that Oregon's waters do not meet this 64° degree criterion, but instead pose temperatures that create a much higher risk to salmonid populations, particularly during the warmest days of summer. Biological and Conference Opinion: Approval of Oregon Water Quality Standards for Dissolved Oxygen, Temperature, and pH, July 7, 1999 at 15.

SS-245. The fact that the Columbia River froze in the past is most likely related to natural climatic cycles. The current temperature regime in the river is captured in the evaluation of existing conditions. Temperature changes could occur within the river and estuary for a number of reasons, including salinity changes, depth changes, and velocity changes. Modeling results reviewed by NOAA Fisheries and USFWS indicate that these potential factors for changing temperature conditions are not significantly altered by the proposed project activities. Therefore, no impact to salmonids is anticipated due to temperature change.

Hydraulic analyses have predicted no change in water surface elevations downstream of CRM 80 and only very slight (0.0-0.2 feet) upstream of CRM 80. The impact on summer water temperatures, if any, for such a small change in elevation of the river is not expected to be measurable. The potential for temperature change, if any, was considered during the SEI expert panel ESA review and is included in the BA.

There is no evidence the proposed action will increase river stratification. There is very little stratification in the river now. Thermistor strings deployed in the forebays of the three lower Columbia River dams show that stratification is a temporary event that occurs during extended runs of hot weather, and then the stratification only extends a few feet below the surface and lasts for only a few days. These are deep sites so we can expect even less stratification to occur in the shallower water between Bonneville and the estuary. In the estuary, the salinity intrusion modeling results did not indicate any alteration of existing stratification patterns.

The proposed project will increase temperatures in the Lower Columbia River by increasing the flow predominance in the channel and decrease flushing and overall water volume in the peripheral areas of the river. FEIS Ex. E at 4. These are the very areas where beneficial uses most affected by temperature use the river. It is also the area where increases in temperature will increase the degree of violations of bacteria and dissolved oxygen. In addition, the proposed action will increase stratification resulting in a greater persistence of warm waters even further down the river than they do now. This will be caused by decreased mixing of warm freshwater and cold saltwater. The DSEIS is inadequate because it does not address any issues related to the baseline conditions of temperature and/or the likely project effects.

**b. The DSEIS Fails to Consider the Baseline Effect of Temperature on Other Water Quality Parameters**

The Lower Columbia River is water quality limited for temperature and dissolved oxygen. Oregon 1998 303(d)(1) List. Increased temperatures in the Lower Columbia River also affect other water quality parameters – conventional and toxic – and enhance the adverse effects of other parameters on the beneficial uses, particularly salmonids. Increased water temperature increases bacteria levels, a pollutant for which the Columbia is water quality limited. Concurrent violations of temperature and dissolved oxygen (DO) standards also cause increased risk to beneficial uses. Oregon Department of Environmental Quality, Final Issue Paper on Dissolved Oxygen, Appendix A-6, June 1995. Temperature also affects the uptake of toxic contaminants by uses because elevated temperatures decrease available DO in the water column. In addition, the biological demands on aquatic species increase with increasing temperatures. At lower DO levels, the amount of oxygen delivered to fish tissue decreases, restricting the ability of fish to maximize metabolic performance. *Id.* Low DO levels increase the acute toxicity of various toxicants such as metals and ammonia. *Id.* Low DO levels may compound the adverse effects of some toxicants. Alternatively, toxicants may increase sensitivity to low levels of DO. For example, Oregon has provided an example of where a toxicant that damages the gill epithelium can decrease the efficiency of oxygen uptake. Also, several toxic contaminants increase oxygen consumption due to interferences with oxidative phosphorylation of pentachlorophenol and have the potential to increase sensitivity to low DO. *Id.*

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The U.S. Environmental Protection Agency concurs that adverse impacts of toxicants may be compounded by low DO levels or may increase sensitivity to low DO levels. U.S. EPA, Biological Assessment of the Revised Oregon Water Quality Standards for Dissolved Oxygen, Temperature, and pH, September, 1998, at 63. EPA identified three mechanisms by which low DO and a toxicant in combination cause effects: 1) Increase gill ventilation associated with low DO can increase uptake of waterborne toxics, 2) Any toxic contaminant that damages the gill epithelium and decreases efficiency of oxygen uptake will increase sensitivity to low DO, and 3) a number of toxics, such as pentachlorophenol, increase oxygen consumption due to interference with oxidative phosphorylation. *Id.* Therefore, when elevated temperatures – which in the Columbia are elevated above an admittedly unprotective criterion – cause depleted oxygen levels, there are additive impacts with toxic contaminants. The combination of these three pollutants, already present in the Lower Columbia, will increase from the proposed activity. Increased

SS-246. Temperature is adequately considered in the 1999 Final IFR/EIS, BA, and the Final SEIS. Temperature changes could occur within the river and estuary for a number of reasons, including salinity changes, depth changes, and velocity changes. Modeling results, reviewed by NOAA Fisheries and USFWS indicate that these potential factors for changing temperature conditions are not significantly altered by the proposed project activities. Therefore, no impact to salmonids is anticipated due to temperature change. Further, the process for setting water quality standards is undertaken through rulemaking and is subject to public notice, comment, and challenge. The existing water quality standards for temperature are the appropriate standards to apply in an EIS. Washington and Oregon are responsible for identifying water bodies that are impaired for temperature. That analysis is undertaken after public notice and comment and the agencies' determination may be challenged. As the commenter acknowledges, determining whether water quality standards are violated or whether a water body is impaired is undertaken on a parameter-by-parameter basis. Therefore, comments that discuss temperature's theoretical effect on other water quality parameters are speculative and are not consistent with water quality analysis. Comment noted regarding OAR 340-041-0205(2)(p)(A); however, that regulation pertains only to toxic substances and applicable water quality regulations do not list temperature as a toxic.



sediment from the proposed project will increase temperature, decrease dissolved oxygen, and increase available toxics. Increased temperatures, caused by decreased water volumes in areas peripheral to the channel, decreased flushing, and increased stratification, will increase existing violations of bacteria and dissolved oxygen. These violations of DO and bacteria take place in the peripheral areas. The temperature increases will also increase the adverse effect of the violations of these parameters and toxic levels that exceed safe levels on the beneficial uses. Because Oregon water quality rules specifically contemplate the effect of multiple pollutants and the impact of complex stressors that combined are termed “pollution,” the DSEIS must provide sufficient information to the state and to the public upon which findings can be made. OAR 340-041-0205(2)(p)(A).

**c. The DSEIS Fails to Consider the Baseline Effect of Toxic Contaminants**

The Lower Columbia River also violates Oregon’s water quality standards for the toxic contaminants PCBs, dioxins, DDE, and DDT. 1998 Oregon 303(d)(1) List Decision Matrix. In addition, the Department has identified elevated levels of toxic contaminants that it has determined do not violate state standards. *Id.* However, in making these determinations the Department has failed to properly apply its narrative criteria and beneficial use support requirements and has not complied with the Clean Water Act. Letter from Nina Bell, NWEA to Carol Browner, U.S. EPA, December 13, 1996. In addition, Oregon has failed to apply its narrative criteria in evaluating the effect of toxic contaminants individually on sensitive fish and wildlife in the estuary. For example, reproductive failure in bald eagles and likely reproductive failure in mink violate the narrative criterion that “[w]aters of the state shall be of sufficient quality to support aquatic species without detrimental changes in the resident biological communities.” OAR 340-041-0027. Oregon has failed also to apply its narrative criterion to address the additive and/or synergistic effects of multiple toxic pollutants. This criterion requires that “[t]oxic substances shall not be introduced above natural background levels in the waters of the state in amounts, concentrations, or combinations which may be harmful, may chemically change to harmful forms in the environment, or may accumulate in sediments or bioaccumulate in aquatic life or wildlife to levels that adversely affect public health, safety, or welfare; aquatic life; wildlife; or other designated beneficial uses.” OAR 340-041-0205(2)(p)(A). Oregon has not applied current scientific understanding of the effects of toxic exposure to salmonid in order to interpret its narrative criteria or beneficial use support requirements, as required by state law.

Against this backdrop, the Corps proposes to conduct dredging and dredge spoil disposal that will increase the bioavailability of toxic contaminants in the Lower Columbia River. Sediments are a major source of hydrophobic contaminants for biota. Department of Interior letter, *supra*, at 2. The Science Center concludes: “Redistribution of contaminants from upriver contaminated dredge sites to shallow water, low flow sites represents a potential for bioaccumulation of toxics by outmigrating juvenile salmon that utilize these habitats. Dredging operations in the Columbia and Willamette rivers will likely result in the resuspension and redistribution of bottom sediments in the dredge area, as demonstrated in many dredge operations (Morton 1977; Hershman 1999).” Science Center memo at 7.

SS-247. Washington and Oregon are responsible for identifying water bodies that are impaired and placed on the 303(d) list. The listing process is undertaken on a parameter-by parameter-basis and subject to notice, comment, and appeal. The Final SEIS adequately considers parameters identified on the 303(d) list for Washington and Oregon. Comment noted regarding NWEA’s letter to USEPA dated December 13, 1996 and comments expressing dissatisfaction with Oregon’s 303(d) list.

The Federal Government disagrees. Based upon known data there will be no “increase in bio-availability of toxic contaminants” from the proposed dredging activities. Further, the material to be dredged is not a “major source of hydrophobic contaminants” (see 1999 Final IFR/EIS, Appendix B). The Science Center conclusion regarding contaminants was made before the consultation process. The SEI panel, the Corps, NOAA Fisheries and the USFWS thoroughly reviewed the contaminant issue as part of consultation and addressed those concerns. With regard to the Department of Interior letter, the next sentence continues, “Although sediment analyses conducted as part of the CRCD sediment evaluation indicates that contaminant concentrations in most areas proposed for dredging are relatively low...” Indeed, they are below method detection limits. The concern expressed in the letter is primarily focused upon dredging in the Willamette River where it is acknowledged that sediment contamination is a concern. The Willamette River construction has been deferred until the completion of the remediation investigation and remediation decisions related to contaminated sediments in Portland Harbor. Analyzing additive or synergistic effects is speculative given the absence of resuspended contaminants and, therefore, not necessary or appropriate for an EIS.

SS-247 The DSEIS must provide data and analysis on use impairment related to levels of toxic contaminants, i.e. for pollutants that are at levels posing a risk to piscivorous wildlife such as eagles, mink and otter. Some of the information available is from tissue and wildlife health studies. For example, information that "river otter in the vicinity of RM 119.5 are in a critical or almost critical category based on reference level comparisons, abnormalities noted during necropsy, and histopathological observations of individuals," must be evaluated for compliance with water quality standards and to assess the impacts of the proposed project. The Health of the River 1990-1996, Integrated Technical Report, Tetra Tech, May 20, 1996, Figure 14, at 53 [hereinafter "Health of the River"]. This information is tied to toxic contaminants: "Concentrations of organochlorine insecticides, PCBs, and to a lesser extent PCDDs and PCDFs in the liver of river otters were highly correlated with each other and many were significantly related to baculum [penis bone] and testes size or weight." *Id.* at 52. Likewise, the Department is required to use the extensive information on reproductive failures of the Bald eagle in the Lower Columbia River. The Bi-State study noted that "Historically, some individual mink contained PCB concentrations known to make adult female mink in laboratory studies incapable of producing young." Health of the River at 52. Washington's 1996 303(d) list includes both entries and listings for PCB-1254, arsenic, 4,4'-DDE, Dieldrin, and Bis-2-(ethylhexyl)phthalate based on the edible portions of white sturgeon tissue found in the Lower Columbia River. Both states shared the data from the Bi-State study upon which Washington's listings are based.

SS-248 Other information available on toxic contamination of the Lower Columbia River is on sediment contamination levels. As the Bi-State study demonstrated, toxic contaminants are present at sufficiently unsafe levels in deposition areas of the Columbia. These constitute violations of water quality standards even if the distribution of contaminants is "patchy." Science Center memo at 8. The Department must evaluate the potential for the proposed project to increase levels of toxic chemicals at those depositional locations as well as to enter the food chain of the estuary. It must also evaluate the potential for disturbance of these depositional areas due to direct project activities and/or changed circulation patterns in the estuary created by the project. For example, there are numerous locations where sediment contamination exceeds values believed to be protective of benthic organisms and wildlife. Health of the River, Figure 14, at 37. Listed are nine metals and one organic compound, Bis(2-ethylhexyl)phthalate. The document notes other contaminants of concern found in sediments as well, such as polynuclear aromatic hydrocarbons (PAH). Health of the River at 36.

SS-248 The DSEIS must also include the baseline analysis all of the information from existing studies. For example the Bi-State study found that "[r]eference levels were exceeded for aluminum, iron, cadmium, copper, lead, selenium, zinc, and silver. Copper and lead exceeded reference levels comparatively frequently, and deserve further evaluation. Additional testing is also recommended for silver and mercury. . ." Health of the River at 35. Moreover, despite findings that dissolved arsenic concentrations that "exceeded water quality criteria for the protection of human health in 15 of 16 samples collected from four sites in the Columbia River" arsenic has not been placed on the 303(d) list. The study also found that "chemicals were found in excess of reference levels, or were frequently detected in the river [include] barium, cadmium, chromium, copper, lead, mercury, and zinc." Health of the River at 38.

SS-248. The 1999 Final IFR/EIS, Appendix B, provides data on sediment quality. Additional information is available from numerous studies including the Bi-State study. Based upon existing information and extensive review of the data by an independent expert panel, SEI, it has been determined that Columbia River material proposed to be dredged does not contain levels of contaminants that would pose a risk to wildlife that feed on fish.

The Final SEIS evaluates "the potential for the proposed project to increase the levels of toxic chemicals."

The Federal Government disagrees because the Final SEIS contains sufficient baseline analysis. Comments noted regarding the State of Oregon. Metals were analyzed in accordance with the DMEF, which evaluates eight metals; chromium, arsenic, cadmium, copper, lead, mercury, zinc and silver. No established level of concern was exceeded for metals in any of the 23 samples tested.

The Federal Government disagrees because sediments to be dredged for the channel improvement project do not pose a threat to human or wildlife health due to "toxic contaminants." Sufficient discussion and documentation is presented. See response SS-230.

The Science Center's comment presented in this paragraph refers to both the Columbia and Willamette Rivers. While the concern expressed in the comment may apply to the Willamette River it does not apply to the material to be dredged from the Columbia River. Columbia River sediment quality was a subject thoroughly discussed during the fourth SEI (Sustainable Ecosystem Institute) panel meeting. Dr. Steven Courtney's concluding remark in the meeting notes were, "We're not hearing substantive levels of concern at this point about re-distribution of toxins from the channel." Monitoring action (MA-5) in both the BA and Biological Opinion includes an annual review of any new sediment chemistry from the lower Columbia River and estuary.

The Corps' DSEIS must use current information on sub-lethal effects of toxic contaminants on human and wildlife health. These effects include but are not limited to: reduced immunity from disease; permanent brain damage including decreased intelligence, motor skills, memory, eye-hand coordination and increased aggressive behavior; reduced male fertility; reduced penis size, a result found in Columbia River river otter; and abnormal sexual development (e.g., missing testis) and abnormal sexual behavior, among other effects. There are numerous studies on the effects of toxic contaminants that the Corps must include in its discussion of baseline conditions of the project area.

Studies done in Puget Sound on the impacts of contaminated sediments on juvenile salmon demonstrate they are at risk from even a short 3-week stay in a contaminated area. Fish studied suffered from impaired migration and swimming behavior and impaired immunity from disease. The Science Center concludes there is a risk to salmon from toxic contaminants: "Exposure to contaminants found in Columbia and Willamette River sediments, particularly to PAHs and PCBs, can affect the health of threatened or endangered salmon that utilize the LCR. Short-term exposure to PAHs and PCBs in contaminated estuaries, both through diet and through the water column, reduces disease resistance and growth rates of outmigrant juvenile chinook salmon in Puget Sound (Arkoosh et al. 1998; Casillas et al. 1995). Resuspension of these contaminants as a result of dredging would increase the risk of exposure through the water column or through contaminated prey. Reduced growth and increased disease residence reduce survival potential." Science Center memo at 8. Male trout with feminine traits have been found in British Columbia and a recent study has found that a pesticide appears to prevent Atlantic salmon from making the transition from freshwater to saltwater fish. Even low levels of pesticides can alter swimming and migration behaviors in ways that prevent fish from reaching the ocean or returning to their spawning beds. Additionally, certain pesticides can cause abnormal sexual development, preventing fish from reproducing and pesticides can alter the aquatic environment, for example by reducing the food supply available to salmon.

The Science Center also raises concerns that the Department must resolve concerning the screening levels to assess the potential hazards of dredged sediments to salmon:

The LCRMA screening levels used to assess potential hazards of dredged sediments may not be adequate to protect salmon. Recent studies of resident marine fish (Horness et al. 1998) and juvenile chinook salmon (Arkoosh et al. 1998) show that thresholds for contaminant effects in these species are lower than predicted from the aquatic bioassays which form the basis for many sediment quality criteria. For example the current LCRMA screening level criteria for LPAHs and HPAHs are 5,200 and 12,000 ng/g, respectively, resulting in an acceptable total PAH concentration for dredged sediments of 17,000 ppb. For PCBs, according to LCRMA standards, sediments are considered acceptable for open water disposal if concentrations are between 130 and 3100 ng/g. However, alterations in growth and immune function have been reported in chinook salmon from estuarine sites with average total PAH concentrations in sediment below 17,000 ppb, and total PCB concentrations between 130 and 3100 ppb (Arkoosh et al. 1998). Recent studies by the NMFS (Horness et

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SS-248 (con't). The NOAA Fisheries Science Center conclusion regarding contaminants was made before the consultation process. The SEI panel, the Corps, NOAA Fisheries and the USFWS thoroughly reviewed the contaminant issue as part of consultation and addressed those concerns. The levels of contamination in the sediments proposed to be dredged in the Columbia River are generally below detection limits and orders of magnitude below "LCRMA" screening levels. Indeed, they are orders of magnitude below even the Science Center's sediment effects thresholds. Therefore, the material proposed for dredging as part of the channel improvement project will not have any unacceptable adverse impacts to the environment due to contaminants. The Corps along with EPA, Region 10, NOAA Fisheries and USFWS (including the NOAA Fisheries Science Center), and the states are actively engaged in reviewing and if needed, updating the screening levels as determined necessary.

The Federal Government disagrees. The sampling on the Columbia River was adequate to characterize the material proposed to be dredged for the channel improvement project. The material in the Columbia River is composed of sandy material, which moves through the main navigation channel in a series of sand waves. The sandy material, less than 1% fines, in the sand waves constantly turns over as the wave moves downstream. Therefore, any sample obtained in any portion of the sand wave is representative of the material within the sand wave. This information was presented to the SEI panel, which concluded the information represented best available science. This conclusion was further supported in the Biological Opinions.

The remainder of this paragraph pertains to the Willamette River, which action has been deferred at this time until the completion of the remediation investigation and remediation decisions related to contaminated sediments in Portland Harbor. See response SS-4. The length of the delay will depend on the progress and eventual outcome of the USEPA Willamette River Superfund listing and subsequent actions. As mentioned several times in the 1999 Final IFR/EIS, Appendix B, further evaluation and testing will be required for the Willamette River prior to any channel improvement. As with all dredging, the dredging of the Willamette River will require full compliance with not only the CWA but also NEPA and ESA.

The DMEF requires material to be evaluated if there are more than 20% fines (material passing a 230 sieve) in the material. The material from the channel improvement project chemically tested 23 samples irrespective of the percent fines present in the sample. Three samples had greater than 20% fine (two were outside of the navigation channel, one sample was within the channel, subsequently resampled and no fine grain material was detected); 20 had less than 20% fines; of those 20, nineteen had less than 1% fines (Sample 5 had 5.6% fines and was outside the channel). No established level of concern was exceeded in any of the 23 samples tested. The analysis included metals, PAHs, and pesticide/PCBs. Based upon the data collected in 1997, previous studies like the Bi-State, and other navigation projects, materials proposed for dredging in the Columbia River have been adequately characterized. The sediments to be dredged are not a reservoir for toxins that will be flushed down the river due to dredging and dredged material placement operations. See response SS-230.

al. 1998) show that threshold total PAH sediment concentrations associated with biological injury in marine fish are between 1000 - 5,000 ppb range. The sensitivity of Pacific salmon to contaminant effects is similar or greater than marine fish analyzed by Horness et al. (1998), based on studies cited above.

Science Center memo at 8-9. During the SEI process, the Services again noted that these issues are not resolved. Yet the DSEIS still does not provide a complete evaluation of the issues for the public to review.

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The Corps is incorrect in its belief that it need not obtain the information required to assess compliance of the project with the Clean Water Act. In response to Department of the Interior comments urging an ecological risk assessment of dredging in the Willamette River, the Corps stated: "the preliminary ecological risk assessment suggested would be beyond the scope of the proposed project." Corps of Engineers Response to Department of Interior letter, *supra* at 3, FEIS. Sampling of sediments has been inadequate to determine actual amounts of hazardous materials in the areas to be dredged. The Corps only sampled sediments down to 10 inches, while the preferred alternative would excavate down 3 feet. EIS, Appendix B, at 5. The Corps justifies this method of sampling because the materials beneath had larger grain size. *Id.* at 6. However, larger grain size does not automatically preclude the existence of hazardous materials nor does sampling the top 10 inches prove that the remainder of the sediment is not contaminated. Sampling the top layer does not factor in the previous effects of dredging on the composition of the channel bottom when finer grained material may have been redistributed to lower levels.

Failure to chemically test samples with less than 20 % fine grain materials also prevents the Corps from adequately addressing future impacts, because the Corps does not have a clear idea of present conditions. Even though finer-grained material chemically binds better than the larger-grained material, larger-grained material may nonetheless have chemical contamination. In addition, material up to .50 mm may become suspended in the river from dredging operations. Failure to test these materials prevents the Corps from adequately assessing the possible impacts of resuspending hazardous materials into the waters. We commented on the DEIS that the Corps has not adequately addressed the issue of resuspension. While the DEIS acknowledged that turbidity in the water would increase, it made no indication that turbidity may indicate the resuspension of toxins. Nor has the Corps assessed any potential effects of this resuspension on water quality, aquatic species, or wetland and other aquatic habitat from the flushing of these toxins down the rivers. The Science Center has made these same observations. Science Center memo at 9. The DSEIS suffers from the same flaws.

**d. The DSEIS Fails to Consider the Baseline Effect of Suspended Sediments and Turbidity**

SS-249 The Corps has not provided the states with sufficient information upon which to make a determination that the dredging operations and the disposal of dredged spoils of the proposed project will not cause a violation of water quality standards that protect beneficial uses from excess turbidity and sedimentation. First, the DSEIS does not include baseline information nor

SS-249. The potential effects of increased suspended sediment and turbidity on salmonids and their habitats are thoroughly addressed in the 2001 BA and have been affirmed by the 2002 NOAA Fisheries and USFWS Biological Opinions. The exact location for flow lane disposal changes as the river bottom moves. Although it is not possible to know where precisely flow land will occur, the Corps knows that it will always take place in deeper waters in close proximity to the channel. This understanding is sufficient for the Final SEIS and for the state agencies to determine compliance with water quality standards for turbidity. Additional information regarding suspended sediment and turbidity is provided in the revised 404(b)(1) Evaluation. See Final SEIS, Exhibit E.

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information on the timing of the proposed operations, so it cannot make a determination of compliance with standards that protect sensitive beneficial uses. Second, if salmonid populations were high, rather than threatened or endangered, the states could evaluate the effect according to its existing numeric criteria. However, they are not; instead the populations are at significant risk and less able to withstand any incremental adverse impacts from predation, growth, health, etc.. This means that the states must interpret and apply their narrative and beneficial use support requirements in order to apply them to threatened and endangered species. To do so requires substantial additional information, which the DSEIS does not include. Third, as discussed above, the Corps has not provided the states with information on the likely turbidity from the activities or the actual locations of flow-lane disposal. In the absence of information, the states cannot conclude that the proposed project will comply with state water quality standards. Therefore, the DSEIS is inadequate on its face.

SS-250 The effects of sedimentation on salmonids are well documented and include: clogging and abrasion of gills and other respiratory surfaces, providing conditions conducive to entry and persistence of disease-related organisms, inducing behavioral modifications, and altering water chemistry by the absorption of chemicals. Factors for Decline at 18. Suspended sediment and turbidity can “increase the straying rate of adult salmon, \* \* \* force juvenile salmon from preferred habitats, and impair feeding by juvenile salmon, thereby reducing growth.” Science Center memo at 6. The Lower Columbia River estuary plays an important role in the life cycle of salmonids and the important factors that affect that role are “flow rates, timing of flow, and turbidity.” Science Center memo at 3, citing Dawley et al. 1986. Prey availability and habitat suitability are also strongly affected by turbidity. *Id.* at 4. Turbidity can have non-lethal effects at “relatively low levels” that “reduce fish fitness and contribute to elevated mortality later in the life of the fish.” *Id.* at 6. In addition, the effects of increased suspended sediment loads on spawning is well documented. *See e.g.*, Science Center memo at 6-7. The Science Center has concluded that while the “extent of spawning by salmon in the lower Columbia River is not well known,” chum salmon do spawn at the confluence of the Grays River and “likely utilize gravel deposits at the mouths of other tributaries to the lower river.” and “Lower Columbia River fall chinook salmon also may spawn in areas that will be affected by sediment generated by the dredging.” *Id.* at 6.

SS-251 In addition to the direct effects of turbidity on salmon, the Department must evaluate the indirect effects. Sedimentation affects bottom-dwelling organisms that make up the food chain for salmon and other estuary species. “Elevated turbidity and TSS may reduce the amount of light available for photosynthetic organisms, reducing primary production which may in turn affect biota higher up on the food chain.” Bi-State Report, Task 6 at 2-33. Increased wake in shallow areas caused by changes in shipping lane use will increase turbidity. The DSEIS must also evaluate the additive effects of turbidity, excess temperature, low DO, and exposure to toxic chemicals and other unsafe levels of pollution in these shallow waters. As discussed elsewhere, salmon rely upon shallow water habitats.

SS-252 NMFS has concluded that “[q]uantitatively, sediment has been identified as the greatest single pollutant in the nation’s waters (Barhart 1986, Poon and Garcia 1982, Ritchie 1972, U.S.

SS-250. The SEI panel, the USEPA, Corps, NOAA Fisheries and the USFWS thoroughly reviewed the suspended sediments and turbidity issues as part of reconultation and considered input from the NOAA Fisheries Science Center including the concerns expressed in the memorandum. See response SS-249.

SS-251. The BA and Biological Opinions did examine indirect effects on bottom-dwelling organisms. See response SS-249. The potential for increased turbidity caused by ship wakes was addressed in the 2001 BA. The BA explains that while a 43-foot draft vessel may generate slightly larger wakes than occur now in the 40-foot channel, the much more numerous smaller vessels that use the channel could generate slightly smaller wakes in a 43-foot channel. Thus the turbidity effects from slightly larger wakes from a small number of 43-foot draft ships could be offset by slightly small wakes from the many smaller vessels that transit the channel. The overall effects on turbidity from ship wakes in the deeper channel would thus be small and could be either positive or negative.

As stated in the Biological Opinions, effects from future berth deepening activities will be minimized through application of dredging and disposal BMPs and other compliance measures. Sediment testing, based on DMEF protocols, will insure dredged materials from berths are disposed of using a method to minimize impacts. Additional sediment testing may be required during future consultations. Of the turning basins proposed for deepening, the Astoria Turning Basin would require sediment evaluation due to the fine grain sediments present at the location.

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SS-252 Environmental Protection Agency 1988).” Factors for Decline at 17. Despite this well-known information, the states’ lists of waters violating sedimentation and turbidity is extremely short. This represents the states’ inability to apply their own sedimentation and turbidity standards, and their lack of monitoring, rather than that there are safe levels of these pollutants in state waters. As the Oregon Department of Environmental Quality explains: “temperature is the most commonly measured parameter which causes water quality impairment, however, other parameters such as sedimentation, habitat modification, flow modification, low dissolved oxygen, abnormal pH and toxics have an impact on aquatic life.” Oregon Department of Environmental Quality, 1998 Water Quality Status Assessment Report 305(b) Report, note to Table 4-4A. As a consequence, Oregon’s list of water quality violations includes over 12,000 river miles of temperature violations but only 1,354 miles of “siltation” violations and a paltry 66 miles of turbidity violations. *Id.* Not surprisingly, as time goes on, Oregon only adds, but does not subtract, to the list of waters that violate standards for turbidity and sedimentation. Oregon DEQ, Stream Miles Added and Removed between Oregon’s 1998 and 1994/96 303(d) Lists, Summary Report, www.deq.state.or.us. Does Oregon stand alone in the nation as not having an ubiquitous turbidity and sedimentation problem? No, Oregon has failed to apply its standards to assess the degree of the problem. Regardless of the states’ failures to adequately assess the current baseline of turbidity and sedimentation problems, the Corps is required to remedy the data inadequacy in its DSEIS. It does not. As a consequence, the public and the public agencies cannot evaluate and make findings on the effect of the proposed project with regard to sedimentation and turbidity.

### e. The DSEIS Fails to Consider the Baseline Effect of pH Violations into Its Analysis.

SS-253 The Lower Columbia River is designated water quality limited for pH. Oregon 1998 303(d)(1) List. These violations have a direct effect on the health of aquatic species: “Parameters such as pH, turbidity, TSS, temperature, and DO have a significant effect on biota in the river, especially coldwater anadromous fish.” Lower Columbia River Bi-State Program, Reconnaissance Survey of the Lower Columbia River, Task 6, May 1992 at 2-32. pH also exacerbates the effects of other pollutants such as the “toxicity of dissolved substances in the water.” *Id.* at 2-33. This was recognized in the 1992-94 Oregon Triennial Review: “Values of pH outside the range in which the species evolved may result in both direct and indirect toxic effects. Direct effects result from interactions with the mechanism that moves ions across cell membranes. Indirect effects occur when pH influences the availability and toxicity of metals, ammonia, and other potentially toxic ions in the water column.” 1992-1994 Water Quality Standards Review, Department of Environmental Quality, June 1995 at ii. For example, un-ionized ammonia (NH<sub>3</sub>), as opposed to ammonium (NH<sub>4</sub><sup>+</sup>), is toxic to aquatic organisms, especially salmonids. As pH increases, so does the amount of un-ionized ammonia for a given amount of total ammonia in the water. *Id.*, First Issue Paper: pH, at 2-14. Because Oregon’s water quality standards require an evaluation of the combination of multiple pollutants on the beneficial uses, and the Lower Columbia River is already violating standards for pH, temperature, DO, and toxics, the Corps must provide sufficient data and analysis for the state to make findings that the proposed activity will not increase any of these or other indirectly related parameters.

SS-252. Washington and Oregon are responsible for identifying water bodies that are impaired and placed on the 303(d) list. The listing process is undertaken on a parameter-by-parameter basis and subject to notice, comment, and appeal. The Final SEIS adequately considers sedimentation and turbidity. Comment noted regarding NWEA’s dissatisfaction with Oregon’s 303(d) listing process.

SS-253. pH is not listed as a toxic in applicable water quality regulations. As the commenter acknowledges, determining whether water quality standards are violated or whether a water body is impaired is undertaken on a parameter-by-parameter basis. Therefore, comments that discuss the theoretical effect of pH on other water quality parameters are speculative and are not consistent with water quality analysis. Analyzing theoretical impacts of multiple parameters is speculative and not appropriate for a Final SEIS. As explained in the 1999 Final IFR/EIS and the 2001 BA, the proposed project will have little impact on the chemical, physical and biological properties of the LCR because the proposed action involves dredging primarily clean sand from the navigation channel. There have been numerous physical and chemical tests of the riverbed material that indicate it is clean sand (see sediment quality comments). The project will neither add to nor decrease the contribution of pH to the river. Therefore, there should be no reasonable potential to violate the pH water quality standard.

**f. The DSEIS Fails to Consider the Baseline Effect of Multiple Pollutants on the Beneficial Uses.**

As discussed above, the states are required to evaluate the effect of multiple pollutants on the beneficial uses. The Columbia River is already violating numerous standards. Even Oregon has recognized that multiple stressors present a greater problem to sensitive uses than individual violations: "A combination of water quality concerns is stressing aquatic life throughout Oregon and is of significant concern because of the widespread listings of salmonid species as threatened or endangered under the federal Endangered Species Act." Oregon Department of Environmental Quality, 1998 Water Quality Status Assessment Report 305(b) Report, note to Table 4-4A. The Department also recognized this in its Triennial Review process: "Though temperature and pH are independent stressors, they covary on a seasonal and diurnal basis, and tend to provide maximal stress to an individual or population at the same time. \* \* \* While any single parameter may not prove critical, the nature of stress is generally thought to be additive." 1992-1994 Water Quality Standards Review, Department of Environmental Quality, June 1995, First Issue Paper: pH, at 2-17. Because state water quality standards require an evaluation of the combination of multiple pollutants on the beneficial uses, and the Lower Columbia River is already violating standards for pH, temperature, DO, and toxics, the states must find that the proposed discharge will not increase any of these or other related parameters in order to issue a §401 certification. The DSEIS does not provide sufficient data and information for the states to evaluate whether their water quality rules are met.

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**8. The DEIS Fails to Consider Baseline Conditions of Circulation**

The MCR FEIS acknowledges that changes in circulation will occur from deepening the MCR: "Slightly larger introduction of ocean water during flood tides can be expected." MCR EIS at 27. It also expects that these changes will have different effects in different areas of the estuary: "The most significant change in circulation patterns would involve the introduction of a slightly larger volume of ocean water during flood tides. Flood current is stronger to the northeast toward Baker Bay so this larger volume of ocean water is likely to be more pronounced in Baker Bay." *Id.* at 26. Nonetheless, the DSEIS does not discuss the baseline conditions related to circulation.

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**C. The Future: The DSEIS Must Include the Effects of Those Reasonably Foreseeable Actions that Are Expected to have Impacts in the Same Area or Will Have Similar Impacts**

**1. Deepening the MCR is a Connected Action That Must be Evaluated with the Proposed Channel Deepening and the MCR Operation and Maintenance Project Requires a Supplemental EIS**

In order for the region to realize the purported benefits associated with the proposed deepening of the Columbia River channel, the MCR will similarly require deepening from its current depth of 55 feet. Nowhere in the FEIS or SEIS is this issue discussed, nor was it raised in the context of the so-called independent review conducted in the first week of August 2002, except for Chapter

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SS-254. The Final SEIS adequately analyzes the water quality impacts associated with the project for purposes of NEPA and SEPA. The 401 Certifications will be obtained from Washington and Oregon as part of the permitting process. The 401 Certification is an independent certification, separate and apart from the Final SEIS. The 401 Certifications will provide reasonable assurance that water quality standards will be met.

SS-255. The Final SEIS, Exhibit J, analyzes sedimentation and related hydrologic processes and summarizes known information regarding circulation patterns. The Final SEIS has considered all known information regarding circulation patterns in addressing impacts. This information indicates that the project should not affect circulation patterns in a manner that will have significant adverse impacts.

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2 of Appendix A to the FEIS. See the discussion above, related to the baseline conditions on the MCR, as support for this section.

The MCR EIS, based on the VMS, evaluated the appropriate depth of the MCR to correspond to a river channel of 40 feet based on a 95 percent rate of safe passage, defined by the document as meeting Engineering Regulation 1110-2-1404 to provide safe navigation conditions under most weather conditions. The project FEIS concludes that vessels be able to enter the MCR 95 percent of the time that conditions are safe, defined “as those times when wave heights are 10 feet or less.” MCR FEIS at a-1.

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In that document the Corps concluded that both the MCR EIS and the VMS upon which it was based are in serious need of revision:

“Since the MCR is expected to continue to be closed on a ship by ship basis, there is a need to refine the wave height, expected excursion and the level of risk of hitting bottom for wave conditions just below the breaking wave level. Given the potential consequences of hitting bottom, it seems like the design should be based on E95 or higher, of the extreme excursion values. The 1983 design failure rate of 5% leaves the potential for some ships to hit bottom up to 10 times during a single transit. The expected and actual excursions both need to be reviewed before the channel design is finalized.”

Appendix A at 17. The revision of this analysis is now needed in the context of channel deepening for the Columbia River because the two locations are inextricably linked. Whether the previous MCR analysis was incorrect or correct, it requires revision because: 1) the DSEIS needs to address the risk of grounding because it may be increased by new analysis of the risk of the current depth MCR given that the Corps has now cast serious doubt on the validity of the studies and analysis in the 1983 MCR EIS; 2) the risk of grounding is likely to be increased by the growth of vessels due to the increased depth of the river channel but has not been reevaluated by any technical means; 3) previous dredging and spoil disposal have altered the MCR hydraulics; and/or 4) the environmental effects of the 5 percent risk of grounding were not included in the 1983 MCR EIS. The current status is that the Corps concludes that its conclusions regarding downward excursions – as applied to both 34-ft and 40-ft drafts – “is a critical safety issue that needs to be more clearly defined.” Appendix A at 16. Even so, the DSEIS is silent.

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The Columbia River Bar Channel is the most dangerous and important segment of the river navigation system because it must be transited and it is the only location where a vessel in the Columbia/Willamette/Snake system where a vessel catastrophe could be such an environmental disaster. The 1983 MCR EIS focuses on the issue of delay, and groundings that prove the potential for delay (under the then existing MCR depth) but never once addresses the issue of risk and effects of an accident. Moreover, the reliance placed on evaluating averages – such as wave height – results in a failure by the Corps to evaluate the true risk of shipping in that channel which has nothing to do with averages but rather with the state of the river at the time a vessel is in transit.

SS-256. The Corps disagrees that deepening MCR is a connected action with this project. The 1983 MCR design was based on the best available information and the Corps guidance in effect at that time. As explained in Appendix A of the 1999 Final IFR/EIS, the actual performance of the MCR has exceeded the 1983 expectations and that therefore, deepening the Channel would not require a deepening of MCR. The quote in this comment regarding the need to more clearly define the expected excursion was made in the context of improving the 1983 analysis that appears to be conservative when compared to actual performance. This situation is not unique to the MCR and the Corps’ Engineering Research and Development Center is conducting a study to reevaluate the Corps’ entrance channel design guidance. See response SS-243.

SS-257. The Corps is unaware of any available methodologies that could be used to reliably define the navigation risks at the MCR. As noted in the 1999 Final IFR/EIS, the safety record for the entire Columbia River deep-draft navigation channel (entrance and river) compares favorably to other United States ports, even though the Columbia has a longer channel than most ports. A review of the Oregon Board of Maritime Pilots deep-draft incident reports confirmed the comments in reference to three groundings in the MCR channel since 1984 (Susan Johnson, December, 2002, personal communication). A “possible” (uncertain about actually touching bottom) grounding occurred in May 1984, and grounding occurred in November 1986 and February 1994. Waves contributed to the 1984 and 1994 grounding, and the 1986 grounding was the result of mechanical failure on the ship. None of these grounding resulted in any environmental damages and there was only slight damage to any of the ships. These three minor groundings occurred over a period of 18 years that included over 70,000 deep-draft transits of the MCR.

Dredging improves navigation conditions by maintaining shallowest reaches of the MCR channel to -55-ft MLLW. Disposal sites have caused localized hydraulic changes, but those sites are located outside of the deep-draft navigation channel.



The DSEIS contains no additional material to the seven pages presented in Chapter 2 of Appendix A of the FEIS. Yet, the conclusions concerning the MCR channel in the 1983 EIS themselves were undercut by the Corps statements, as quoted above, that the analysis was inadequate. The seven pages that allegedly make up the updated analysis on this subject are significantly flawed. First, the use of the phrase “safe wave conditions” in the supplement is misleading. It suggests that this is the maximum wave height in which ships transit the bar without a problem. In fact, even the supplement acknowledges that ships do transit in conditions exceeding 10 feet but the way in which the document is written is intended to create an opposite impression. In contrast, the 1983 MCR EIS defines a “safe wave” more precisely:

When wave heights were less than 10 feet, the other environmental factors such as visibility and currents appeared not to pose a major obstacle to vessel use of the entrance channel. When wave conditions were present, however, the other facts assumed an increased importance in rendering safe navigation difficult or, in some cases impossible.

MCR EIS at a-1. The document goes on to say that “safe waves” means a condition in which no bar closures are expected to occur.

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Section 2.3 of Chapter 2 of Appendix A of the project FEIS further distorts the concept of a “safe” wave height by stating that the MCR design was for a 36 foot vessel being able to transit the Mouth of the Columbia River 95 percent of the time. In contrast, the 1983 MCR EIS states it is “recommended that vessels be able to transit the entrance 95% of the time when conditions are safe.” MCR EIS at a-1. However, that study contemplated a “primary design vessel” that could transit the river to upstream ports 95 percent of the time. *See, e.g.*, MCR EIS at a-3, A-22. The document specifically states that it is the “Skamokawa Bar, at about river mile (RM) 34, [that] historically has been the controlling part of the river for ship movement.” MCR EIS at a-3. There is a significant difference between the MCR and the upriver area, a distinction the FEIS fails to accurately capture.

Compounding the definitional problem, the FEIS concludes that this so-called safe wave height of 10 feet will not be exceeded more than 440 hours per year. Page 15. This is equivalent to 18 days each year, an obvious fallacy. Section 2.7.1 in the FEIS states that two years were selected in which to compare wave heights and closure times: 1984 and 1992. It is unclear what the Corps uses as its source of wave data for these two years. The National Data Buoy Center shows that Buoy No. 46029, located seaward of the Columbia River, was not operational in two months of 1984 and four months of 1992, all of which were fall and winter months when wave heights would be expected to be greater. <http://www.nodc.noaa.gov/BUOY/46029.html>. A nine year summary of average wave heights, from March 1984 to December 1993, at this same buoy showed that the months of November, December, and January had average waves of greater than 10 feet. [http://www.ndbc.noaa.gov/images/climplot/46029\\_wh.gif](http://www.ndbc.noaa.gov/images/climplot/46029_wh.gif). This appears to be contrary to the National Marine Consultants wave study showing that wave heights are less than 10 feet 95 percent of the time. In addition, the use of wave height means can be very deceiving when attempting to determine closure hours as the mean does not inform an analyst of data at the

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SS-257 (con't). The use of “safe wave height” in the 1999 Final IFR/EIS, Appendix A, is in reference to the 1983 MCR design and VMS studies. As explained in the 1999 Final IFR/EIS, the definition and use of the term has been superseded by actual practices. A “safe wave height” was not used in defining existing or expected future practices at the MCR. Rather the Corps recognized that the decision to transit the MCR would be made by the Bar Pilots based on the wave conditions at the time of transit and the characteristics of the individual ship.

The Corps agrees that wave heights in excess of 10-foot should be expected to occur more than 18 days per year. As the comment notes, the 18 days per year statistic was taken from the VMS. In the 1999 Final IFR/EIS, the Corps used the wave statistics from the Long Beach, WA, Coastal Data Information Program buoy for 1984 and 1992 to demonstrate that the 10-foot wave height was exceeded in those years the equivalent of 70 and 35 days, respectively. Any use of means or averages in the 1999 Final IFR/EIS were only to provide comparisons between different time periods and were not used to define future transit conditions.

SS-257 appropriate level; a more sophisticated analysis is required. Likewise, water levels can be affected by meteorological changes in wind speed and direction and in barometric pressure. These influences explain differences between measured and predicted water levels. Water levels also vary depending upon their location. Changes in dredged spoil disposal alter waves. Currently bigger swell heights are being noted between buoys 4 and 6 than previously. Moreover, the wave heights measured at the buoy are not measurements of the wave heights experienced at the bar. Those are at least 10 percent greater than measured data and sometimes as great as twice as much. It is obvious the author of the supplement does not appreciate the dynamics of the MCR thereby minimizing their importance. This might account for the fact that the Corps does not acknowledge there have been groundings since the deepening of the MCR; in fact, there have been at least three.

The lack of references in this document is puzzling. In addition to those already mentioned, there is no reference to support the statement: "Of the 300 deepest draft ships that transited the Columbia River during 1991 through 1993, only about 10% did not meet the bar pilots' under keel clearance." FEIS, Appendix A, Chapter 2 at 14.

SS-258 In addition, the old analysis upon which the Corps still relies does not distinguish between seasonal changes in allowable drafts for vessels seeking to transit the MCR. In severe conditions a bar pilot may likely require vessels to wait until the flood stage, as he seeks to have the ship arrive at Astoria two hours before high water. In order to provide the maximum under keel water, delays are likely to occur. Regardless of these seasonal differences, in sections 2.6 and 2.8 of the FEIS, the Corps simply presents averages for each year. Seasonal differences may also play a role in better understanding the use of the channel. In Section 2.6, for example, the Corps notes the deepest draft vessel that transited the channel. It does not, however, state either the frequency of use by that deepest draft nor the season of use.

The 1983 EIS for the Mouth of the Columbia River (MCR) is a document that analyzed the need for deepening the MCR to 55 feet. This FEIS discussed the fact that the 55 feet depth was necessary to correspond to the existing 40 foot channel. It states that: "All data developed in the study are based on this assumption ["that the upriver channel will not be changed, but will remain at its present authorized dimensions"]." Interim Feasibility Report Page 1. Therefore, the data presented in the EIS concerning the sufficiency of the MCR channel are not valid if the river channel were to be deepened to 43 feet. Nonetheless, the DSEIS does not address the need to develop new data, but merely relies upon the inadequate evaluation – based on no data – that is contained in the FEIS. Specifically, the new data would include both environmental effects as well as economic ones as the MCR EIS sought to meet four objectives, one of which was that the 40 foot channel could be "fully utilized" and another to "decrease tide-caused delays for commercial ships crossing the bar." MCR Interim Feasibility Report at 2. The MCR was deepened to address these two issues:

"The incompatibility of the two channels has been recognized for many years. In his October 1961 report to Congress ( House Document 452, 87<sup>th</sup> Congress, 2<sup>nd</sup> session), the Portland District Engineer indicated that certain deep-draft vessels

SS-258. Seasonal variations in navigation practices were not mentioned in the 1999 Final IFR/EIS because they were found to be insignificant. The 1991-93 transit data showed that there were 40-foot draft transits in the existing channel throughout the year. There has not been any serious attempt to take advantage of the high river stages of the spring freshet to transit the channel with drafts over 40-foot. The tide stage requirements of the Bar Pilots that are described in the 1999 Final IFR/EIS are not seasonal, but apply year round. The delays that those requirements cause were defined in the 1999 Final IFR/EIS and are accounted for in the projects' economic analysis.

The 1961 report to Congress and the 1983 MCR design, referenced in the comment, were based on the best available information and the Corps guidance in effect at those times. As explained in the 1999 Final IFR/EIS, the actual performance of the MCR has exceeded the 1983 expectations. This situation is not unique to the MCR and the Corps' Engineering Research and Development Center is conducting a study to reevaluate the Corps' entrance channel design guidance.

using the then-proposed 40-foot-deep river channel would ‘...incur delays to avoid transiting the entrance during low water.’ He further stated that there was no definite knowledge at that time regarding the exact amount of clearance between keel and channel bottom required for safe navigation over the entrance. Now that the 40-foot-deep river channel has become a reality, the prediction of that District Engineer has been substantiated by experience gained from vessel operation and scientific studies.”

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MCR Interim Feasibility Report at 14-15. A document intended to ensure compatibility and efficiency associated with a 40 foot channel is no longer a valid basis upon which to evaluate the relationship of a 55 foot MCR channel with a 43 foot river channel. This is particularly true when the document itself states the 55 feet is “the **minimum depth** necessary to make the entrance channel fully compatible with the upriver channel.” MCR EIS at A-25 (emphasis added).

Additionally, there are questions regarding whether the Corps has been able to maintain the current MCR depth and location as authorized, as discussed above.

**2. The Evaluation of Increased Salinity Intrusion Caused by the Proposed Project Must be Based on Sound Science and Done in Conjunction with the Appropriate Baseline Conditions**

Further deepening the Columbia River navigation channel is predicted to alter salinity intrusion, thereby altering the ETM and the availability of food sources for juvenile salmonids, as well as shifting the entire freshwater-based ecosystem upstream. According to the DSEIS, the channel dredging will have “little or no impact on salinity intrusion.” However, the DSEIS relies on a model that had not been peer reviewed or systematically tested, according to statements regarding its own limitations. There was no demonstration that the model could effectively model bathymetry, a critical component of channel deepening. In fact, the researcher who created the model explicitly warns that his results “may be used to guide management decisions...but only if model uncertainty is further reduced.” Oregon Health and Science University Modeling Results, Appendix F, Biological Assessment, Columbia River Channel Improvements Project, U.S Army Corps of Engineers, December 2001 (emphasis in original). Because of the close linkage between salinity intrusion, the ETM and juvenile salmonid food resources, the Corps needs to revise the DSEIS after the salinity model is refined, subjected to peer review, and properly calibrated.

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Nowhere in this study, or any other discussion in the DSEIS or previous related documents, has the Corps presented an analysis of the effects of channel deepening including the cumulative effects on salinity intrusion from previous deepening projects of the river and the incremental deepening of the MCR, the placement of jetties, and of other actions that have been taken to alter the natural salinity patterns of the Columbia River Estuary.

**3. The Corps Fails to Include Data and Analysis for Reasonably Foreseeable Interrelated and Interdependent Projects**

SS-259. The assessment that the proposed 43-foot channel will have little or no impact on salinity intrusion is based on the results of two independent, state-of-the-art three-dimensional hydrodynamic models. The OHSU/OGI model is a model being developed specifically on the Columbia River. The Waterways Experiment Station (WES) model has been applied to a variety of salinity problems around the United States. Both models predicted very small changes in salinity intrusion, as described in the 1999 Final IFR/EIS and the 2001 BA. Cumulative effects from prior activities are reflected in the baseline condition used for the two models. The referenced quote from Appendix F of the BA omits an important part of the sentence that indicates the management decisions being cited are mitigation and restoration actions, not channel deepening. This is to be expected since the model study was specifically addressing deepening the navigation channel and not mitigation or restoration actions in the shallow water areas of the estuary.

**a. Berths and Basins are Reasonably Foreseeable Interrelated and Interdependent Projects**

SS-260 The DSEIS notes that the project will require increased dredging of berths and basins. However, nowhere in the document is there a discussion of the contamination present in those areas. Berths are frequently the site of significant toxic contamination due to intentional waste disposal practices, and accidental spills. For example, the Port of Portland's Terminal 4 on the Willamette River is the site of coal tar pitch historically "spilled" at the rate of 20 tons per year. In addition, very high levels of lead, zinc, and elevated levels of mercury, chromium, cadmium, and DDT/DDE have been found in sediments adjacent to the terminal. Likewise, in 1987 the Washington Department of Ecology found that the Port of Vancouver had been "spilling" unknown quantities of copper ore at its Ore Transfer Facility (Columbia rivermile 103), contaminating over 5,000 cubic yards of river sediment. The DSEIS cannot evaluate the full effects on the ecosystem and individual species of the channel deepening project without the required data on sediment contamination and reasonably foreseeable increases in sediment contamination from Port facilities along both the Columbia and Willamette Rivers. Very little information has been gathered and that data has been measured against a measuring stick – sediment guidelines – that the Services warn probably do not reflect what is actually happening in the estuary area with regard to toxic effects on fish, birds, mammals, and their respective prey.

**b. Development Projects are Reasonably Foreseeable Interrelated and Interdependent Projects**

SS-261 The DSEIS does not include a discussion and analysis of the cumulative impacts of future interrelated projects including, but not limited to, the development of: Hayden Island and the Vancouver Lowlands.

**c. Dredging, Deepening, and Continued Use of Berths and Basins in the Willamette River Are Reasonably Foreseeable.**

SS-262 The vast majority of berths in the Columbia/Willamette shipping system are located in the Willamette River. In addition, it is extremely unlikely that the Corps will not seek to deepen the Willamette shipping channel to allow use of these berths, following decisions on the clean-up of the Portland Harbor Superfund site. Therefore, it is impermissible for the Corps to segregate and postpone analysis of these integral parts of the proposed project – operation and maintenance dredging of berths and basins as well as deepening them – in order to eliminate from consideration their contribution to the cumulative effects analysis presented in the DSEIS.

**III. A Reasonable Alternatives Analysis Must Include a No Action Alternative and Each Alternative Deserves Substantially Similar Analysis.**

**A. Restoration Actions Require a Reasonable Alternatives Analysis**

The DSEIS includes restoration actions proposed for the Columbia River Estuary. These are not

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SS-260. The 1999 Final IFR/EIS, Appendix B, Exhibit B titled "Sediment Characterization Study of Local Sponsors' Berths; Columbia and Willamette River Navigation Channel Deepening; Longview and Kalama, Washington and Portland, Oregon," presents sediment quality data from the Columbia River berths that require dredging. These include at Kalama the Harvest States Grain Terminal and the Peavy Grain Terminal; and at Portland, Terminal 6 on the Oregon Slough. Deepening is also required at the United Harvest berth in Vancouver based upon the hydrographic surveys at the time of sampling. The material to be dredged from these berths is very similar if not indistinguishable from the sediments in the adjacent navigation channel. Contaminates are undetected at method reporting levels and well below screening levels, including those produced by the Services. The one exception is Terminal 6, which is fine-grained (>20% fines) and which has had a history of TBT contamination.

As stated in the Biological Opinions, effects from future berth deepening activities will be minimized through application of dredging and disposal BMPs and other compliance measures. Sediment testing, based on DMEF protocols, will insure dredged materials from berths are disposed of using a method to minimize impacts. Additional sediment testing may be required during future consultations. Of the turning basins proposed for deepening, the Astoria Turning Basin would require sediment evaluation due to the fine grain sediments present at the location.

SS-261. The Corps disagrees. The Draft SEIS notes that the Port of Portland has withdrawn development plans and permit applications for its previously proposed West Hayden Island development. Future development of West Hayden Island is therefore not reasonably foreseeable. In contrast, the Port of Vancouver's proposed Columbia Gateway development is reasonably foreseeable. Therefore, it is analyzed in the revised cumulative effects analysis in the Final SEIS, Section 6.12.

SS-262. Please see responses SS-232 and SS-234.

SS-263 mitigation projects for the proposed channel deepening. Therefore these proposed restoration projects are subject to the same NEPA requirements as any other proposed action, regardless of whether it they are expected to be perceived by the public, or are labeled by the Corps, as being “beneficial.” Nowhere in the SEIS does the Corps discuss the reasonable alternatives to these proposed restoration actions, including other locations for similar activities or other types of restoration activities. By not including any other reasonable alternatives, the Corps eliminates the possibility that each alternative has been given substantially similar analysis.

#### B. A No Action Alternative Requires a Multi-Port Analysis

SS-264 Without a multi-port analysis, which the Corps now says would have been desirable, the DSEIS cannot and does not give a serious and substantially similar analysis for the no action alternative.

### IV. An EIS Cannot Ignore Pertinent Data

#### A. The Corps Uses Averaging as a Way to Ignore Pertinent Data

SS-265 The Corps’ DSEIS ignores some pertinent data outright and, in other circumstances, it averages data in order to “prove” that it is able to obtain the results it needs to justify its economic and/or environmental conclusions. This averaging is inappropriately used with regard to wave height analysis, such as it is, at the MCR and with regard to climate-driven sediment transport issues. Likewise, in the FEIS supplement addressing MCR issues, the Corps refers to the deepest draft vessels without any discussion of the frequency of transit by those vessels. FEIS, Appendix A, Chapter 2 at 13. There may be other areas of the analysis relied upon by the Corps in the DSEIS and the FEIS that similarly mask reality, thereby violating the requirements of NEPA.

#### B. The DSEIS Improperly Ignores Data on Sediment Transport

SS-266 The Corps’ DSEIS ignores pertinent data by simply explaining it away, rather than presenting a reasoned analysis of the data or conclusions regarding the data derived by others. An example of this is the conclusion by Dr. David Jay that the Corps has grossly underestimated the volume of the proposed discharge. The Science Center has concluded that “the dredged material estimates for the proposed channel deepening are unrealistically low.” Science Center memo at 18. The Corps based its dredging estimates on the time period 1980-95, a period with atypically low flows, the second driest period in the last 121 years. *Id.* Therefore, DSEIS estimates are unreliable. *Id.* at 20. The Corps also failed to properly analyze data on sediment transport in the Lower Columbia River. *Id.* The Science Center has concluded that on this basis “dredged material production estimates for the 1980-95 period are low by a factor of ~1.8 to 3.6; i.e., that the actual sand production of a 30-50 year period similar to the last 30-50 years would be 80-260% higher than predicted by the EIS. *Id.* at 20-21. It also notes that the 1996 large dredged material volume demonstrates that a hypothesized post-1977 trend toward lower sediment supply is not supported. *Id.* These broad estimates of the Corps’ inadequate analysis were further refined during the SEIS process to indicate a volume approximately 60 percent higher than that of the Corps. Dr. Jay’s conclusions rely upon a more sophisticated analysis of existing data than the

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SS-263. The Corps disagrees that its consideration of alternatives was insufficient. See response SS-194.

SS-264. While a multi-port analysis would likely increase the benefits of the project, the existing analysis represents an equally valid method of analysis. A technical review of the costs and the benefits was conducted with a panel of seven experts in August 2002. This point was also raised by that panel and fully addressed in the Corps’ responses. The Corps has considered the technical review and revised the Final SEIS accordingly. The panel’s work is available on the Corps website at <https://www.nwp.usace.army.mil/issues/crcip/review.htm>.

SS-265. The Corps has not ignored or misused pertinent data. See responses SS-257 and SS-258 for responses to the wave height and deepest draft questions raised by this comment. The issue of climate-driven sediment transport is addressed in response SS-266.

SS-266. The Corps has not ignored Dr. Jay’s analysis, but we do disagree with his conclusion. Dr. Jay has based his conclusions on a statistical analysis of historical Columbia River discharges and the relationship of discharge to sediment transport. The Corps believes Dr. Jay’s analysis falls short on two issues: 1) it has not established a definite correlation between annual discharge or annual sediment transport, and annual maintenance dredging, and 2) it does not account for the effects of upstream flow regulation on sediment transport. The Corps has used a fluvial processes-based method to assess the causes of navigation channel shoaling and the river’s response to past dredging and disposal actions. The results of those analyses were then applied to the site-specific conditions on each navigation bar (approximately 3 mile reaches of the navigation channel) to forecast future maintenance requirements bar-by-bar. As with any forecast, the actual year-to-year volumes can be expected to vary around the projections, but the Corps expects the averages to follow the forecast. The referenced science center memo was written prior to the ESA consultation process. Dr. Jay’s comments and the dredging forecast were addressed during the June 2001 SEI Sedimentation workshop. The SEI expert panel concluded that the Corps adequately understood the physical processes of the river and estuary, including flow alterations, dredging volumes, suspended sediment and bathymetry changes.

Corps' analysis, which simply averages the existing data. Despite the issue having been raised in numerous forums, including the SEI forums and by the State of Washington, including in its analysis of the effects of operation and maintenance dredging of the MCR, the Corps has yet to address the inconsistency in its analysis.

**C. The DSEIS Ignores Pertinent Data on Declining Populations of Many Species in the Columbia River Estuary**

SS-267 As discussed elsewhere, the DSEIS ignores pertinent data on declining populations of white sturgeon, green sturgeon, and smelt. It also ignores the Lower Columbia River coho which is listed by Oregon state law as an endangered species. Likewise, the Corps fails to consider the continuing reproductive failure of the Lower Columbia River bald eagle populations, or to even mention the declining status of mink and river otter, which are believed to have suffered reproductive deformities and precipitous population declines in the Lower Columbia River.

**D. The DSEIS Ignores the Importance of the Columbia River Plume and the Cumulative Effects on it**

SS-268 The DSEIS fails to evaluate the appropriate action area for the project in that it does not incorporate new scientific information demonstrating the importance of the Columbia River's discharge plume to West coast salmon populations. This plume affects both the nutrient productivity of coastal estuaries and upwelling ocean currents and involves the near ocean environment that has been identified as one geographic area important to salmon survival. The Corps' failure to incorporate this scientific information in both the baseline analysis and the evaluation of the impacts of the proposed channel deepening project in the DSEIS renders the document inadequate to meet the requirements of NEPA.

**V. The Intensity of Review Requires Attention to the Fact that Effects are Uncertain and Controversial.**

SS-269 In its DSEIS, the Corps has ignored the importance, controversy, and uncertain effects of its action, by itself and in conjunction with past, present, and reasonably foreseeable actions, in lieu of establishing a more intensive review. The only concession to any of these three aspects of the proposed project has been its last minute economic review panel, the results of which it has not even incorporated into the DSEIS in its haste to rush the project through regulatory hoops. The Corps keeps talking about how it has spent more than 10 years on this project. It is not the fault of the public, the regulatory agencies, or the environment that during that substantial period of time the Corps has simply failed to obtain necessary data and conduct analysis as required by federal law.

**VI. Compliance with Clean Water Act 404(b)(1)(c) Guidelines**

SS-270 The discussion of the how the proposed deepening project meets the Clean Water Act 404(b)(1)(c) Guidelines in the DSEIS is seriously inadequate. The purpose of the §404(b)(1)

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SS-267. Information on the status and impacts to white sturgeon and smelt were provided in the 1999 Final IFR/EIS and Final SEIS. Contrary to your statement, white sturgeon populations in the lower Columbia River have not recently been declining. Since the 1999 Final IFR/EIS, the Corps has funded additional work by WDFW and ODFW to assess smelt and sturgeon impacts. The Final SEIS includes this information. Smelt runs have recently rebounded to record levels in the last few years possibly as a result of improved ocean conditions. Little information is available on green sturgeon populations, though they are believed to be small. The Final SEIS has been revised to include available information on green sturgeon. Impacts to green sturgeon populations are similar to that described for white sturgeon since they utilize similar habitats. At the request of the State of Oregon, the Corps has reviewed and evaluated lower river coho. They will be discussed specifically as an Oregon State species of concern in the Final SEIS.

The Corps will implement four terms and conditions outlined in the USFWS's Biological Opinion to monitor contaminants and bald eagle productivity. These terms and conditions represent an extremely conservative approach to assess the situation. Isaacs and Anthony (2002) provide detailed information on the breeding bald eagle population and their reproductive success for Recovery Zone 10, the lower Columbia River, from 1973 to present. Total breeding territories surveyed in 1973 was one; for 2002 that number was 95 of which 89 (94%) were occupied. Young/occupied territory in 2002 was 1.02. The five-year average for young/occupied territory in Recovery Zone 10 has increased from 0.77 in 1998 to 0.92 in 2002. The Habitat Management Goal for Recovery Zone 10 is 47 bald eagle territories; the Recovery Population Goal is 31 territories (USFWS, 1986, Pacific Bald Eagle Recovery Plan). As discussed elsewhere in Final SEIS, the channel improvement project will not increase contaminant loading in the lower Columbia River; therefore, no impact to these species would be expected.

Henny et al. (1996) evaluated mink and river otter populations on the lower Columbia River (CRM 11-119.5) and the influence of environmental contaminants. They conducted a population estimate for river otter and estimated 286 individuals comprised the population along the lower Columbia River. No population estimates were derived for mink, although Henny et al. (1996) states that the population is extremely low. Conversely, a habitat suitability evaluation they conducted for the lower Columbia River indicated that habitat was excellent in many segments. They determined that a number of organochlorine and polychlorinated biphenyls were significantly higher in river otter from the lower Columbia River than a Coast Range reference population. Henny et al. (1996) noted that these contaminants were rarely correlated with CRM for age class 0 otters, never correlated for age class 1 otters, and almost always correlated with age 2+ otters. Low residue concentrations may explain the result for age 0 otters. Age 1 otters are dispersing from their natal areas and thus may confuse the issue. Adults (age 2+) are relatively sedentary in their home range. Their spatial information showed that river otter collected at CRM 119.5 typically contained the highest concentration of contaminants. The author's considered this to be the Portland-Vancouver area when in actuality it corresponds to Camas-Washougal, Washington. As discussed elsewhere in Final SEIS, the channel improvement project will not increase contaminant loading in the lower Columbia River; therefore, no impact to these species would be expected.

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Guidelines is to “restore and maintain the chemical, physical, and biological integrity of waters of the United States through the control of discharges of dredged or fill material.” 40 C.F.R. §230 [hereinafter “Guidelines”], 40 C.F.R. §230.1(a). Moreover, the Guidelines are intended to be consistent with policies of the Clean Water Act. 40 C.F.R. §230.1(b). The Corps’ proposed project does not comply with the Guidelines.

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Federal law requires a presumption against the discharge, placing the burden of proof on the project proponent to demonstrate compliance with the Guidelines. 40 C.F.R. §230.1(c). The Corps cannot demonstrate basic compliance with §404(b)(1) Guidelines because, as discussed below, it has not made affirmative demonstrations on the following issues, among others: blasting techniques and timing, effects on salinity of the estuary and its effect on fish, the habitat value of the proposed disposal areas, information on the Deep Water site, smothering impacts to white sturgeon, crab, and smelts, and the effects on all beneficial uses from redistribution of toxic materials and the effect on water quality and beneficial uses. Without this information, the Corps cannot demonstrate that the discharges “will not have an unacceptable adverse impact.” *Id.* Instructively, the Northwest Fisheries Center addressed the issue of burden of proof in its recent transmittal to the National Marine Fisheries Service (NMFS): “[T]he Regional Office’s decision on the proposed channel deepening will probably turn on the issue of burden of proof. While science cannot predict with certainty the extent to which salmonid will be adversely impacted by this action, neither can science conclude with certainty that the action will not adversely impact salmon, but it can say that this is an incremental insult to a degraded system that is important in the salmonid life cycle.” Memorandum for Rick Applegate, NMFS, from John E. Stein, Northwest Fisheries Science Center, Re: Lower Columbia River Channel Deepening Project, December 2, 1999 at 1 [hereinafter “Science Center memo”]. Of course, the Regional Office’s decisions to issue non-jeopardy biological opinions have turned on politics but that does not alter the findings of the Science Center.

Compliance with the Guidelines requires an affirmative demonstration that the proposed project will not have an unacceptable adverse impact individually or in combination with known and/or probable impacts of other activities affecting the ecosystem of concern. 40 C.F.R. §230.1(c). The Corps simply has not addressed the issue of the proposed project’s effects on the Lower Columbia River ecosystem in conjunction with any other known or probable activities. *See e.g.*, FEIS Ex. E, §IV g at 6. As the Science Center points out, “[c]urrently, continued incremental loss of habitat and increasing ecological risks are built into the environmental assessment process. Each new channel deepening proposal, as an example, involves a new assessment that uses current conditions as the sole baseline for evaluation.” Science Center memo, Appendix 1 at 3. Neither the Corps in its DSEIS nor NMFS in its most recent Biological Opinion, have, in fact, remedied this “grandfathering” approach to establishing the baseline conditions for the project.

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Nowhere does the Corps address the cumulative impact of this project on the Lower Columbia and the species it supports and operation of the hydroelectric dams on the Columbia and Snake Rivers. As is discussed below, the impact of the hydro system on the estuary is a known impact and therefore meets the “activities” criterion of 40 C.F.R. §230.1(c). Likewise, the Corps does not address the cumulative impact of the proposed project on species in the estuary in

SS-267 (con’t). The issue raised with concern to these species is contaminants, specifically DDT and derivatives and PCBs, which affect reproductive performance of these species (Garrett et al. 1988, USFWS 1995, Henny et al. 1996) and therefore, population levels. The Corps has determined that contaminants are not associated with navigation channel dredged material, which is comprised of medium to coarse-grained sands with less than 1% fines (organic materials, silts, clays) to which contaminants are typically associated with in the sediments. Fine-grained materials are typically associated with side channels and backwaters, which are not included in the dredging action associated with the project, except dredging at the Astoria Turning Basin, CRM 13. Bachelor Slough is another exception but dredging of that side channel is predicated upon sediment testing results. If the materials exceed established levels of concern for dredging and disposal, this ecosystem restoration feature would not be implemented. Based upon our determination that contaminants in the channel materials to be dredged are not detectable, and therefore considered negligible, we do not anticipate any impact to these species of concern.

SS-268. Potential effects on the plume were considered during the ESA consultation with NOAA Fisheries on endangered salmonids. In the 2001 BA, the discussions about impacts at the ‘river mouth’ would apply to the plume at MCR and a short distance offshore. A detailed study of the plume dynamics was not conducted because of the limited available data and because the hydraulic changes predicted for the MCR are so small they were not expected to have a significant impact on the plume’s behavior.

SS-269. The Corps disagrees. As a result of controversy and uncertainty, the Corps convened an independent science review panel to confirm the best available science for reviewing effects to listed species. This effort reduced uncertainties in some areas, as well as developed an approach for uncertainties. This effort focused on salmonids, but developed an ecosystem approach that provides an understanding that applies to basic physical parameters, habitat, and non-salmonid species. Also, the Corps, together with state resource agencies, undertook additional research on sturgeon, smelt and salmonid stranding. The Corps funded additional research regarding dredging impacts to crab. The Corps addressed controversy regarding the Deep Water Site by developing an option that eliminates the use of the site for this project.

SS-270. The original 404(b)(1) analysis has been revised in response to comments. The Biological Opinion issued by the NOAA Fisheries on December 16, 1999 was withdrawn, additional study and analysis was conducted, and a new Biological Assessment and a new Biological Opinion were prepared subsequent to the preparation of the “NOAA Fisheries Science Center Memo.” Ocean disposal sites (e.g., the Deep Water Site) are not subject to analysis under Section 404 of the Clean Water Act, but rather to Section 102 of the Marine Protection, Research, and Sanctuaries Act. That evaluation is contained in the 1999 Final IFR/EIS, Appendix H.

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SS-271 combination with extensive filling and diking of nearly 80 percent of the estuary's wetlands, pollution inputs from anthropogenic activities throughout the Columbia River Basin that have affected spawning, rearing, and migration of anadromous species and contributed levels of toxic contaminants in toxic amounts to the estuary, previous channel deepening projects, and maintenance dredging. Finally, the Corps cannot make this demonstration without full knowledge of the nature and extent of toxic contamination in the Lower Willamette River and proposed remediation approaches. Despite the Corps' arrogant finding in its Guidelines analysis that deepening the Willamette will not cause or contribute to the violations of water quality standards, it obviously does not have any more information or insight than any other agency, into what is now, by definition, the unknowable nature, extent, and impact of the contamination in that river.

SS-272 Subpart B of the Guidelines establishes four conditions that must be satisfied in order to demonstrate compliance with the Guidelines. 40 C.F.R. §230.4. The first condition is that there be no practicable alternative that would have less adverse impact on the aquatic ecosystem. 40 C.F.R. §230.10(a). The Corps discusses the use of a non-structural alternative consisting of river stage forecasting that would enable ships to determine navigable channel depths based on real-time tide and river stage information. FEIS at 4-4. The Corps admits that "there have been limitations with the existing river stage forecasting system that have prevented shippers from making maximum use of the available water depths in the Columbia River." *Id.* The Final EIS discusses the information gaps that have prevented full use of this system as well as full evaluation of the system's benefits by the Corps. *Id.* at 4-4 - 4-6. The use of this LoadMax system is an activity not involving discharge of dredged material that qualifies as a practicable alternative. 40 C.F.R. §230.10(a)(1)(i). The Corps is not the only source of information on the potential benefits of significantly improving the LoadMax system. Dr. David Jay, of the Center for Coastal and Land-Margin Research at the Oregon Graduate Institute, states:

"\* \* \* existing forecasts are provided for a limited number of locations by a model that is not "state-of-the-art" in the area of barotropic tidal-fluvial modeling, leading to uncertainties that are likely larger than necessary. The lack of a vessel traffic system on the river may also contribute to conservative loading practices in a manner that is difficult to assess from outside of the industry. \* \* \* Once again, there is a large data base that has not been exploited. The existing surface elevation data (many years of data at numerous stations) have only analyzed in a preliminary way to understand the details of the tide-river-flow interaction (Jay and Flinchem, 1997). The existing data and the available conceptual understanding of the system should be used in developing better river stage predictions. Better forecasts should be provided and evaluated and a traffic control system should be considered seriously, before much more extensive structural alternatives are considered, particularly in light of the very large uncertainty in dredged material disposal needs associated with the project."

Science Center memo, Appendix 2, at 22. This position is shared by the Office of the Secretary, of the U.S. Department of the Interior. See Letter from Preston Sleeper, Regional Environmental

SS-271. Additional discussion of cumulative impacts has been added to the revised 404(b)(1) analysis. The Final SEIS, Section 6.12 has been revised to include additional discussion on cumulative impacts.

SS-272. The comment refers only to the 1999 Final IFR/EIS. LoadMax is addressed again in the Final SEIS Section 4.3. There are no benefits that remain to be achieved with LoadMax; this conclusion was affirmed by the expert Benefits and Costs Technical Panel, August 2002.



Officer, Office Of Environmental Policy and Compliance, U.S. Dept. of the Interior to Col. Robert Slusar, Corps, February 8, 1999 at 1-2.

The Corps' analysis of LoadMax does not resolve the practicable alternatives analysis required by the Guidelines which explicitly state that alternatives analysis conducted to meet the requirements of the National Environmental Protection Act (NEPA) may not be sufficient to meet the Guidelines and therefore the Clean Water Act. 40 C.F.R. §230.10(a)(4). There is no evidence in the record that suggests this alternative is infeasible due to lack of technology and/or costs. Therefore the Corps has failed to meet the requirements of the Guidelines to demonstrate that there is no practicable alternative that will have a less adverse impact on the ecosystem -- in this case an adverse impact on an already extremely damaged ecosystem. 40 C.F.R. §230.10(a)(2).

The second condition of the Guidelines is that no discharge of dredged material can be allowed if it causes or contributes to violations of water quality standards, jeopardizes the continued existence of species listed as threatened or endangered under the Endangered Species Act, or "results in likelihood of the destruction of adverse modification of a habitat" that is a critical habitat. 40 C.F.R. §230.10(b). As discussed below, the proposed project will contribute to existing violations of water quality standards and will cause violations of others and therefore does not comply with this condition of the Guidelines. 40 C.F.R. §230.10(b)(1). Moreover, the effects on the estuary will result in adverse modification of critical habitat designated pursuant to the Endangered Species Act for many threatened and endangered salmonid species, as well as the Bald eagle, as discussed below, contrary to the express requirements of the Guidelines. 40 C.F.R. §230.10(b)(3). Therefore the proposed project fails to meet the second mandatory condition that would allow legal disposal of dredged spoils in the Lower Columbia River.

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The Guidelines' third condition is that no discharge of dredged material can be permitted which will "cause or contribute to significant degradation" of waters of the United States. 40 C.F.R. §230.10(c). Neither the Corps, nor the states' water quality agencies, knows the degree to which the proposed project will contribute to significant degradation because the Corps has failed to meet the information, documentation, and analysis requirements of the Guidelines in Subparts B-G, as discussed below. 40 C.F.R. §230.10(c). The Corps' failure to analyze the baseline of degradation prevents the Department from being able to establish the incremental degradation created by the proposed project. As the Science Center has observed: "Using a historical baseline for comparison could substantially alter interpretation of the probable impacts of the deepening project on the estuary and its subsequent use by salmon." Science Center memo, Appendix 1 at 3. However, what the Department can know with certainty is that the Columbia River Estuary is already seriously degraded. See e.g., Science Center memo at 1. Therefore, as even the Corps admits that the proposed project will contribute some additional short- and long-term degradation, it cannot comply with the Guidelines' requirement that the discharge not contribute to significant degradation. e.g., FEIS, Ex. E.

The fourth condition of the Guidelines is that no discharge shall be permitted unless potential adverse effects are minimized. 40 C.F.R. §230.10(d). The Guidelines set out possible methods to minimize these effects in Subpart H. The Corps does not provide information to assess whether it

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SS-273. This comment addresses three of the four conditions that must be met in accordance with Subpart B of the 404(b)(1) Guidelines before a discharge of dredged or fill material shall be permitted. The revised 404(b)(1) analysis concludes that the proposed project will not violate state water quality standards (second condition) and will not cause or contribute to significant degradation of waters of the U.S. (third condition).

The revised analysis also addresses impacts to endangered species and their habitat, noting that both the NOAA Fisheries (Biological Opinion) and the USFWS (Conference Report) have concluded that the proposed project is not likely to jeopardize the continued existence of listed species under their respective jurisdictions. The revised analysis also notes that the NOAA Fisheries concluded that the proposed project would not result in the destruction or adverse modification of then-designated critical habitat for salmonids (NOAA Fisheries has since withdrawn the designation of such habitat). Critical habitat has not been designated for bald eagles by the USFWS; thus, there is no adverse modification to critical habitat for this species. More specific responses pertaining to these two conditions are addressed below.

The fourth condition pertains to minimization of adverse effects of the discharges. The revised 404(b)(1) Evaluation addresses minimization of adverse effects throughout the document. The revised 404(b)(1) analysis addresses changes in the water current and circulation patterns.

Rice Island (1962), Miller Sands Spit (1976-77) and Pillar Rock Island (pre-dates Miller Sands Spit) were initially created well prior to ESA listing of salmonids. The sandy, barren habitat conditions attractive to Caspian terns, the species believed referenced, thus preceded the ESA listing of salmonids. The downstream end of Rice Island, where Caspian tern nesting occurred from 1986-2000, has not received dredged material since prior to the ESA listing of salmonids or their critical habitat for the Columbia River.

The Corps will continue to implement management actions comparable to those required by Term and Condition 1a of the Biological Opinion signed September 15, 1999 regarding the Columbia River Channel Operation and Maintenance Program that addressed both Caspian tern and cormorant concerns:

1a. The COE shall modify the habitat on Rice Island by April 1, 2000, so that it is no longer suitable as a nesting site for Caspian terns or provide for the hazing of terns off the island in a manner that will preclude their nesting. The COE shall ensure that any terns hazed off the island do not nest on any dredge spoil islands in the action area (other than East Sand Island). The COE shall continue to prevent nesting of Caspian terns on disposal islands within the action area for the life of the project.

To accomplish this Term and Condition, the Corps has annually maintained nesting habitat at East Sand Island. To assist in attracting Caspian terns to East Sand Island, researchers from Oregon State University have placed tern decoys and implemented a sound system to play recorded tern colony sounds. If Oregon State University does not implement the decoy-sound system approach in the future, then the Corps will be required to do so. Caspian tern presence, defined as aggregations of terns on upland portions of upriver dredged material islands (Rice Island, Miller Sands Spit, and Pillar Rock Island) between April 1 and June 10, will trigger hazing operations to disturb the birds from the location and preclude nesting activities.

## Corps of Engineers Response

SS-273 has minimized the potential adverse impacts as set out in this subpart. For example, in its plan to continue using Rice Island as a disposal site, the Corps has not addressed the issue of avoiding the “creat[ion] of habitat conducive to the development of undesirable predators.” 40 C.F.R. §230.75(b). In failing to address the issue of ETM, the Corps has not avoided “changes in water current and circulation patterns which would interfere with the movement of animals,” in this case the copepods upon which salmonid rely. 40 C.F.R. §230.75(a). It has not timed the discharge to “avoid spawning or migration season and other biologically critical time periods.” 40 C.F.R. §230.75(e). It has not used habitat development and restoration to “minimize adverse impacts and to compensate for destroyed habitat.” 40 C.F.R. §230.75(d). While we do not in general advocate for mitigation of increased habitat destruction through constructed habitat, because it is so rarely effective in replacing natural habitat, there is no evidence that the Corps has proposed mitigation sufficient to address the habitat it proposes to continue to destroy for fish, birds, mammals, and other wildlife.

SS-274 While the Corps has amended its Biological Assessment to include alleged restoration actions in the estuary, it has provided no basis upon which the public could analyze this proposal because there are insufficient details about the restoration projects, including baseline conditions of the sites, that would allow for concluding the proposed activities would create the habitat values. Ownership of potential habitat and even significant expenditures of resources into restoration do not guarantee the restoration of habitat values, as studies done on the Salmon River Estuary have demonstrated. Restoration of needed habitat values may not be able to be realized without other actions such as removal of dikes, cessation of dredging, etc.

SS-275 The Corps’ project does not meet the Guidelines, as demonstrated by the exceedingly superficial analysis presented in its few pages. FEIS, Ex. E, Section 404(b)(1) Evaluation. As a result, basic procedures of the Guidelines have not been met. See, e.g., 40 C.F.R. §230.5(h), (i), (j), (k), (l). It is evident that, as new information has become available, the Corps has not followed the Guidelines’ caution that the process of addressing them may be “iterative, with the results of one step leading to a reexamination of previous steps.” 40 C.F.R. §230.5(l). New information has become available to the Corps on issues of salmon recovery, Willamette River sediment contamination, use of a Deep Water disposal site, the effect of salinity changes on the food web of the estuary, all of which are discussed in our comments. Yet the DSEIS does not address these issues. This is contrary to the Guidelines’ emphasis on the “essential” nature of information and documentation. 40 C.F.R. §230.6(a). It is worth noting that it is in this context that the Guidelines reiterate its “presumption against the discharge.” 40 C.F.R. §230.6(c).

SS-276 The Corps uses these few pages to present unsubstantiated conclusions, omitting relevant information that is available to the agency (e.g., exclusion of all information on the estuarine turbidity maxima (ETM), effectiveness of tern predation mitigation, effect of toxic contamination on animal life of the estuary), while drawing conclusions based on little or no analysis. The Guidelines specifically require determination in writing of the potential short- and long-term effects of the proposed discharge of dredged material on the physical, chemical, and biological aspects of the aquatic environment. 40 C.F.R. §230.11.

SS-273 (con’t). The existing disposal site on Rice Island is proposed for use for channel maintenance; however, it is not proposed for dredged material disposal during construction of the 43-foot project. Caspian tern management in the western U.S. is the subject of an interagency effort (Caspian Tern Working Group). The intent is to disperse the tern population amongst a number of nesting locations. This would reduce predation on juvenile salmonids. Dispersal of the Caspian terns would also lessen the risk of catastrophic loss through disease, pollution or other factors, to the bulk of the U.S. population.

The Corps has agreed to voluntarily implement, under Section 7(a)(1) of ESA and utilizing our existing authorities, ecosystem restoration features to improve habitat for listed species. These ecosystem restoration features are intended to aid in the recovery of the listed species and are *not* being implemented to offset (compensate) project impacts. Under Section 7(a)(2) of the ESA the Corps will implement best management practices, (minimization) as well as the Terms and Conditions in the 2002 Biological Opinion issued by NOAA Fisheries and the USFWS to further minimize project related impacts.

The Corps disagrees; the 1999 Final IFR/EIS, Appendix G details the wildlife mitigation plan for impacts associated with the channel improvement project. The Corps will use spatial and temporal factors to minimize impacts to fisheries resources.

SS-274. The Corps disagrees. The proposed ecosystem restoration features were developed in concert with NOAA Fisheries and the USFWS and also reflect their resource knowledge. For Miller-Pillar, the Corps funded baseline research of the area in the mid-1990s by researchers from NOAA Fisheries who have extensive experience in evaluating estuarine resources. For Lois Island embayment, the Corps relied upon existing information. Based upon comments from ODFW, ODEQ, ODLCD, and CREST, the Corps has modified both the Miller-Pillar and Lois Island embayment ecosystem restoration features to produce tidal marsh habitat. There are excellent examples of tidal marsh development on dredged material at Lois Island, Mott Island and South Tongue Point which fringe Lois Island embayment. Similar tidal marsh development on dredged material surrounds Miller Sands Island and abuts Miller Sands Spit and Pillar Rock Island that are adjacent to Miller-Pillar. The interim measure at Tenasillahe Island is comparable to that proposed by local citizens at nearby Brownsmead. The Corps would implement hydrology and hydraulic studies prior to implementation of the interim measure to assure Columbian white-tailed deer are protected and that water flow and circulation improvements plus fisheries access and egress can be improved to the extent practicable. The long-term measure at Tenasillahe Island simply entails constructing physical breaches in the flood control levee and allowing for tidal connection to be restored. The representatives from multiple agencies comprising LCREP have embraced breaching of flood control levees and allowing for passive restoration of formerly enclosed habitats via tidal reconnection.

All ecosystem restoration features will be subject to monitoring efforts, submitted prior to implementation for review and approval to NOAA Fisheries and the USFWS, to track results of each feature. Annual reports to the interagency Adaptive Management Team will be provided in order that modifications to the ecosystem restoration features can be adopted, if necessary, to ensure restoration actions are as proficient as practicable.

## Corps of Engineers Response

SS-277 The Corps' determination of the effects of the project on physical substrate does not meet the requirements of the Guidelines. 40 C.F.R. §230.11(a). The Guidelines specifically require an analysis of "the nature and degree of effect" of the discharge "individually and cumulatively," with consideration to "any potential elevation and bottom contours, including changes outside the disposal site," the "duration and physical extent of substrate changes," and the "possible loss of environmental values," among many other considerations. *Id.* Contained in two sentences, the Corps' Findings state that the depth of sites may be raised as much as 20 feet and that there will be no significant change in physical characteristics. FEIS Ex. E at 3. This obviously does not discuss the loss of environmental values, such as the potential effect on declining populations of sturgeon, or other considerations that are required in this analysis. It does not address recently collected information that certain salmonid populations "may be shifting their vertical distribution to deeper water at night." Science Center memo, Appendix I §4 at 7. It simply states an unsubstantiated conclusion.

SS-278 The Corps' determination of the effects of the project, individually and cumulatively, on water circulation and salinity does not meet the requirements of the Guidelines. 40 C.F.R. §230.11(b). The Guidelines require consideration to all water quality considerations, the "potential diversion or obstruction of flow, alterations of bottom contours, or other significant changes in the hydrologic regime." *Id.* The Corps' Findings merely conclude that the disposal will "affect minor changes in hydrologic features such as circulation patterns, downstream flows, or normal water level fluctuations" and that "channel deepening and related disposal could cause a minor concentration of flow in the main channel." EIS Ex. E at 4. These statements do not constitute an analysis of the effects the Corps identifies nor an evaluation of the cumulative impact of the project, particularly on the ETM, discussed below. The Department must evaluate any increase in flow concentration in the main channel, no matter how minor according to the Corps, in light of the disturbing outcome of on-going research on the ETM in the Columbia and the effect it will have on temperature and other parameters. However, the Corps has not provided sufficient information in the FEIS or the §404(b)(1) Guidelines Evaluation upon which to rely. In addition, the Corps, having not identified clearly the areas that it proposes to use for flow-lane and deep water disposal, cannot evaluate the effect of the discharge on the river, and therefore cannot meet the requirements of the Guidelines.

SS-279 The Corps' determination of the effects of the project on suspended particulate/turbidity does not meet the requirements of the Guidelines. 40 C.F.R. §230.11(c). The Guidelines require that the discharge be evaluated individually and cumulatively, to determine the "shape and size of the plume," "duration of the discharge," and the "potential for water quality standards violations," with consideration required for "methods, volumes, location, and rate of discharge, as well as the individual and combined effects of current patterns, water circulation and fluctuations, wind and wave action, and other physical factors." *Id.* The Corps' Findings are cursory and consist of the statement that there will be a "[s]hort term minor increase in turbidity" that "temporarily inhibit[s] light penetration" that nonetheless will "not violate state water quality standards." *Id.* at 4. As the Corps has not identified the locations of the discharge, it cannot have included in its analysis the mandatory considerations quoted above. The DSEIS section on the Guidelines is nothing more than the self-serving conclusions of the Corps that the discharge will not have a significant

SS-275. The Corps disagrees with the comment. The Corps has considered all relevant information of significance.

SS-276. The Corps disagrees that it has omitted relevant information and reached unsubstantiated conclusions. The Corps used available information for ETM, sediment quality, and animal life in the estuary among others, to conduct the 404(b)(1) analysis. The revised 404(b)(1) analysis addresses the potential short- and long-term effects of proposed discharges.

Text has been added to the Final SEIS to address effectiveness of mitigation efforts to reduce Caspian tern predation on juvenile salmonids. The Corps, in concert with other agencies, has implemented measures to mitigate Caspian tern predation in the lower Columbia River since 1999. The nesting population has been successfully diverted to East Sand Island from Rice Island. Juvenile salmonids comprise a substantially smaller portion of the terns diet when the nesting colony is located at East Sand Island. The Corps will continue to meet the requirements in the 1999 NOAA Fisheries Biological Opinion for Columbia River channel maintenance and disallow Caspian tern nesting at Rice Island, Miller Sands Spit and Pillar Rock Island.

SS-277. The 404(b)(1) analysis has been revised in response to comments. Since the publishing of the 1999 Final IFR/EIS, the Corps has conducted three years of sturgeon data collection with an additional year planned. All information from these studies to date has been included in the Final SEIS, Exhibit K-2. With regard to salmon occurring deeper in the water column, NOAA Fisheries researchers believed that the fish could be moving to the bottom at night because they disappeared from the purse seine catch at night. NOAA Fisheries, however, did not have any direct information on where the fish went. Studies conducted by the Corps using hydro-acoustics show that fish migrate in the channel margins, not in the deeper channel areas. Also, studies done around pile dikes show that the juveniles move in-shore at night.

SS-278. The hydraulic analyses of the proposed 43-foot channel have tended to treat all dredged material as being removed from the river. This conservative approach produces the largest increases in the channel's cross-sectional area and results in the maximum potential increased flow concentration and reductions in water surface profiles. Adding in-water disposal into the model's geometry would reduce the channel's cross-sectional area and thus further reduce the very small changes in flow concentration and water surface profiles predicted for the proposed project. Those effects are addressed in the 2001 BA and have been affirmed by the 2002 NOAA Fisheries and USFWS Biological Opinions.

The revised 404(b)(1) analysis explains that the specific locations of flowlane disposal cannot be determined until the time of disposal due to the dynamic nature of the river bottom composed of sand waves. However, the analysis also shows that all the general areas proposed for flowlane disposal possess a similarity of characteristics (substrate, etc.) that allows analysis without specific site designation at this time.

SS-279. The discussion of suspended particulates/turbidity has been expanded in the revised 404(b)(1) analysis to more fully address the factors contained in 40 CFR 230.11(c). The Corps will continue to evaluate all sediment data collected and determine whether new testing is necessary in the navigation channel.

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SS-279 effect on the physical, chemical, and biological water quality characteristics and therefore on the beneficial uses. For example, the Corps' analysis does not include the time of year of the discharge. The time of year relates both to the cumulative effect of many different considerations set out in the Guidelines as well as what it means to be in compliance with water quality standards. The latter includes both the quality of the river that varies by season, e.g., the river is anthropogenically and naturally more turbid in seasons of run-off and use of the river by sensitive beneficial uses that also varies by season. In the absence of this information about when and where the discharge will take place, the Corps cannot correctly conclude that water quality standards will not be violated. In addition, the Corps has not tested all of the material that will be dredged, as discussed below. In making its Findings, the Corps is assuming that all of the dredged material will be sand. It has not made an affirmative finding that all of the material will be sand, in order to rely upon this analysis by the Corps, a finding it cannot make in light of the possibility that some of the untested deep sediments are fine clays.

SS-280 The Corps' determination of the effects of the project on introducing, relocating, or increasing contaminants does not meet the requirements of the Guidelines. 40 C.F.R. §230.11(d). The EIS notes that reproductive success for bald eagles nesting along the Oregon shore of the lower Columbia River is low. EIS at 6-41. Studies by the U.S. Fish & Wildlife Service (USF&WS) and others have demonstrated that this reproductive failure is attributable to toxic contaminants, such as DDE, PCB=s, and dioxins, the main conduit of which has been dredging. Id. Rather than acknowledge that deepening and disposal of more dredged material may increase the eagles' exposure to contaminants, the EIS concludes that contaminant loading is not an issue for the sandy sediments. Id. However, the Corps ignores its own statement that dredging may resuspend the contaminants, which then become available for uptake by bald eagles. Id. Since PCBs, DDE, and DDT have repeatedly been found in tissue samples of lower Columbia River fish, these contaminants exist in the sediment and will be resuspended by the proposed activity. The Corps' decision to only sample sediments to 10 inches beneath the surface, when dredging will resuspend contaminants as deep as 3 feet beneath the surface, provides little data for the Department to analyze. Regardless, significant levels of dioxins were detected throughout the lower Columbia River. EIS Appendix B at 24. To adequately show that contaminant resuspension is not a risk, the Corps must analyze larger-grained sediment and analyze to the proposed deepening depth. Simply dismissing the potential for contaminant loading on the basis of the sediment being fine to medium-grained sand does not suffice as serious consideration of the potential harm to eagles or any other affected species.

SS-281 In the Columbia and Willamette River Sediment Quality Evaluation of the EIS, the Corps identifies contaminates in the sediment that will be dredged, moved, and stored during the project. EIS, Appendix B. Eighty-nine samples of sediments were taken along the proposed dredging sites along the Columbia and the Willamette. The Columbia River Data showed the existence of metals, pesticides, and polynuclear aromatic hydrocarbons. The Willamette River sediment contains highly toxic compounds at high levels. Sample 42 exceeded the screening levels for mercury at .87 parts per million, and sample 42D at 489 ppm of lead. Samples 23 and 24 both exceeded screening levels of tributyltin. Furthermore, known carcinogens and endocrine disrupters were found in the sediment: 9 samples exceeded screening levels for DDT, PCPs

SS-280. See responses SS-248 and SS-267. The Federal Government disagrees with the commenter's characterization of the 1999 Final IFR/EIS, which concluded that contaminant loading is not an issue for the sandy sediments being dredged as part of this project. Further as noted in response SS-267, reproductive success for bald eagles in the lower Columbia River has improved since 1999. As noted in response SS-284 (below), the sampling protocol is appropriate for characterizing all the materials to be dredged as part of the project.

SS-281. The Federal Government disagrees with the comment. See response SS-248.

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exceeded screening levels in 42C, and Dieldrin exceeded screening levels at 40A. In one sample, 24A, pesticides are exceedingly high (DDD exists at 100 ppm and DDT exists in 198 ppm.). The Corps' data demonstrates that there is reason to believe that Columbia River sediments are not benign but it has not obtained sufficient information upon which to demonstrate that it has met the Guidelines.

SS-282 The Corps has chosen to not conduct Tier II chemical testing of dredged material which contains less than 20% sand and finer grained material. Although the finer grained material chemically bonds better than the larger grained material, the larger grained material may still have chemical contamination. Because of this and the possibility of larger-grained material (up to .50 mm) becoming suspended in the river with impacts similar to larger-grained materials, the Corps should chemically test all of the samples. The Corps should also test for radiation. The Hanford Nuclear Reactor site lies on the Columbia River upstream of the navigation channel. For many years, nine reactors operated at Hanford with once-through cooling; the cooling water was discharged into the river. Radioactive materials traveled down the Columbia and up as far north as Puget Sound and as far south as San Francisco Bay. There is no reason to believe that years of reactor operations did not deposit radioactive materials in the as yet undisturbed sediments of the Lower River. Any omission of testing these materials for possible radioactivity is patently irresponsible and dangerous. The Corps dismisses the need to test for radioactivity based on half-lives of radioactive material and the date Hanford ceased production. However, materials remain stored on the Hanford site and in the river. For example, cesium-137, a radioactive substance, was present in all tested samples in 1993. Lower Columbia Bi-State Water Quality Program, Reconnaissance Survey of the Lower Columbia River, v. 1, May 1993 at 3-29. To avoid resuspension of radioactive materials, the Department should require the Corps to test for radiation prior to issuing a certification.

SS-283 The Corps should also perform biological testing. The EIS states the only physical and chemical analyses – but not biological – were conducted on sediment samples. EIS at 2-15. It concludes that sediment within the Columbia River navigation channel is not contaminated. *Id.* It also acknowledges that four sites outside of the navigation channel had excessive levels of DDT. *Id.* However, it does not provide the reader with a clear idea of where, specifically, the testing took place, nor how close the testing site is to the navigation channel, the likelihood of this DDT sloughing into the navigation channel or becoming resuspended from the process of dredging, or other consequential effects from dredging near a contaminated site. It does not explain how such contamination might be affected by the advance maintenance dredging 100 feet outside the navigation channel.

SS-284 Compliance with the Guidelines cannot be evaluated because the Corps only tested at a 10 inch depth. The Corps concluded that material beneath this level would not bind as well chemically as the upper material. EIS, Appendix B at 5. However, without testing to deeper levels, over two-thirds of the material to be dredged and resuspended will have gone untested. The flow of the Columbia River is large enough to suspend and transport particles as large as .10 mm, and as large as .50 mm during high flows. Reconnaissance Survey, *supra*, at 3-19. Thus, most of the material to be dredged could become suspended particles in the river and be dispersed throughout

SS-282. The Federal Government disagrees; see the 1999 Final IFR/EIS, Appendix B, and response to SS-248 regarding chemical testing of Columbia River sands. Further, because of the process of sand waves turning over in the main stem Columbia, the commenter's assertion that contaminants are buried is incorrect.

Regarding radionuclides, the 1993 Bi-State Reconnaissance Survey reports that radionuclides have been the most extensively studied contaminant in the Columbia River. The maximum concentrations measured in the reconnaissance survey were similar, or less than, the reported maximum concentrations in the sediment above Hanford. This subject is discussed at length in the 1999 Final IFR/EIS, Appendix B. Although traces of radioactive materials remain in the river, monitoring by the states of Oregon and Washington and others indicate that radionuclides do not currently pose a health hazard. The Corps and USEPA have reviewed this and numerous other studies regarding the potential presence of radionuclides in the project area and has concluded that no further testing is necessary. See 1999 Final IFR/EIS, Appendix B, Section 7.5.

SS-283. The Federal Government disagrees. Biological testing is not necessary based upon current information and guidelines. The 1997 testing found DDT and its derivatives above detectable levels at three (not four) locations; however, none were above established screening levels. None of these are areas affected by advance maintenance dredging. Sample locations (river mile, bar name, latitude and longitude) are provided in the 1999 Final IFR/EIS, Table 2 of Appendix B. In addition 1999 Final IFR/EIS, Appendix B, Plates 6 through 34, are provided showing each Columbia River sample location in relation to the channel and local geography.

SS-284. The sampling and analysis plan for the Columbia River sediment collection and analyses conducted in 1997 was designed to provide representative material that would be dredged during the channel improvement. Representative samples were collected. The data presented in the 1999 Final IFR/EIS, Appendix B, is representative of the character of the material at all depths. The material in the navigation channel is homogeneous due to the mechanisms forming the shoals in the river, therefore a surface sample is as representative of the material to be dredged as a sample three feet deep or deeper. Because of the nature of the Columbia River and its shoals, most of the shoal material is annually resuspended through natural processes regardless of any dredging efforts. During the high flows of the spring freshets when shoals can rapidly move, resuspension is likely to occur daily, if not hourly.

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the river, including along the river's sloughs and wetlands. Resident and endangered species, including salmonids, depend on these areas for sustenance and cover, and could be impacted by chemicals bonded to the larger, untested materials.

The Corps' determination of the effects of the project, individually or cumulatively, on the structure and function of the aquatic ecosystem and organisms does not meet the requirements of the Guidelines. 40 C.F.R. §230.11(e). The Guidelines require evaluation of the "nature and degree of effect that the proposed discharge will have, both individually and cumulatively, on the structure and function of the aquatic ecosystem" including "effects at the proposed disposal site of potential changes in substrate characteristics and elevation, water or substrate chemistry, nutrients, currents, circulation, fluctuation, and salinity, on the recolonization and existence of indigenous aquatic organisms or communities" and "possible loss of environmental values." *Id.* The Corps' Findings merely state that flowlane disposal will continue to have the same impacts as they have had in previous years, without noting what those effects are. The analysis, such as it is, does not address what contribution the flowlane disposal has had on the biotic communities of the river and therefore upon higher level food chain fish, birds, and mammals that depend upon it.

SS-285

The Corps is relying on the unsubstantiated conclusion that "[d]redging and disposal actions would be scheduled so that salmon migrations would not be disrupted." FEIS, Ex. E at 6. That statement, although it addresses the issue of salmon, does not establish what the Corps means by "would not be disrupted." Without more information, it cannot be determined that the project will not affect the aquatic ecosystem. The fact that the proposed project might be an improvement in the volume of flow lane disposal over previous years is irrelevant because the on-going maintenance dredging is already causing unacceptable effects on sensitive beneficial uses, effects such as Rice Island and the change in the ETM. In contrast to the requirements of the Guidelines, the Science Center has concluded that the Corps improperly evaluates [e]ach new channel deepening proposal [with] a new assessment that uses current conditions as the sole baseline for evaluation \* \* \* [which] could substantially alter interpretation of the probable impacts." Science Center memo, Appendix 1, at 3. Therefore, the Corps does not meet the requirements of the Guidelines.

The Corps' determination of the disposal sites and their proposed mixing zones does not meet the requirements of the Guidelines. 40 C.F.R. §230.11(f). The Guidelines require that "[e]ach disposal site shall be specified." *Id.* Contrary to this requirement, the Corps has identified disposal sites in a vague one paragraph explanation. FEIS at 4-36. Moreover, the EIS is not consistent in the number of sites identified, naming five sites in one place and six in another. *Id.* at 4-36, 6-22. These sites would be used for 50 years; the Corps does not establish if its proposed findings address the entirety of that half century. In addition, the Corps states that it will use sites that are an exception to its general flowlane criteria of 50 to 65 feet, but it does not discuss the effects of those exceptions. *Id.* Without presenting any information on the sites, or when, where and how they will be used, the Corps concludes that "[t]he mixing zone would be limited to the smallest practicable area," "the extent and duration of mixing would be minor," and that it will be in compliance with water quality standards. FEIS, Ex. E at 6. There is no discussion of the ten mandatory factors to be addressed by the Corps and EPA with regard to determining the acceptability of the mixing zone. 40 C.F.R. §230.11(f)(2)(i)-(x).

SS-286

SS-285. The 404(b)(1) analysis has been revised in response to comments. Analysis of the effects of the proposed disposal on features noted in the comment is contained throughout the revised analysis under "Factual Determinations." Effects of disposal on biotic communities are addressed in the revised analysis under "Aquatic Ecosystem and Organism Determinations." The Corps disagrees with the allegation that maintenance dredging is causing "unacceptable effects on sensitive beneficial uses." The effects of flowlane disposal associated with maintenance dredging have been reviewed by and are subject to Section 401 regulatory authority under the states of Oregon and Washington. As noted earlier, a new Biological Assessment and a new Biological Opinion have been issued since preparation of the referenced NOAA Fisheries Science Center memo. No detrimental impacts to the ETM have been identified from maintenance dredging and as explained in the BA, none is expected to occur with the deeper channel.

SS-286. The revised 404(b)(1) analysis explains that the specific locations of flowlane disposal cannot be determined until the time of disposal due to the dynamic nature of the river bottom which is composed of sand waves. However, the analysis also shows that all the general areas proposed for flowlane disposal possess a similarity of characteristics (substrate, etc.) that allows analysis without specific site designation at this time. The factors specified under 40 CFR 230.11(f)(2) have been addressed in the revised 404(b)(1) analysis. The factual determinations in the revised analysis are for the life of the project. The analysis will be reviewed and revised as necessary if warranted by a future change in circumstances. The only concern that the Corps is aware of with respect to disposal below 65 feet (as compared to disposal between 50 and 65 feet) is the potential impact to sturgeon. As discussed in the revised analysis, if there is an impact, then behavioral research by the USGS will be used to manage the dredging and disposal operations to minimize impacts to sturgeon populations. The revised 404(b)(1) analysis includes additional discussion of cumulative impacts.

SS-286 The Corps' determination of the effects of the project on the cumulative impacts of dredged materials does not meet the requirements of the Guidelines. 40 C.F.R. §230.11(g). Although the Corps states that "[i]mpacts to recreational and commercial fisheries will occur," it also concludes that the project is "not expected to have any significant adverse cumulative impacts on the aquatic ecosystem." Ex. E at 6. This is patently insufficient, as demonstrated by the remainder of our comments, above and below.

SS-287 The Corps' determination of the secondary effects of the project on the aquatic ecosystem does not meet the requirements of the Guidelines. 40 C.F.R. §230.11(h). The Corps addresses this requirement with one sentence: "The proposed action would maintain commercial navigation on the Columbia River resulting in continuing impacts to the aquatic ecosystem." Ex. E at 6. The Corps, however, by-passes any disclosure of what those continuing impacts are. There are several that come to mind: contaminated sediments, effects of temperature increases in peripheral areas, operation of dams for transportation on the Columbia and its tributaries, the change in the ETM of the Columbia, and the use by Caspian terns of the Rice Island disposal site.

**VII. The DSEIS Fails to Take a "Hard Look" at Environmental Impacts**

**A. The Corps Fails to Consider the Project's Adverse Effects on the Status of White Sturgeon**

SS-288 The Lower Columbia River population of white sturgeon is considered to be the most productive in its limited range and a source of populations in other estuaries along the Pacific coast. The DEIS does not protect white sturgeon from direct and indirect impacts of the project because it does not adequately assess the ecological importance of the Lower Columbia River white sturgeon. Flowlane disposal as proposed for the project will fill deepwater habitat critical to sturgeon. The DSEIS does not evaluate the potential impacts of the proposed or foreseeably likely level of disposal. In addition, the DSEIS does not address potential impacts to all habitats used by white sturgeon in the project area. Sturgeon larvae are dependent upon river currents to carry them from incubation areas to rearing areas; it is believed that the wide dispersal of larvae and juvenile white sturgeon is probably an important factor in maintaining a stable population in the lower Columbia River. Moreover, sturgeon abundance and movement in the estuary has been associated with the annual run of smelt, an important food item in late winter and early spring. A continued decline in smelt returns is likely to lead to a reciprocal decline in the abundance, condition, and growth of white sturgeon. Notwithstanding the scientific basis for concern about both the white sturgeon and the impacts of falling smelt populations on white sturgeon, the DSEIS does not provide a sufficient analysis of the environmental or economic effects of the proposed project.

**B. The Corps Fails to Consider the Project's Adverse Effects on the Status of Smelt**

SS-289 Columbia River smelt has experienced a precipitous decline over the past seven years. Recent levels of adult returns are a cause of extreme concern. In July 1999 a petition to list smelt under

SS-287. The regulation cited in the comment requires that secondary effects on aquatic ecosystems be considered. The discussion of secondary effects has been expanded in the revised 404(b)(1) analysis to address fluctuating river levels, surface runoff from disposal sites, and the handling/resale of sand. Contaminated sediments, effects of temperature increases and changes in the ETM have been addressed in the Final SEIS and the Biological Opinions. The operation of the dams is addressed in the Final SEIS. See response SS-273.

SS-288. The Corps disagrees. Impacts to white sturgeon populations are thoroughly discussed in the 1999 Final IFR/EIS, and Final SEIS using all available information. In addition, Corps-funded research has been done on feeding habits and food supply in the deepwater areas as well as tagging studies currently underway to determine how sturgeon use the deep water areas. Juvenile and adult sturgeons have been radio tagged and their behavior in deep water areas monitored. In addition, behavior around a dredging and disposal operation was also monitored. The information is presented in the Final SEIS and will be used to manage the disposal operations to minimize impacts to sturgeon populations. Based on the available information, the project will not result in reasonably foreseeable significant adverse effects to sturgeon populations. As noted above, the Corps is continuing to evaluate potential effects to sturgeon and will, as appropriate, use the new information to manage future disposal activities. Contrary to your statement, smelt populations have rebounded in the last few years and runs have been at record numbers. Although the reason for this is unknown, it seems likely that it is the result of improved ocean conditions. Additional research regarding smelt and their spawning habitat was conducted since 1999 by ODFW and WDFW with funds provided by the Corps. This research concluded that the project was not likely to significantly impact smelt and their spawning habitat.

SS-289. The Corps disagrees; smelt populations and the effect of the channel improvement project have been thoroughly evaluated. The smelt evaluation report provided in the Final SEIS, Exhibit K-2, provides a detailed description of the studies and evaluations done. The conclusions and recommendations of the researchers are that due to the wide distribution of smelt and the unstable bottom in the navigation channel that there will be no impact to smelt populations. The Corps has agreed to schedule construction dredging and disposal to avoid the peak outmigration for smelt typically between the 2<sup>nd</sup> and 18<sup>th</sup> of April. The recommendations are provided in the Final SEIS (See Exhibit K-2).

the Endangered Species Act was submitted to the National Marine Fisheries Service. Any further activities, such as construction of the 43-foot navigation channel, that could further threaten the Columbia River smelt must be avoided until there is a substantial rebound in smelt returns and the causes of recent declines are more clearly understood. The DSEIS does not evaluate the baseline conditions or cumulative effect of channel deepening on smelt populations.

## Corps of Engineers Response

### C. The Corps Fails to Consider the Project's Adverse Effects on the Status of Green Sturgeon

SS-290 Although the Corps has recognized that Green sturgeon are present in the Lower Columbia River estuary, the DSEIS does not evaluate the effects of the proposed project on this species. As with White sturgeon, the Corps has not recognized that the project is likely to have an effect because sturgeon are bottom feeders that are most likely to be present in the area of dredging operations and adversely affected by being buried in sediment disposal or entrained in dredging equipment. Given the status of Green sturgeon, which have been petitioned for listing under the Endangered Species Act and for which NMFS has stated the listing "may be warranted," the unresolved issues discussed elsewhere may be even more critical than for White sturgeon. 66 Fed. Reg. 64793 (Dec. 14, 2001). In its notice, NMFS observed that Green sturgeon are present in the Columbia estuary and are particularly vulnerable to habitat degradation and species decline because they are a long-lived species with low fecundity. *Id.* In light of the precarious position of Green Sturgeon as a species and the strong likelihood that individuals of the species will be directly and adversely impacted by dredging operations, the Corps' failure to consider effects on this species is a failure to take a hard look at environmental impacts.

SS-290. See response SS-168.

### D. The DSEIS Fails to Evaluate the Adverse Effects of the Proposed Restoration Actions

SS-291 Two significant so-called restoration projects have been added through the DSEIS, the Lois-Mott Island project and the Miller-Pillar Rock pile dike project. It is our belief that neither of these is a restoration project, but merely dredged spoil disposal by another name. The Corps has not explained in the DSEIS why creation of shallow water habitat – one habitat type that has increased from historic levels – provides a benefit to salmon. It does not, because it is wholly lacking in a required alternatives analysis for all alleged restoration projects, evaluate alternatives to either of these projects or the rationale behind creation of this particular type of habitat. It does not evaluate the projects in light of the habitat types that have shown serious decline, namely tidal marshes and spruce swamps, which have declined by at least 43 and 77 percent respectively over the last 100 years. Changes in Columbia River Estuary Habitat Types Over the Past Century, Duncan Thomas, CRDDP, 1983. Neither of the two islands involved in the Lois-Mott project are actually historic islands but rather were created wholly from dredged spoils. The DSEIS does not evaluate the effect of the project on use of the area to be filled by sturgeon, although it is a known rearing area for the species. The DSEIS does not evaluate the effect from tern predation from increasing and maintaining any dredged spoil islands or the effect on bathymetry, flows, and sediment transport from the huge Miller-Pillar project. Finally, it does not consider the implications for plunging forward with a huge so-called restoration project when the

SS-291. See responses S-9, S-11 and SS-194. NOAA Fisheries has documented that dredged material disposal sites can be productive habitat for benthic invertebrates and juvenile salmonids.

The Corps, NOAA Fisheries and USFWS vetted these restoration features during development of the consultation BA and Biological Opinion. The Corps, through participation in the June 2001 workshop for restoration of Columbia River estuarine habitats, participation in LCREP, and through coordination with local entities regarding other Corps authorities (e.g., Sections 1135, 206 and 536) for restoration purposes, is well aware of the nature and scope of potential restoration projects in the Columbia River estuary. We are also aware of limitations, yet to be overcome, on land availability, easements, monies, sponsors and other physical and/or social/political constraints that make implementation of these restoration alternatives impractical at this time. The restoration features presented in the Draft SEIS were targeted for federal and/or state refuges and management areas or other lands which were considered readily available in the timeframe of the channel improvement project and that provided benefits to the ecosystem.



scientists most knowledgeable about the Lower Columbia River and estuarine habitat restoration have agreed that only small pilot projects are scientifically defensible at this point, in light of the experimental nature of such restoration.

**E. The DSEIS Does Not Consider Information on the Location of Migrating Salmon**

SS-292 The analysis the Corps relies on to make the determination that dredging and disposal will not harm migrating salmonids is inadequate and does not account for scientific evidence that shows most yearling chinook migrate in deep channel sites rather than near tidal shore areas. Bottom, D.L. and M.C. Healey. 1984. Fishes of the Columbia River estuary. CRDDP. The Corps continues to lack sufficient information on the use of the estuary by wild juvenile salmon, instead relying on data concerning hatchery salmon. The DSEIS also does not include an analysis of the barriers to returning salmon presented by poor estuary conditions, such as high temperatures, that result in reduced genetic diversity of the species.

SS-292. The Federal Government disagrees; see response SS-116.

**F. The DSEIS Does not Evaluate the Risks and Effects of Navigational Accidents**

SS-293 The DSEIS does not include any discussion or evaluation of the possibility or effects of a navigational accident. The MCR is the most likely place for such an accident, given the serious safety issues and the greater likelihood that a shipping accident in that area would be catastrophic as opposed to a more simple grounding. The DSEIS has neither recognized nor evaluated existing problems with transit safety that have been caused by the Corps alteration of the MCR through spoil mounding and changing the MCR bathymetry which, in turn, alters wave action. The entire document is simply silent with regard to this entire issue. Groundings have and continue to occur, accidents happen – witness the New Carissa and the Exxon Valdez, and as ever larger vessels are constructed by shippers without concurrent and necessary power to control these ships, accidents are even more likely to occur than they are at present. The DSEIS makes no reference to the decreased maneuverability of today’s and tomorrow’s fleets nor to the environmental and economic ramifications of ships that bar and river pilots may be helpless to fully control. As competent as they are, pilots, particularly bar pilots, rely heavily on their professional and personal intuition. Intuition, no matter how powerful, is human and humans are subject to making mistakes. The risk of an accident is never zero.

SS-293. See response to comments SS-117, SS-257 and SS-258.

**VIII. The Corps is Required to Develop New Environmental Impact Statements to Address Long Term Disposal of Dredged Spoils**

SS-294 The DSEIS does not adequately evaluate where the Corps will place 50 years worth of dredged spoils from the river channel and MCR. The failure must be looked at in light of the Corps’ previous attempt and concurrent failure to create a Long Term Management Strategy (LTMS) for the disposal of 50 years of operation and maintenance spoils and its complete failure, characterized by other commenters and incorporated by reference below, to resolve issues related to ocean dumping. Instead, the DSEIS shunts aside the issues raised by dredged spoil disposal

SS-294. The Federal Government disagrees. The Corps and USEPA have continually worked to address issues of long-term dredge material management. For example, the Corps successfully implemented the Long Term Management Strategy for dredged material disposal in the estuary in 1992 and completed the DMMP in 1998. Further, the Corps and USEPA addressed long-term disposal of dredged materials in the 1999 Final IFR/EIS and the Final SEIS. The Corps and EPA considered the volumes that may need to be dredged over 50 years as well as the potential types of disposal. See 1999 Final IFR/EIS, page 4-38. The Corps and USEPA did not specifically identify which sites would receive specific quantities of dredged material in years 20 to 50 due to the uncertainty of volumes. The Corps and USEPA have only provided detailed analysis of the first 20 years because it becomes speculative to estimate volumes and locations requiring dredging for a longer time horizon. Finally, as noted in response to other comments, the Corps’ preferred alternative as described in the Final SEIS anticipates beneficial use of the river dredged material for the ecosystem restoration element rather than ocean disposal during those first 20 years.

and concerning serious issues related to erosion of near shore, beach, and shallow water habitat areas by stating that it intends to postpone use of the deepwater site for 10 years. Even if this were to work, it does not address the other 40 years of disposal and removal of sediments from the estuarine/offshore system.

**IX. Mitigation is Required and Must be Tied to Project Impacts**

SS-295 | The DSEIS does not contain any discussion of mitigation related to project impacts. Many commenters have raised issues regarding mitigation for beach erosion, land erosion, commercial fishing losses, etc. all of which have been and continue to be ignored. Studies are an unacceptable form of mitigation. Instead, studies are supposed to be done prior to the Corps' issuance of draft NEPA documents.

**X. Adaptive Management**

SS-296 | The DSEIS is a violation of NEPA by its attempt to substitute a specious, flimsy, so-called adaptive management scheme in place of federal requirements to collect data and provide an analysis of project impacts for all the reasons expressed elsewhere in these comments.

**XI. The DSEIS Does Not Address Many Issues Concerning the Economic Costs and Benefits of the Project**

**A. Economic Ramifications of Safety and Transit Issues Related to the MCR Must be Considered in the DSEIS**

SS-297 | As discussed above, the proposed channel deepening project has failed to consider the issue of whether the MCR will require additional deepening in order to accommodate the deeper draft vessels the Corps is intended to attract. Therefore, the DSEIS has failed to consider the substantial economic ramifications of delays that will detract from the alleged economic benefits of the project as well as ways in which the depth of the MCR will negate any favorable attitudes of shippers regarding use of the Columbia River ports the project is intended to induce. Neither has the DSEIS recognized or evaluated the existing problems with transit safety that have been caused by its alteration – with spoil mounding and by changing the MCR bathymetry which in turn alters wave action – that also have potential economic implications. Likewise, the DSEIS does not consider the economic costs of navigational accidents.

**B. Impacts of the Project to Commercial Fishing and Crab Fishing Industry are Not Considered in the DSEIS**

SS-298 | As noted by many previous commenters on various project documents, the Corps continues to omit calculation of the cost of the proposed channel deepening project to commercial fishing and crab fishing interests. In addition, it fails to calculate the cost to Longbeach from erosion caused by its projects that have and continue to change the sedimentation processes of the action area. IT does not even mention the potential for erosion of shallow water habitat. New to the DSEIS,

SS-295. The term “mitigation” refers to a hierarchy of actions including avoidance, reduction, minimization and compensation. The Final SEIS reflects a concerted application of these approaches to mitigation. With regard to erosion, the impact specifically identified in this comment, the Final SEIS, Exhibit J, analyzes this issue in depth and concludes that the project should not affect hydrologic processes or sand supply in a manner that adversely impacts beach erosion. The project includes shoreline disposal at Skamokawa, Sand Island, and Miller Sands Spit in a manner that will counter erosion. The project includes monitoring measures to annually assess accretion and erosion.

SS-296. Adaptive management is recognized as an appropriate response to complex activities. The adaptive management program does not substitute for environmental review, but responds to the impacts identified. The Biological Opinions note that the Adaptive Management program will comply with NOAA Fisheries' guidance. The characterization in the comment is inaccurate.

SS-297. The Corps disagrees that the channel improvement project will result in a need to deepen MCR. There is an analysis presented in the 1999 Final IFR/EIS and the Final SEIS. See responses SS-256 through SS-258.

SS-298. The Corps and USEPA disagrees that they have not considered potential effects to commercial fisheries. See responses SS-11 and SS-192(k). The Final SEIS, Exhibit J, includes a detailed discussion on sediment impacts related to the Columbia River estuary and near ocean shoreline, which concludes that the project will not affect and does not contribute to coastal erosion.

the Corps fails to consider that there are negative economic ramifications to commercial fishing from the proposed alleged “restoration” projects, also known as dredged spoil disposal sites, at Lois-Mott Island and the Miller-Pillar Rock pile dikes.

**C. The DSEIS Fails to Consider and Evaluate the Issues Raised by Its Cost-Benefit Review Panel**

SS-299 The DSEIS fails to consider and evaluate the issues raised by its own hand-picked panel which produced the “Technical Review of the Benefit and Cost Analysis in the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement Dated July 2002: Summary Report of the Technical Review Process and Results,” September 9, 2002. For the reasons contained therein, the DSEIS analysis is deficient on its face. In addition, as the Cost side of the panel included three people, all three of whom are currently employed by an agency proven to “cook the books” for dredging projects or were previously employed by the Portland district, this side of the analysis – which, naturally, is particularly favorable of the Corps findings, requires additional analysis. Moreover, the cost panel declined to comment on the significant cost ramifications of the Corps’ gross underestimation of the dredging volumes, thereby rendering its own analysis facially flawed. The failure to correctly assess the dredging volumes over the next 50 years results in incorrectly lowered costs of dredging, land purchases necessary to accommodate dredged spoils, mitigation required to mitigate dredged spoil disposal, environmental costs associated with dredged spoil disposal, etc. And, neither the costs nor the benefits panel was provided with any information whatsoever concerning the navigational and dredging issues related to the crossing of the Columbia River Bar.

**D. The DSEIS Omits Altogether the Costs Associated with Dredging and Dredged Spoil Disposal of Contaminated Willamette River Sediments**

SS-300 Although the DSEIS omits both costs and benefits associated with the dredging of the Willamette River, a necessary and overdue adjustment to the FEIS, it is inappropriate for the Corps to ignore the implications of the contamination of Willamette River sediments in the DSEIS. First, the project must be taken as a whole. Despite the Corps correct decision to postpone consideration of Willamette River deepening, it has not renounced its intent to continue this part of the project but merely placed it on hold. Therefore, it is improper segmentation to ignore the Willamette portion of the channel deepening project altogether if it is a foreseeable part of the action. Second, toxic contamination from the Willamette River will continue to enter the Columbia River, whether from clean-up actions, dredging, and/or natural processes. Therefore, the Willamette as a source of toxic contamination associated with the project itself, must be taken into account. Third, the operation and maintenance dredging associated with maintaining access to the berths in the Willamette River – which amount to the vast majority of the berths in the entire Columbia/Willamette/Snake river system – is an associated part of this project because the project itself includes operation and maintenance for a 50 year period.

**E. Oregon’s Failing Infrastructure Must be Evaluated in Considering the Benefits of the Project**

SS-299. The Draft SEIS was published before the Corps received the report from the Cost-Benefit Technical Review panel. The panel’s comments are being considered and incorporated into the Final SEIS. The Corps believes it has correctly assessed the maintenance dredging requirements for the next 20 years, as explained in the June 2001 SEI Sediments Workshop and reiterated in response SS-266. Our method is consistent with the Cost Review Panel’s recommendation to base future maintenance on “historic sedimentation rates for existing maintenance and existing dam river flood control.” Issues related to navigation of the MCR are addressed in the 1999 Final IFR/EIS, Appendix A. Dredging at the MCR project is not part of this study and therefore has not been included.

SS-300. The Corps is not ignoring either the contamination issues or potential future deepening of the Willamette. The foreseeable effects, of which deepening the Willamette after USEPA implements a remedy, are addressed in Section 6.12 of the Final SEIS. See responses SS-4, SS-231, 232 and 234.

### Corps of Engineers Response

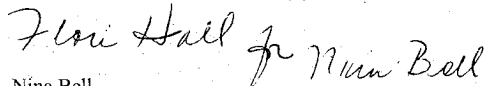
SS-301 It is well known that Oregon is currently suffering from a severe and unremitting budget crisis that will have long-lasting implications on its budget regardless of whether it resolves the issue through borrowing, new taxes, and/or budget cuts. Meanwhile, the state's bridges are falling apart. As the Corps is no doubt well aware through the media, state inspections are revealing more and more bridges that have sufficiently significant cracks as to require the rerouting of traffic. The kind of traffic most likely to suffer long detours are trucks, as they present the kind of stresses to cracked bridges that car traffic might not. The situation is bad, and foreseeably likely to get worse with increased safety inspections, the effects of multiple detours, the high costs associated with fixing defective bridges, and the lack of sufficient state funds with which to do it. Nonetheless the Corps' DSEIS does not evaluate the effects on benefit calculations for the project from the current and future degraded infrastructure.

#### Conclusion

SS-302 NWEA hereby incorporates by reference all comments made by Columbia River Alliance for Nurturing the Environment (CRANE), American Rivers, Channel Deepening Opposition Group (C-DOG), Columbia River Crab Fishermens Association (CRCFA), and Columbia River Estuary Study Taskforce (CREST) to the draft and final Environmental Impact Statements (DEIS and FEIS) as well as to this DSEIS. NWEA further incorporates by reference the comments prepared by the Oregon Department of Fish and Wildlife, the Washington Department of Fish and Wildlife, the Washington Department of Natural Resources, the Oregon Land Conservation and Development Commission. In addition, NWEA incorporates by reference its own comments made in response to the DEIS and the FEIS, its FOIA requests, and the Corps responses to its FOIA requests. Finally, in addition to requesting an extension of the public comment period for this DSEIS, NWEA requests that the Corps issue a revised draft SEIS, and that the Corps provide a public comment period for the final SEIS. These steps are necessary given the late production of both the results of the "Technical Review of the Benefit and Cost Analysis in the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement Dated July 2002: Summary Report of the Technical Review Process and Results," September 9, 2002 and the failure of both the Corps and NMFS to produce documents in response to numerous FOIAs, as discussed above.

Better yet, perhaps the Corps could stop attempting to build this wasteful project.

Sincerely,



Nina Bell  
Executive Director

SS-301. The comment seems to suggest that regional businesses will no longer be able to get their products to market due to failing roads and bridges. This seems unlikely, and without substantive evidence that this will be the case, will not be incorporated into the benefit analysis.

SS-302. The Corps and USEPA have responded to the comments by each of the entities identified in this comment. As noted in response SS-223, the Corps and USEPA do not believe it is necessary to provide another comment period on the Draft SEIS. Further, the Corps will provide a 30-day comment period on the Final SEIS as provided by law. The NWEA may provide comments on the Corps' consideration of the Technical Review when NWEA comments on the Final SEIS.



**Columbia River Estuary Study Taskforce**

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**Corps of Engineers Response**

September 12, 2002

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Colonel Hobernicht:

Thank you for the opportunity to comment on the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the Columbia and Lower Willamette River Federal Navigation Channel Improvement Project. We have reviewed this document and will specifically comment on those issues that will impact the Columbia River Estuary (Lower 46 River Miles) and it's surrounding communities.

SS-303. Deepening of Willamette River has been deferred at this time pending completion of the remediation investigation and decisions related to contaminated sediments in Portland Harbor. See response SS-4 and SS-234. The specific issues regarding impacts from the deepening of the Columbia River channel are discussed below.

SS-303

The proposal to deepen the navigation channel from 40 to 43 feet in the Columbia and Willamette Rivers, as outlined in the Draft SEIS, will result in adverse environmental impacts. The proposed channel deepening project provides no economic benefits for those communities surrounding the estuary and will especially affect those people in our area who economically depend on the natural resources of the estuary and ocean.

SS-304. The statement that the project violates local regulations and state and federal law is incorrect. The Corps has completed consultation with the NOAA Fisheries and the USFWS. This consultation determined that the project would not jeopardize the continued existence of the species listed under the Endangered Species Act. In addition, the Corps has worked extensively with the states of Washington and Oregon to address issues identified in the 1999 Coastal Zone Consistency and Water Quality Certification letters. This work has included significant additions in analysis regarding salmonids. Additional research has also been conducted regarding Columbia River smelt, sturgeon and Dungeness crab. This research has indicated in the case of Dungeness crab and smelt that impacts are insignificant. The research regarding sturgeon is identifying ways to reduce and avoid impacts.

SS-304

CREST is a local bi-state council of governments representing the cities, counties, and port districts of the Columbia River Estuary. At the direction of the CREST Council, CREST staff analyzed and provided comments on the Draft and Final EIS's and has continued to track this proposal. Based on our review of the Draft and Final EIS's it was CREST's finding **the project could not be done as proposed without resulting in negative impacts to the natural resources and the economy of the communities surrounding the Columbia River estuary.** CREST also found that the proposed project violated local regulations and state and federal laws including the National Environmental Policy Act, the Clean Water Act, the Coastal Zone Management Act, and the Endangered Species Act. We were right. Coastal Zone Consistency and Water Quality Certification was denied by both states and the National Marine Fisheries

Service withdrew their Biological Opinion. The project was simply denied the necessary approvals to move forward.

CREST's initial findings also found that cumulative estuarine impacts will result from the project. Specifically direct, indirect, and cumulative impacts to through dredging and disposal: Dungeness Crab, Columbia River Smelt, Sturgeon, Salmonids, the Estuarine Food Web, and Shoreline Habitat. These impacts must be avoided and if unavoidable, they must be mitigated.

CREST would like to incorporate by reference our comments submitted for the Draft (1998) and Final EIS's (1999) and include the following comments specific to the Supplemental EIS.

SS-305

Since the Final EIS was denied an ESA reconsultation effort was conducted by project sponsors, the Corps, the National Marine Fisheries Service, and the US Fish and Wildlife Service. There was a tremendous amount of uncertainty surrounding the reconsultation effort resulting in impacts from the project being largely unknown. As a result, the project is now worse.

The project, as proposed in the Supplemental EIS, results in expanded impacts and continued degradation to the estuarine and nearshore ocean environment species including ESA salmonids.

#### **Dredged Material Management**

The Draft and Final EIS emphasized the use of previously existing estuary dredged material disposal sites. The disposal plan presented in the Supplemental EIS labels estuary dump sites as restoration and fails to address long-term protection of ocean resources, particularly Dungeness Crab.

The bottom line is that a serious math problem exists when it comes to dredging and disposal. The current situation on the Columbia is such that there is not sufficient capacity or acceptable disposal locations for the quantity of dredged material necessary for the maintenance of the existing channel. Not to mention, the additional material that is proposed to be dredged and disposed of during channel deepening. The MCR maintenance project faces similar challenges – not enough acceptable places to put the dredged material.

SS-306

CREST recently completed an update to the *Columbia River Estuary Dredged Material Management Plan* and through this process learned that Rice Island and Site E are the largest dredged disposal sites in the history of dredging on the Columbia. Furthermore, Rice Island is reaching capacity and Site E has its own suite of environmental, economic, and safety issues that must be addressed for continued use.

The Corps has no long-term solution for these problems. We are running out of room. The result is that the Supplemental EIS proposes to use additional estuary dump sites that have not been previously used for disposal. The corps is labeling these dumping grounds as "ecosystem restoration".

#### **Corps of Engineers Response**

SS-305. A major result of the consultation effort was to reduce uncertainties surrounding the project impacts. This was accomplished by convening an independent panel of scientists to confirm that the NOAA Fisheries and USFWS were using the best available science and to develop an approach to addressing uncertainties in the data. The Corps disagrees that the project is now worse. The project includes additional restoration measures, best management practices, monitoring, and adaptive management to address issues raised in the consultation.

SS-306. The Draft SEIS identifies restoration projects developed in consultation with the NOAA Fisheries and USFWS. The biological opinions resulting from the consultation indicated that the restoration projects would likely benefit listed salmonid species. Many of the remarks in this comment pertain to disposal sites for the MCR, a separately authorized project, which is beyond the scope of this SEIS. The Corps and USEPA will continue to work with various stakeholders to identify potential beneficial uses for disposal materials.

## Corps of Engineers Response

CREST is working with the ports, the Corps, state agencies, both Governors offices, and other stakeholders on expanding the concept of beneficial uses of dredged material. This is a concept that everyone supports and CREST appreciates the hard work it has taken to implement projects like Benson Beach and Bradwood this summer. There is much more to do. There are many more beneficial use opportunities on the river that must be incorporated into the long-term implementation of disposal practices. Currently, no long-term funding or plans for these types of projects exists. Without beneficial uses the math problem will be exacerbated.

### Sediment Volumes and Sediment Characterization

CREST remains concerned regarding sediment volumes and characterization. Specifically, it is unclear whether the volumes for over-width dredging were included. Were the volumes for advanced maintenance and over-width dredging included? Where is the Corps planning over-width dredging? Have sediments in over-width dredging locations been characterized for chemicals of concern? There is also serious doubt as was reflected in comments on the previous EIS regarding the accuracy of the long term maintenance dredging volumes.

SS-307. Volumes for advanced maintenance and over-width dredging have been included in the construction and O&M dredging estimates. Over-width dredging would be done at CRMs 11+10 to 12+30, 16+00 to 17+00, 21+25 to 23+10, 28+20 to 33+30, 34+40 to 36+00, 37+00 to 39+00, 40+00 to 42+30, 45+00 to 48+00, 56+00 to 59+20, 63+00 to 65+00, 67+00 to 68+00, 70+00 to 72+00, 85+00 to 87+00, 89+00 to 91+00, and 98+00 to 99+00. The over-width dredging is proposed for reaches where it has been used before. The sand to be dredged and the sediment quality in those areas are similar to those within the navigation channel, as described in the 1999 Final IFR/EIS, 2001 BA and this Final SEIS.

Also see response SS-266 for a discussion about future maintenance volumes, and response S-155 for a discussion of potential contaminants in those areas. Potential impacts to endangered salmonids are thoroughly evaluated in the 2001 BA, including the potential effects of hopper dredge disposal and contaminants.

SS-307 Exhibit J – Columbia River 43-foot Channel Deepening Sedimentation Impacts Analysis (page 8) indicates that the side slope adjustments “*may extend to the shoreline around RM’s 22, 42-46 ... the sandy beaches may experience 10-50 ft of lateral erosion*”. Shorelines in these areas are already experiencing active erosion. Have these side slope adjustment areas been characterized for chemical of concern?

Additionally, the assumption built into the reconsultation efforts signify that dredging and disposal activities somewhat mimic natural processes of bed load transport in the dynamic environment of the Columbia River channel. This assumption is taken further to infer impacts to ESA fishes will be minimal through dredging since dredging activities occur at the bottom of the navigation channel and that ESA fishes occur in 6 feet to 20 feet of the water column. However, hopper dredge disposal activities occur near the surface and cause turbidity impacts throughout the water column redistributing contaminants in the process.

### Estuary and Ocean Disposal

The estuary ecosystem and Lower River communities are still impacted negatively through the disposal options not only on crab grounds but now by permanently altering aquatic areas in the estuary through disposal.

SS-308. The Corps, USEPA, USFWS and the NOAA Fisheries believe the ecosystem restoration features planned for the estuary will benefit ESA stocks. Dredged material is used throughout the United States in beneficial ways. Also refer to response SS-312. Comments regarding impacts to salmon fishers resulting from the Lois Island Embayment and Miller-Pillar restoration projects are discussed in responses to state comments S-9 and S-11. Finally, the preferred disposal plan reflected in the Final SEIS does not include any ocean disposal by the channel improvements project for initial construction and the first 20 years of maintenance.

SS-308 Chapter Six – Environmental Consequences §6.11 Unavoidable Adverse Impacts (pg. 6-55)

*“Deepening the navigation channel would impact benthic and fisheries habitats not previously disturbed by dredging. Additional impacts could occur because these volumes are higher than maintenance dredging... Disposal of dredged material would adversely affect additional in-water and upland areas... Ocean disposal would occur at the Deep Water Ocean Disposal Site about 10 years after construction, which would adversely affect marine resources at that location.”*

SS-308 Ocean disposal has not been eliminated. Section 4 of the SEIS contains a map of proposed disposal sites, which includes the deep water site. The current dumping plans in the Supplemental EIS merely postpones the use of the ocean for 10 years and shifts the impacts of construction from crabbers to salmon fishers and permanently alters the estuary. In the context of existing dredging practices on the Columbia, ocean disposal is still the preferred alternative for MCR maintenance material. The Supplemental EIS is merely delaying the ocean disposal problem and at the same time creating new problems in the Estuary. Ocean disposal also lacks current ESA consultation from NMFS. Again, the emphasis should be on using previously existing disposal sites, minimizing the overall disposal footprint, and not creating new dump sites.

#### Impacts to ESA-listed Species

The BiOp completed by NMFS for this project concluded that there would be short-term direct effects to listed salmonid species during the construction and maintenance of the proposed channel. Furthermore, the NMFS indicated that long-term impacts to the species of concern are uncertain.

In their BiOp on page 34 NMFS states that “[t]he biological requirements of ESA-listed salmonids are currently not being met under the environmental baseline. The species status is such that there needs to be significant improvement in the current environmental baseline conditions...”

The project does not result in improvement to the current environmental baseline and results in further degradation to the estuarine ecosystem. The project is also counterproductive to basin-wide restoration efforts emphasizing improving estuarine conditions as critical habitat for ESA listed salmonids.

SS-309 Further, the ecosystem “restoration” components of the project are being used to gain approvals and to move the project forward. Therefore, the overall costs of these “ecosystem restoration” projects should be included in the cost-benefit analysis for the project.

The NMFS related BiOp (p44) indicates that the restoration projects were a factor in the reconsultation outcome of a “no jeopardy” BiOp.

*“NFMS also expressed concern regarding the Corps’ ability to restore estuarine habitats as identified in the 1999 biological opinion. This concern has also been resolved. In their 2001 BA, the Corps proposed an expanded set of ecosystem restoration features...that are included in the proposed action that the Corps has committed to implement.*

Chapter Six – Environmental Consequences §6.12 Cumulative Impacts (pg. 6-55)

*“The ecosystem restoration features added during the ESA consultation represent and increment in the overall efforts to address cumulative impacts to fish and wildlife habitat and resources in the action area.”*

*“...ecosystem restoration features that are part of the channel improvement project are intended to not only avoid and minimize any adverse environmental*

SS-309. Comments on the Biological Opinion are noted. The Corps disagrees with the comment that the project does not result in improvement to the current environmental baseline or that it is counterproductive to basin-wide restoration efforts. The Corps has worked with the federal and state agencies on modifications to the project and the development of the ecosystem restoration features to ensure that the project would not degrade the existing baseline, aid in the recovery of the species, and provide benefits to listed salmonids. Most of the restoration efforts either provide additional habitat for salmonids or provide or improved access. In-estuary restoration projects are intended to provide additional rearing habitat for salmonids by develop shallow water and marsh habitat for salmonids. See responses S-9, S-11, SS-184, and SS-194.



effects, but also to provide net environmental benefits... Accordingly, channel improvement is not anticipated to contribute to any cumulative adverse environmental effects ...” (pg. 6-56)

Research is also being used to gain Biological Opinion approvals. Therefore, costs of all research activities related to the project must be included in overall project costs.

**Adaptive Management**

SS-310 The deepening project has received favorable Biological Opinions from NOAA Fisheries and U.S. Fish and Wildlife Service based on applying principles of "adaptive management" to the project. The "adaptive management" concept relies on NOAA Fisheries, U.S. Fish and Wildlife Service, the Corps, and project sponsors to oversee project implementation. Any “adaptive management” framework that attempts to move the project forward must also include State agencies involved with project management. CREST is requesting that the following State agencies be equally represented in any “adaptive management” framework that is used to advance project approval: Oregon Department of Land Conservation and Development, Oregon Department of Environmental Quality, Oregon Division of State Lands, Oregon Department of Fish and Wildlife and Washington Department of Ecology, Washington Department of Natural Resources, and Washington Department of Fish and Wildlife.

SS-310. The adaptive management framework proposed for further work regarding salmonid species listed under the Endangered Species Act includes the relevant agencies for that purpose. The Corps is exploring ways of formalizing an adaptive management framework with state agencies to address issues relevant to those agencies. See response to comment SS-120.

**Willamette River**

SS-311 The Willamette River portion of the project is purportedly being "deferred". Actually, deepening the Willamette is still pre-authorized and is still included in the description of the proposed action on page 1-1 of the Supplemental EIS.

SS-311. The Draft and Final SEIS make it very clear that the Willamette River portion of the project will not proceed without detailed analysis under the federal Superfund statute and additional consultation under the Endangered Species Act. Additional review under NEPA will also occur as required. See response SS-4 and SS-234.

“The authorized plan would deepen the existing federal navigation project for the Columbia and Willamette Rivers and provide for construction of ecosystem restoration features.” (CRCIP Draft Supplemental IFR/EIS, page 1-1)

The Supplemental EIS lacks the detail necessary to support dredging and disposal associated with a Superfund site. The pre-authorization should be amended to reflect the deferral of the Willamette from the deepening project.

**“Ecosystem Restoration” Components**

SS-312 The series of ecosystem restoration features taken as a whole, do not negate impacts from the actual deepening and, with the exception of long term Tenasillahe proposal, provide little if any positive benefits to the estuary, and in some cases actually result in ESA species take.

SS-312. The series of ecosystem restoration features were not derived to negate impacts from the channel improvement project. Rather, through the ESA reconsultation process they were developed under Section 7(a)(1) of the Endangered Species Act, wherein federal agencies utilize their authorities for the benefit of listed species. They are not mitigation actions, a common misconception.

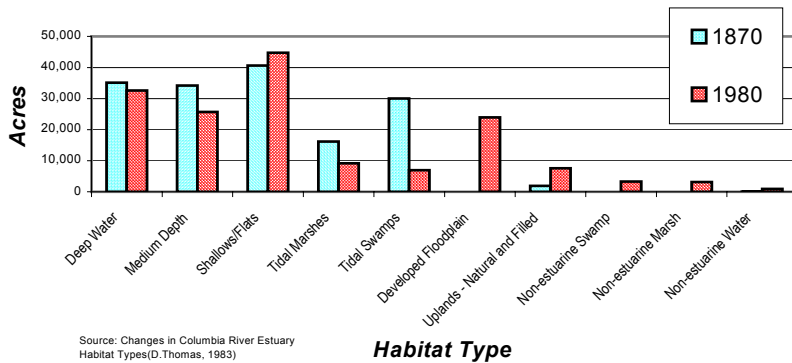
CREST supports the concept of using dredged material for the purpose of restoring habitat. Unfortunately, the two projects presented that involve dumping and that are labeled 'restoration' will result in permanent alteration and further degradation of the estuary. CREST has stated in several forums that the use of dredged material for restoration needs further exploration on an experimental basis with a strong monitoring component similar to the Benson Beach project. Millions of cubic yards dumped over the first two years of construction at Lois and Mott Island embayment is not experimental

The Corps disagrees with your opinion that the proposed ecosystem restoration features provide little, if any, positive benefits to the estuary. The ecosystem restoration features proposed represent an array of efforts that will result in limited (individual tidegates) to extensive (Tenasillahe Island long-term feature) estuarine and lower Columbia River benefits. These proposed features represent actions that are readily implementable in concert with the channel improvement project.

and it is not restoring valuable habitat. Likewise, the placement of a pile dike field at Miller/Pillar is not restoring valuable habitat. In fact, by creating shallow water the Corps is proposing to create the one habitat type that has actually grown over the past century. We have over 4,000 acres more shallow water than we had historically in the estuary.

The information below is a summary of data presented in, *Changes in Columbia River Estuary Habitat Types Over the Past Century* (Duncan Thomas, CREST 1983). Thomas found habitat type loss in every category except shallow water/flats, which increased by 4,130 acres.

Habitat Type	1870	1983	Acreage Change	% Change
Deep Water	35,140	32,580	-2,560	-7.3%
Medium Depth	34,210	25,720	-8,490	-24.8%
<b>Shallows/Flats</b>	<b>40,640</b>	<b>44,770</b>	<b>4,130</b>	<b>10.2%</b>
Tidal Marshes	16,180	9,200	-6,980	-43.1%
Tidal Swamps	30,020	6,950	-23,070	-76.8%
Developed Floodplain	0	23,950		
Uplands - Natural and Filled	1,930	7,590		



As part of the larger coordinated restoration effort on the Columbia a habitat restoration workshop was held in Astoria in June 2001 sponsored by CREST, Lower Columbia River Estuary Partnership, Army Corps of Engineers, and American Rivers. Attendees of the workshop represented a variety of regional and national estuary experts. The outcome of the workshop was a set of habitat restoration criteria to identify and prioritize habitat protection and restoration projects on the Lower Columbia River and Estuary. The criteria serve as a foundation for a more integrated collaborative restoration strategy for the Columbia River Estuary and Lower Columbia River. The criteria themes are as follows:

- ✓ Habitat Connectivity
- ✓ Areas of Historic Habitat Type Loss
- ✓ Linkages to Reference Site(s)

### Corps of Engineers Response

SS-312 (con't). CREST has stated their concern that the Lois Island embayment and Miller-Pillar ecosystem restoration features will result in permanent alteration and further degradation of the estuarine environment. CREST fails to note that the Lois Island embayment was created by dredging after WW II and that the embayment, Lois and Mott Islands, and South Tongue Point are all artifacts of this dredging action and are not "natural" estuarine habitats. Miller-Pillar is an active erosion area and thus is currently being permanently altered from a productive benthic invertebrate habitat to a deep subtidal area with low benthic invertebrate production (Hinton et al. 1995). The proposed ecosystem restoration features are targeted at developing productive tidal marsh (revised Lois Island embayment and Miller-Pillar proposals).

CREST is further concerned that dumping of millions of cubic yards of dredged material is experimental and is not restoring valuable habitat. As noted in response S-9, the Corps has modified the Lois Island embayment and Miller/Pillar features in response to various comments. Our revised intent at Lois Island Embayment is to develop 191 acres of tidal marsh habitat, a habitat reduced by 43% since the 1870s. The Corps notes there are large scale examples of successful tidal marsh development around existing dredged material sites in the estuary (see paragraph below) and do not consider it necessary to experiment when there are readily observable examples present in the immediate area.

The successful restoration of 426 acres of tidal marsh habitat at Lois Island embayment would represent approximately a 5% gain for this habitat type, a priority for restoration, in the Columbia River estuary. And the Corps believes tidal marsh can be successfully restored at the embayment as evidenced by the tidal marsh habitat that has established around the perimeter of Lois and Mott Islands and South Tongue Point. These are dredged material formed islands. Similar tidal marsh habitat establishment has occurred at Miller Sands Island and Spit and Pillar Rock Island in the estuary, also formed from dredged material.

As noted by CREST, the Corps was a co-sponsor of the habitat restoration workshop held in Astoria in June 2001. As such, the Corps is aware of the habitat restoration criteria themes to come out of the workshop. While these themes provide guidance, they are not hard and fast rules. Other factors, including land availability, presence of a cost-sharing partner, and the ability to integrate the feature(s) into the ongoing channel improvement project played significant roles in selecting the proposed ecosystem restoration features. The Corps, through other authorities provided by Congress (e.g. Section 1135, Section 206, and Section 536) will continue to pursue other restoration proposals in cooperation with local sponsors as they, lands, monies (local funds for cost-sharing) and other project-related elements are identified and attained.

- ✓ Passive Habitat Restoration over Habitat Creation
- ✓ Monitoring and Evaluation
- ✓ Community Support and Participation

### Corps of Engineers Response

SS-312

Although the Corps was a sponsor and partner in the workshop the habitat criteria themes that were developed were not followed in the development of the restoration projects.

CREST has the following concerns about each of the proposed "ecosystem restoration" projects described in the SEIS.

#### Shillapoo Lake

SS-313

The Shillapoo Lake proposal provides no benefits to ESA-listed fishes. The basis of the project is to hydrologically remove any connection between Shillapoo Lake and the Columbia River, therefore providing minimal benefits to the riverine ecosystem that will be impacted through the deepening project.

#### Miller/Pillar and Lois & Mott Island Embayment

The Lois-Mott Island embayment restoration feature proposes to restore 357 acres of shallow water habitat through the placement of millions of cubic yards of dredge material. Miller-Pillar involves placement of 10 million cubic yards of dredged material amidst a new pile dike field in a highly erosive area near the navigation channel also to create shallow water.

SS-314

Current restoration planning on the Columbia emphasizes passive approaches to restoring needed historic habitat types by allowing natural processes to restore habitat complexity. The concern is the large degree of uncertainty surrounding these restoration projects especially at the scale proposed. Both projects are creating habitat types that are in excess according to historical data compiled by CREST. The goal of attaining lost historical habitat types like tidal marsh and swamp through dredge material disposal warrants caution. This may be done through a few test plots with a rigorous monitoring design. The monitoring results would help indicate the relative benefit of dredge material disposal in habitat creation. Unfortunately, both of these projects as proposed are too large and provide little to further our knowledge of the beneficial use of dredge material.

Neither, project sponsors, the Corps, or NMFS and USFWS consulted the local affected communities during the development of these disposal options. The projects as "restoration" were not coordinated with the regional restoration community until after they were proposed upon release of the SEIS. There is no estuary community support for these dump sites. The Lois/Mott Island embayment disposal site would be eliminating an economically important select area fisheries project. Clatsop Economic Development Council manages this project cooperatively with ODFW, WDFW, and BPA. None were consulted until the project was proposed upon release of the SEIS. This disposal site would cause significant adverse impacts to the fishery. Likewise, Miller/Pillar disposal option will destroy an historic commercial fishing drift right located at the proposed site.

Lois/Mott island embayment proposal would include the rehandling of dredged material prior to disposal in the final location. The concern here is handling dredged material

SS-313. The Corps is in favor of hydrologically reconnecting this restoration feature back to the Columbia River. NOAA Fisheries through the ESA consultation had concerns of stranding fish during times of lower flow in the Columbia. The WDFW remained adamant that they desired to manage their lands, interior to the flood control levee surrounding the area, for waterfowl and associated wildlife through use of interior levees and water control structures. NOAA Fisheries accepted WDFW's management decision and did not support hydrologically reconnecting to the Columbia.

The Corps also notes that ecosystem restoration features do not have to specifically address ESA-listed fishes. Further, the Shillapoo Lake feature is not predicated upon removal of any existing hydrological connection to the Columbia River. That, other than for very serious flood events, has already been previously accomplished by construction of main flood control dikes around the Vancouver lowlands.

SS-314. Previous responses SS-312 and S-9 have addressed the proposed alteration to the Lois Island embayment and Miller/Pillar restoration features, e.g. a focus on tidal marsh development rather than the initial proposal to mimic historic bathymetry. These previous responses have demonstrated that tidal marsh habitat has successfully developed on dredged material in the Columbia River estuary. The 2002 biological opinion, monitoring elements provide for rigorous monitoring of these proposed features. Results from these monitoring efforts will provide adequate information on these beneficial uses of dredged material. Nor does the Corps consider these large-scale actions. That millions of cubic yards are required to accomplish these restoration features is a function of site depth. The acreage involved (191 acres at Lois Island and 235 acres at Miller/Pillar) represent together approximately 1.3% of deep water habitat in the estuary and approximately 36/100ths of one percent of the 119,220 acres comprising the estuary habitats (Thomas 1983) other than developed floodplain or uplands (natural and filled).

Both Lois Island embayment and the Miller-Pillar restorations were considered in the Draft IFR/EIS, as beneficial uses of dredged material. The Miller-Pillar restoration was only eliminated from the 1999 Final IFR/EIS because of avian predation problems associated with pile dikes. Since that time excluders have been developed for the pile dikes, which have been shown to be very effective in deterring bird use. Before either of these restoration features were proposed again to NOAA Fisheries and USFWS during the ESA consultation, the Corps contacted CREST and Oregon DLCD to find out how the areas are zoned. Information regarding our proposals to the federal agencies was faxed and shared with both Oregon DLCD and CREST before they were included in the Corps biological assessment. They were also coordinated extensively with NOAA Fisheries and the USFWS in the ESA consultation process. The features considered were predominantly within the boundaries of National Wildlife Refuges (six features) or State Wildlife Management Areas (one feature).

As noted in response S-9, the Lois Island embayment would not eliminate the Tongue Point Select Area Fishery. The proposed feature, as revised in this Final SEIS (emphasis on tidal marsh development), would impact 19% of the area available to commercial fishermen participating in the terminal fishery. As addressed in response SS-9, implementation of the Miller/Pillar feature will not destroy a historic commercial fishing drift (Miller Sands Drift).

The placement of dredged material in a sump in and adjacent to the navigation channel near Tongue Point and subsequent rehandling by a pipeline dredge for placement at Lois Island embayment does not pose the level of risk indicated in this comment. Dredged material from the Navigation Channel proposed for the Lois Island embayment and Miller-Pillar restoration features is suitable for in-water disposal. See 1999 IFR/EIS, Section 6.4 and Final SEIS Section 6.4.

twice with the final disposal location in water. As a general practice, material is only rehandled when the final destination is an upland location. This rehandling will result in the estuarine environment being impacted twice. Twice the impacts from increased turbidity, resuspension of contaminants, and direct disposal impacts to aquatic species. Furthermore, the proposed temporary sump site location is not a designated dredged material disposal site in the *Columbia River Estuary Dredged Material Management Plan* and thus is not consistent with local regulations. Lois/Mott Island embayment and Miller/Pillar are also not disposal sites and use of these areas for disposal is not consistent with local regulations.

Purple Loosestrife Control

SS-315 Purple loosestrife control, although an admirable project, provides little benefit to the estuary in the context of channel deepening. Additionally, Glyphosate is the primary ingredient in Rodeo. Multiple toxicity reports for glyphosate indicate that it is of concern for environmental reasons, in particular its effects on the aquatic environment. It is moderately toxic to fish. The use of glyphosate-based products may result in population losses of a number of terrestrial species through habitat and food supply destruction and thus threaten endangered species and biodiversity. Glyphosate is a broad spectrum, non-selective herbicide which kills all plants and has the potential to impact native species in the application area.

Tenasillahe Island, interim and long-term

SS-316 Interim and long-term ecosystem restoration measures at Tenasillahe Island will provide benefits to ESA-listed fishes through reconnecting valuable inter-tidal marsh habitat (historic habitat type has experienced 43% loss in the estuary, Lower 46 River Miles). Unfortunately, long-term restoration measures are contingent upon the delisting of the Columbia White-tailed Deer, likely to take a decade. Deepening impacts will occur during construction with restoration taking place years after.

Cottonwood/Howard Islands

SS-317 Cottonwood/Howard restoration involves acquiring 650 acres of Columbia White-tailed deer habitat. Disposal of dredged material for riparian restoration for deer habitat is also included. Based on the success of revegetating Rice Island and other dredge material disposal sites, it is unlikely that these disposal sites will provide high quality habitat for the Columbia White-tailed Deer.

Bachelor Slough

SS-318 Bachelor Slough involves dredging 2.75 miles of slough habitat to achieve an elevation of zero feet mean low water and disposing of dredged material to restore native forests on the disposal locations. It is National Marine Fisheries Service finding in the channel deepening biological opinion that juvenile salmonids likely migrate in depths of at least minus 6 feet mean low water. Consequently, restoring a slough to minus zero in is unlikely to benefit these species.

**Corps of Engineers Response**

SS-314 (con't). Turbidity associated with disposal of the medium grained sand with some fine and coarse grained sand from the navigation channel is minor in extent and confined to a localized area. These sands settle rapidly and typically contain less than 1% fine-grained sediments. The negligible and non-detectable level of contaminants from less than the 1% fine grained component of this dredged material would not be suspended twice as the comment alleges. Once the fine-grained sediments are suspended in the initial disposal operation into the sump, the river would carry them away and thus they are unavailable for a second suspension.

There will be impacts to aquatic organisms from the implementation of the proposed features. No action, however benign, and whether upland or inwater, will result in no impacts to some organisms. The sump near Tongue Point occurs in a deep-water location and does not represent highly productive habitat for benthic invertebrates. Further, the proposed action at Lois Island embayment would be limited to the in-water work period (November to February) during the 2-year construction period, thus limiting the duration of any impacts at this location. Recovery of benthic invertebrate populations will occur post-construction. Fill in the embayment would result in the permanent alteration of 191 acres of subtidal habitat, itself artificial in nature as it was formed by dredging after WW II. Tidal marsh habitat, targeted for recovery on these 191 acres, is a target habitat for recovery as identified by numerous parties, including the Lower Columbia River Estuary Program. Fill at Miller/Pillar would also restore the area to tidal marsh habitat.

Lois Island embayment and Miller/Pillar are zoned for aquatic conservation. The ecosystem restoration features are compatible with this zoning designation. In the absence of fill placement, conversion of these relatively deep subtidal habitats cannot be attained.

SS-315. During the consultation, NOAA Fisheries and USFWS considered the potential effects of purple loosestrife control and concluded that its removal was likely to have a benefit on listed species. Rodeo is an aquatic preparation of glyphosphate that is currently used by the USFWS for Spartina control in Willapa Bay, Washington. As noted in response S-143, Rodeo will be used for this project in compliance with the State of Washington's general NPDES permit and the label requirements for aquatic application.

This comment implies that Rodeo will be used in an uncontrolled broadcast application. As noted in the Final SEIS 4.8.6.2 and the 2001 BA/2002 Biological Opinion, Rodeo would be applied in a selective manner, targeting individual plants or small clumps for wipe-op or spot spray applications. The limited use of this herbicide is only one action in an integrated pest control approach. Purple loosestrife has colonized throughout the Columbia River estuary in recent years. Dense populations already exist at Wallace Island, Pillar Rock Island and other locations. The absence of a large-scale action to address this species' presence will lead to losses of fish and wildlife resources dependent upon the diverse species composition of estuarine marshes. An integrated, large scale pest control approach needs to be implemented in the very near future before loosestrife attains distribution and density levels that preclude cost-effective, minimally intrusive control measures. The proposed action will be an integrated approach and will be implemented in as minimally intrusive and as efficient a manner as practicable.

### Corps of Engineers Response

SS-316. As noted in response SS-312, restoration actions are not directed at offsetting impacts associated with the channel improvement project. The introduction of Columbian white-tailed deer at Cottonwood/Howard Islands represents an attempt to establish a secure and viable population at this location. This proposed feature complements similar actions by the USFWS to introduce Columbian white-tailed deer at Crims Island, Oregon and Fisher Island, Washington. The success of the introduction at Cottonwood/Howard Island, coupled with the USFWS's efforts, could lead to an earlier implementation of the long-term restoration feature at Tenasillahe Island. The presence of Columbian white-tailed deer on Tenasillahe Island, a priority site for tidal marsh restoration, is just one example of the multi-faceted hurdles that face any restoration action, regardless of the parties involved, in the Columbia River estuary.

SS-317. Purchase of the Cottonwood/Howard Island complex would include all privately held lands, including tidal lands, but exclude WDNR lands. The purchase of these lands would be for multiple purposes, e.g. dredged material disposal (200 acre and 62 acre sites; retention of a 300-foot buffer around the disposal sites; and preservation of existing riparian forest and wetland habitat). No active riparian forest restoration is planned for these islands. Passive development of riparian forest on the buffer lands will occur in a gradual manner. Howard and Cottonwood Island currently contain significant areas of habitat suitable for Columbian white-tailed deer. See response S-146.

SS-318. The comment focuses solely on the issue of migration. The BA and Biological Opinion address issues other than migration, including areas that can be used for refugia. The Biological Opinion notes that this project will restore connectivity. Comments from other organization, including LCREP, note some benefit from this project, including improvements to water quality from increasing flows and thus lessening high summer temperatures.

With regard to migration, Corps' field observations indicate that at 1040 hours on 30 May 2002, the water surface elevation was 9.8 feet NGVD with a bottom surface elevation of approximately 0.0 feet NGVD based upon the gauge board attached to the USFWS's Bachelor Slough bridge. That would provide adequate depth for fish migration. USFWS personnel provided information that sand bars virtually block the channel during lower flows occurring later in the summer. Removing these sand bars as proposed should allow migration during such low flow periods.

The NOAA Fisheries estimate for salmonid migration depth is an average. Were all juvenile salmonids to travel at -6 feet MLLW as the comment implies, then Caspian terns would not be an efficient predator of them as that exceeds the depth to which they plunge to capture fish.

The Bachelor Slough restoration feature will also provide an estimated six acres of riparian forest habitat along the Bachelor Island shoreline of Bachelor Slough. This element of the restoration feature will improve the physical characteristics of the slough, particularly in the future as the trees mature and begin to topple into the slough.

Additionally, a site investigation demonstrated the relatively small gain in habitat complexity. Opening a channel, while it may improve water quality, does not benefit physical habitat as the channel has been diked and lined with revetments.

Tidegate Retrofits

SS-319 Tidegate retrofits may be beneficial to restoring connectivity between diked areas and rearing habitat in the estuary. However, the tidegates included are all on private property and therefore there is no guarantee that these projects will be completed.

Fisher/Hump Island and Lord Walker Island Improved Embayment Circulation

SS-320 Improved embayment circulation involves dredging former dredged material disposal locations to increase tidal flow. In the context of channel deepening, the project may provide minimal benefits in the form of water quality improvements however, it does not demonstrate the type of activities needed for physical habitat complexity.

Ecosystem Research & Adaptive Management

Although needed, ecosystem research and adaptive management program development among the Corps, the National Marine Fisheries Service, the US Fish and Wildlife Service and the project sponsors, in of itself does not offset the impacts of deepening. Research efforts are not mitigation.

Of the above projects the only ones that are required by the Services are ecosystem research and adaptive management. Therefore, the idea of leaving the estuary in a better place may never happen because the Corps is not required by the Services in the Terms and Conditions of the Biological Opinions to complete any of the restoration projects.

SS-321 In summary, the purpose of the ESA consultation was to ensure that endangered species impacts are minimized by the project and how the associated restoration features will specifically benefit ESA species. With the exception of Tenasillahe Island and the related Columbia white-tailed deer efforts, the above restoration projects will provide little or no benefits to ESA-listed species. While other projects bring minimal benefit in the form of water quality improvements and invasive species removal, in the context of the Columbia River Estuary ecosystem the projects as they are proposed demonstrate little to no ecological gain. With all the restoration projects we encourage the Corps incorporate effectiveness monitoring.

**Costs and Benefits**

SS-322 CREST knew there were flaws on the benefit side such as the light loading issue and that the need for the deeper channel was seasonal. However, the fact (revealed by the press, by other Corps projects nationally, and by the Corps own economic panel) that multi-national shipping corporations call the shots and that shipping rates are not based on channel depth further question this project. Much discussion has focused on savings with regards to shipping costs. However, we have heard nothing about shipping rates. This project may reduce the cost to shippers; however, it is doubtful whether they will

**Corps of Engineers Response**

SS-319. There is no guarantee associated with any ecosystem restoration feature. The Corps will use its authority to the extent practicable to implement these features, a commitment we made to NOAA Fisheries and USFWS during the consultation process. The Corps is not bound to implement these features under Section 7(a)(1) of the ESA; rather, they are voluntary.

We are aware that tidegate retrofit locations are on private lands and our sponsor ports will be seeking easements and negotiating operation and maintenance agreements for these features during the Plans and Specifications phase of the project. The private landholders and diking districts will control implementation of these features on their property.

SS-320. The embayment circulation improvement restoration features are proposed to address concerns with elevated temperatures in the current shallow water embayments. Accordingly, while they will not provide improved physical habitat complexity, they will provide an incremental gain to the overall health of the lower Columbia River.

SS-321. For the reasons discussed above, the Corps does not agree that the restoration projects will not benefit listed species. The biological opinions issued by the NOAA Fisheries and USFWS concluded to the contrary.

SS-322. See SS-189 for response to foreign shipping benefits. Also refer to response SS-192.

pass these cost savings on to exporters? According to the Corps own Technical panel, the multi-national shipping corporations will pocket the savings.

There has been no analysis of the costs from this project to the estuarine ecosystem that is critical to salmon recovery in the entire Columbia River Basin or about the costs to the Lower River Communities.

**Conclusion**

SS-323 We must move beyond channel deepening and move forward with creative solutions such as increasing beneficial uses of Columbia sediments and expanding meaningful large scale community based restoration of the estuary.

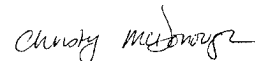
SS-324 The Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the proposed deepening of the Columbia and Lower Willamette River Federal Navigation Channel Improvement Project is substantially flawed. The SEIS fails to show that there will be no significant impacts to aquatic resources if the project is carried out as planned. There is substantial evidence that suggests serious and significant impact to aquatic resources will result from the proposed project and there is no mitigation proposed to offset these impacts. We request that the aspects of this project addressed in this letter and our previous comment letters on the Draft and Final EIS be reconsidered, taking into account the information presented.

SS-325 The Draft SEIS outlines a plan that will substantially impact the aquatic natural resources of the estuary and nearshore ocean, degrade water quality, disturb sediments that have not been characterized for chemicals of concern likely resulting in redistribution of contaminants, threaten salmon recovery efforts in the Columbia River Basin, and violate federal, state, and local laws governing the project.

Sincerely,



Matthew Van Ess  
Executive Director



Christy McDonough  
Coastal Planner

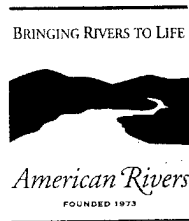
Columbia River Estuary Study Taskforce  
750 Commercial Street, Room 205  
Astoria, Oregon 97103

**Corps of Engineers Response**

SS-323. The channel improvement projects including the deepening and restoration components provide creative solutions for using Columbia River materials, increasing efficiencies in the channel, and taking steps to restore meaningful functions and values in the river.

SS-324. The Corps knows of no “substantial evidence that suggests serious and significant impact to aquatic resources” from the project. The Corps acknowledges through the NEPA and ESA processes that there will be some limited impact from the project. The Corps has minimized these to the extent practicable through best management practices, monitoring, evaluation, and adaptive management.

SS-325. For the reasons discussed above, the Corps believes that the project will address issues regarding water quality, sediment quality and promote functions and values that will help listed salmon. The Corps is in the process of having the project reviewed by relevant state agencies as well.



## Corps of Engineers Response

September 12, 2002

U.S. Army Corps of Engineers  
Portland District  
CENWP-EM-E ATTN: Bob Willis  
P.O. Box 2946  
Portland, Oregon 97208-2946

SS-326

The Army Corps of Engineers (Corps) has issued a Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the Columbia River Channel Improvement Project (SEIS). The Corps' \$156 million proposal involves deepening the 600-foot-wide Columbia River navigation channel in the lower Columbia River and estuary from 40 to 43 feet over a distance of 103.5 miles and ten ecosystem restoration features. American Rivers appreciates the opportunity to comment on the document and offers the following remarks.

SS-326. Comment noted.

SS-327

The SEIS is deficient in several general respects. First, the Corps fails to adequately determine the short and long-term effects of the proposed channel deepening on the Columbia River Basin salmonid stocks listed under the Endangered Species Act (ESA). Additionally, the Corps' cost-benefit analysis is inaccurate because it relies on an economic analysis based on outdated methodologies, an overestimation of benefits and an underestimation of costs.

SS-327. The Corps disagrees with your characterization of the Draft SEIS. Specific responses to your comments are presented in detail in response to comments below. Your information regarding background is noted.

### *Background*

The lower Columbia River and estuary provides habitat vital to the survival and recovery of all of the Columbia River Basin salmonid populations listed under the ESA. These species include: Snake River fall and spring chinook, Snake River sockeye, Snake River steelhead, upper, middle and lower Columbia River steelhead, upper and lower Columbia River chinook, upper Willamette River chinook and steelhead, and lower Columbia River Chum. While adult salmonids utilize the lower Columbia River and estuary year round, the lower Columbia River and estuary plays a particularly important role for juvenile salmonids providing refuge, food, and a critical area to acclimatize to saltwater. Furthermore, the lower Columbia River and estuary is designated critical habitat for Snake River fall and spring/summer chinook, and Snake



**Corps of Engineers Response**

River sockeye. The National Marine Fisheries Service (NMFS) is currently reviewing critical habitat designations for the nine remaining Columbia Basin salmonid species listed under the ESA.

SS-328. Comments noted.

SS-328

Recent assessments have found that the quality and diversity of habitat in the estuary are linked to the abundance and diversity of salmon populations that use the estuary.<sup>1</sup> Unfortunately the Columbia River estuary has been incrementally robbed of a large percentage of its historical habitat, primarily due to dredging, construction of agricultural levees in floodplain habitat and floodplain development. For example, since 1870, the estuary has lost 77% of its tidal swamp and 43% of its historical marsh alone.<sup>2</sup> These are just two types of degraded estuarine habitat that have been identified as areas that offer important food sources, and rearing and cover habitat for salmon.

SS-329. Comments noted.

SS-329

Because of the importance of the estuary to the protection and recovery of salmonids, the estuary has been identified as a key element in salmon recovery programs throughout the Columbia River Basin. According to the Cumulative Risk Initiative, a method developed by NMFS to measure extinction risk and weigh the relative value of recovery actions in a quantitative way, improvements in estuarine and early ocean mortality could lead to a significant reversal of current declines of key endangered stocks.<sup>3</sup> Other scientific research highlights the importance of restoring estuarine floodplain and riparian habitat for several stocks listed under the ESA.<sup>4</sup> Because of these findings, NMFS included several robust estuarine habitat research and restoration actions in its biological opinion dealing with impacts of the operation of the federal Columbia River hydrosystem.<sup>5</sup> Several other federal, state, tribal, and private initiatives are currently focused on implementing comprehensive restoration of the lower Columbia and estuary.

*Failure to adequately determine the effects of the proposed project*

SS-330. The Corps disagrees, as did NOAA Fisheries and the USFWS in their Biological Opinions for the project. Impacts to the listed stocks of salmonids were thoroughly evaluated in the EIS process, and during the review of these conclusions and the evaluation of new information in the consultation process.

SS-330

The Corps asserts that the project is not expected to have a significant impact on listed species, yet the SEIS fails to adequately assess several major impacts of the dredging on the ecological integrity of the Columbia River. The Corps has an obligation under the ESA to "insure that any action authorized, funded or carried out by such agency ... is not likely to jeopardize the continued existence of any endangered species or threatened

<sup>1</sup> Bottom, D.L., and C.A. Simenstad, A.M. Baptista, D.A. Jay, Jen Burke, K.K. Jones, E. Casillas and M.H. Schiewe. 2001. (unpublished). *Salmon at River's End: The Role of the Estuary in the Decline and Recovery of Columbia Salmon*. Draft Report. National Marine Fisheries Service, Seattle, Washington.

<sup>2</sup> Thomas, D.W. 1983. Changes in the Columbia River Estuary Habitat Types Over the Past Century. Columbia River Estuary Study Taskforce Columbia River Estuary Data Development Program, Astoria, Oregon.

<sup>3</sup> Kareiva, P.M., Marvier and M. McClure. 2000. Recovery and Management Options for spring/summer chinook in the Columbia River Basin". *Science* 290:977-979.

<sup>4</sup> Bottom, 2001.

<sup>5</sup> National Marine Fisheries Service. 2001. Reinitiation of Consultation on the Federal Columbia River Power System. Northwest Division, Seattle, Washington.

species.”<sup>6</sup> The Corps must also insure that the action will not result in the destruction or adverse modification of critical habitat of the species.

The Corps has failed to adequately assess the following significant impacts of the channel dredging to determine whether the project will jeopardize the continued existence of listed salmonids or adversely modify critical habitat. In addition, the SEIS significantly underestimates the cumulative effects of the project.

*Salinity, Intrusion and the Estuarine Turbidity Maxima*

The SEIS fails to address the impact of the proposed project on salinity intrusion. Salinity intrusion in estuaries is the mix of saltwater moving inland, river outflow, and vertical mixing due to turbulent forces. The estuarine turbidity maxima (ETM) is located near the head of this shifting saltwater and freshwater mixing zone. The ETM plays a vital role in the re-suspension of micro-detritus, an important food source for juvenile salmonids.<sup>7</sup>

SS-331. See response SS-259.

SS-331

Further deepening the Columbia River navigation channel could significantly alter salinity intrusion thereby altering the ETM and the availability of food sources for juvenile salmonids. According to the SEIS, the channel dredging will have “little or no impact on salinity intrusion.”<sup>8</sup> However, the SEIS relies on a model that has not been peer reviewed or systematically tested. There is no demonstration that the model can effectively model bathymetry, a critical component of channel deepening. In fact, the researcher who created the model explicitly warns that his results “may be used to guide management decisions ... but only if model uncertainty is further reduced” (emphasis in original text).<sup>9</sup> Because of the close linkage between salinity intrusion, the ETM, and juvenile salmonid food resources, the Corps should refine its’ salinity model and subject it to a peer review process. The SEIS should be revised accordingly to more accurately reflect potential impacts of channel deepening.

*Timing*

The SEIS fails to assess the environmental harm from not having timing windows. Despite concerns about direct effects on migrating salmon during the construction phase of the channel deepening, the Corps plans to dredge and dispose of sediment

SS-332

SS-332. The Corps disagrees. See response to state comment S-4. The issue with dredging and disposing in the main navigation channel outside the recommended in water work window has been thoroughly evaluated. Dredging and disposal at this depth is allowed because it is generally recognized that migrating juvenile or adult salmon are not abundant at this depth and therefore the impacts are expected to be minimal. Entrainment, migration and hydroacoustic tracking studies have verified this distribution. The reference cited in this comment is incorrectly interpreted to mean that yearling fish that are migrating in the main channel area are migrating near the bottom when in fact they are migrating in the upper 20 feet of the water column over the main navigation channel. Most fish are in fact migrating along the margins of the channel in the shallower water. Though there is some thought that these fish may be moving to the bottom at night, recent hydroacoustic data has indicated that they are also moving inshore during the night (see Carlson et al. 2000). While it is true that large quantities of dredged material will be disposed in flow lane sites during construction and subsequent 20 years of maintenance dredging, flow lane disposal is done at depths greater than 20 feet.

<sup>6</sup> Endangered Species Act. 16 U.S.C. Section 1536(a)(2).

<sup>7</sup> Simenstad, C.A., C.D. McIntyre, and L.F. Small, 1990. “Consumption processes and food web structure in the Columbia River estuary”. *Progr. Oceanogr.* 25:271-297.

<sup>8</sup> U.S. Army Corps of Engineers. July 2002. Columbia River Channel Improvement Project, Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the Columbia River Channel Improvement Project. Portland District, Portland, Oregon.

<sup>9</sup> U.S. Army Corps of Engineers. December 2001. Oregon Health and Science University Modeling Results, Appendix F, Biological Assessment, Columbia River Channel Improvements Project. Portland District, Portland, Oregon.

continuously for two years. Only the blasting of bedrock will be limited to the recommended in water work periods.

SS-332

The Corps relies on inadequate analysis to make the determination that dredging and disposal will not harm migrating salmonids. The analysis does not account for scientific evidence that show's most yearling chinook migrate in deep channel sites rather than near tidal shore areas.<sup>10</sup> It focuses primarily on juvenile sub-yearling chinook because they are thought to be most susceptible to the project impacts. According to NMFS Biological Opinion on the project, 23 million cubic yards of sediment will be dumped into the flow lane along the channel at “anywhere in or immediately adjacent to the navigational channel” and at “anytime” during construction.<sup>11</sup>

*Adaptive Management and Long-term effects*

The adaptive management program is designed in part to respond to unforeseen impacts of the project. Because there has been minimal analysis by the action agencies of the impacts of the project, the, adaptive management program is particular important to prevent harm to listed species. Because this adaptive management program is so vital to responding to negative impacts, the fact that neither the Corps nor NMFS has developed the scope, goals, milestones for completion, and sampling protocols is problematic.

SS-333

More importantly, the monitoring and adaptive management plans described in the SEIS do not address the potential long-term impacts of the project. The plans for all but one monitoring program end after seven years, while the impacts on an already degraded lower Columbia River and estuary could potentially continue beyond the fifty-year lifetime of the project. The Corps should conduct an in depth analysis of the long-term effects of the project on the processes and habitat of the lower Columbia River.

*Cumulative Effects*

The National Environmental Protection Act (NEPA) requires an analysis of several actions having a cumulative- environmental effect; such a consequence must be considered in an EIS.”<sup>12</sup> The cumulative impacts analysis in the SEIS is inadequate, providing insufficient detail on how the proposed action would interact with other factors to cause cumulative impacts to the affected resources. An EIS cannot just provide general descriptions of cumulative impacts, as the Corps has done in the SEIS,

SS-334

SS-333. The Corps disagrees. There has been extensive analysis of the impacts of the project either short term or long term. As indicated in the 1999 Final IFR/EIS, Draft SEIS, Biological Assessment, Biological Opinion, and this Final SEIS, the Corps has used all available information, conducted numerous studies, and convened any number of workshops to evaluate both the immediate and long term impacts of the project. The reason for the monitoring and adaptive management approach is to detect and resolve any unforeseen impacts that may occur either over the short or long term. Though NOAA Fisheries and USFWS concluded expected impacts to key physical processes would be limited and short-term in nature, they also concluded that because of low levels of risk and uncertainty surrounding the long-term biological response to physical change, monitoring and adaptive management is warranted and will address the risk and uncertainties. All of the monitoring programs are to be reviewed regularly by the adaptive management group. Monitoring will be lengthened if the adaptive management group determines it is necessary. Since issuance of the Draft SEIS, the Corps has prepared a more detailed monitoring and adaptive management program in compliance with terms and conditions of the biological opinions. The revised monitoring and adaptive management program is available on the Corps’ website.

SS-334. The Corps agrees that NEPA requires an analysis of cumulative effects and included such an analysis in the Final SEIS and in the Draft SEIS. In response to public comments, the Corps has revised and expanded the cumulative effects analysis in the Final SEIS.

<sup>10</sup> Bottom, D.L. and M.C. Healey. 1984. Fishes of the Columbia River estuary, Internal report. Available from Columbia River Data Development Program, Astoria, Oregon.

<sup>11</sup> National Marine Fisheries Service. May 2002. Biological Opinion, Columbia River Federal Navigation Channel Improvement Project. Northwest Region, Seattle, Washington.

<sup>12</sup> City of Tenakee Springs v. Clough, 915 F.2d 1308, 1312 (9<sup>th</sup> Cir. 1990).

SS-334 | but rather it must describe in detail the cumulative effects of all related proposed federal actions.

The Corps only mentions closely related federal projects, such as the maintenance dredging of the mouth of the Columbia River and the reasonable and prudent alternatives associated with NMFS biological opinion on the Federal Columbia River Power System (FCRPS), in passing. As noted above, the FCRPS relies heavily on improvements in the estuarine and early ocean survival of juvenile salmonids to offset impacts of the hydrosystem on ESA-listed salmon stocks.

In addition, the proposed channel deepening would add another incremental insult to a system that has suffered loss of function and habitat for over one hundred and fifty years. However, the SEIS neglects to account for the impacts dredging has already wrought on lower Columbia and estuary habitat.

*Columbia River Plume*

SS-335 | The SEIS does not incorporate new scientific information demonstrating the importance of the dynamics of the Columbia River plume to salmonid populations along the Washington, Oregon and California coasts. Depending on shifts in the intensity and location, the plume is responsible for affecting the nutrient productivity of coastal estuaries and upwelling ocean currents.<sup>13</sup> The near ocean environment has been identified potentially as an area key to salmon recovery.<sup>14</sup> Salmonids reliant on coastal estuaries and open ocean currents for these nutrients could be affected by changes in the plume due to alterations in the geomorphology of the lower Columbia River and estuary resulting from channel deepening. The Corps should investigate the effect of the dredging project on the dynamics of the Columbia River plume.

SS-335. See response SS-268.

*Dredged Sediment*

SS-336 | Although the sediment forecasts have been updated with new data, the Corps' analysis finding less sediment in the proposed action area is flawed. The sediment forecasts contained in the SEIS remain likely of a magnitude much less than the actual amounts dredged during the project. The Corps continues to rely on annual dredging volumes that are misrepresentative of what the project will actually require. Reliance on sediment data from a relatively dry period and low flow regime could cause the sediment forecasts to be significantly low, underestimating the total disposal area necessary to accommodate the initial channel deepening and subsequent maintenance dredging.

SS-336. See response SS-266.

<sup>13</sup> University of Washington, press release. "Columbia River trumps ocean when conditions are right." University of Washington, Seattle, Washington.

<sup>14</sup> Karieva, 2000.

## Corps of Engineers Response

Since the size and number of the disposal sites are based on these sediment forecasts, underestimating dredging volumes will have a multiplier effect on the environmental and economic impacts. The Corps needs to reassess its sediment estimates using a more representative timeframe and revise the SEIS accordingly.

### *Economic analysis*

The economic analysis in the SEIS is flawed - it underestimates the costs and exaggerates the benefits of the dredging project. The Corps has fallen short in its recent attempts to recalculate the cost-benefit ratio of the project primarily due to flaws in the basic assumptions and methodologies.

A review panel of engineers and transportation economists assembled by the Corps in August 2002 raised significant questions about the validity of the economic analysis in the SEIS.<sup>15</sup> In particular, the panel questioned whether local and regional exporters would receive the benefits of a deeper channel.<sup>16</sup> It is more likely that the benefits would instead be accrued by foreign-based shipping cartels that would take advantage of the deeper channel by reducing vessel frequency, which could increase prices for U.S. exporters. In the SEIS, the Corps did not adequately investigate the effect of decreased frequency on exporter costs.

SS-337. An open and transparent technical review of the costs and the benefits was conducted with seven experts in August 2002. The points raised by that panel are fully addressed in the Corps' responses. The Corps consideration of the technical review has been included in the Final SEIS and is also available on our website. The Corps' analysis does not assume that all vessels will depart fully loaded.

SS-337

In addition, the Corps economic benefit analysis assumed that all ships would depart fully loaded if the channel was three feet deeper. Currently ships commonly depart partially loaded at depths of thirty-seven feet or higher in the forty-foot channel. As such, the review panelists assembled by the Corps found the calculation that a deeper channel would result in ships departing fully loaded unreasonable.<sup>17</sup>

Because of the recent question raised by the economic review panel we urge, you to request the National Academy of Sciences (NAS) conduct an independent review of this project. This is a well-established role for the NAS as it has previously evaluated Corps' projects and programs, and is currently conducting a broader investigation into the need for independent review of Corps' projects.

We understand the Corps' need to restore public faith in the reputation of its, analytical capabilities, which has been marred by revelations of faulty economic analyses

<sup>15</sup> A summary of the review was recently released. Resolve, Inc. et al., "Summary Report of the Technical Review Process and Results: Technical Review of the Benefit and Cost Analysis in the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement Dated July 2002." September 9, 2002.

<sup>16</sup> Resolve, Inc. "Columbia River Channel Improvement Project: Third Party, Transparent, Peer Review of Benefit and Cost Analysis." August 2-9, 2002.

<sup>17</sup> Id.

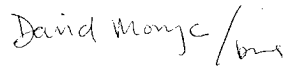
elsewhere around the nation.<sup>18</sup> We are concerned that the economic analysis in the SEIS fails to deliver an accurate picture of the true costs and benefits of this project.

#### Corps of Engineers Response

SS-338 Thank you for the opportunity to comment on the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement for the Columbia River Channel Improvement Project. American Rivers is concerned that the proper environmental and economic analyses have not been conducted for the proposed channel deepening project. For the above stated reasons, we urge the Corps of Engineers to revise and supplement the SEIS to more accurately assess the impacts of the project. Please contact me at (503) 827-8648 if you have any questions.

SS-338. For the reasons discussed in response to the specific comments above, the Corps disagrees with the comment that the environmental and economic issues associated with the project have not been adequately analyzed. The 1999 Final IFR/EIS and Final SEIS contain detailed analyses of the project, including revised analyses of both environmental and economic issues raised through the public comment process. Based on this extensive record, the Corps concludes that the project will result in net benefits and is in the overall public interest.

Sincerely,



David Moryc  
American Rivers

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<sup>18</sup> For evidence of institutional Corps, bias found in a report issued by the Inspector General of the Army U.S. Army. Office of the U.S. Army Inspector General. U.S. Army Inspector General Agency Report of Investigation. November 2000. For specific project scandals also see: U.S. Congress. Government Accounting Office. Delaware River Deepening Project: Comprehensive Reanalysis Needed. Washington, D.C.: GPO, June 7, 2002; National Academy of Sciences. National Research Council. Assessment of Upper Mississippi River-Illinois Waterway Navigation System Feasibility Study. May 2000.

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September 20, 2002

**Corps of Engineers Response**

Colonel Richard Hobernicht  
U.S. Army Corps of Engineers  
Portland District  
PO Box 2870  
Portland, OR 97208

Dear Colonel Hobernicht:

The Pacific Fishery Management Council (Council) is one of eight regional fishery management councils established by the Magnuson Fishery Conservation and Management Act (Magnuson-Stevens Act) of 1976 for the purpose of managing fisheries 3-200 miles offshore of the United States of America coastline. The Pacific Council is responsible for fisheries off the coasts of California, Oregon, and Washington.

SS-339

On October 22, 1999, the Council sent the U.S. Army Corps of Engineers (USACE) a letter that included a number of comments and recommendations regarding the lower Columbia River dredging proposal being considered at that time (attached). These comments and recommendations are still relevant to the current Columbia River Channel Improvements Project proposal. We would like to review our 1999 letter in light of the current proposal.

Our comments and recommendations from the 1999 letter include discussions of the eight following topics:

**Develop an Ocean Disposal Site Task Force:** In its original plan, the USACE committed to forming a taskforce of stakeholders to develop a management plan for the ocean disposal sites for dredging spoils. In the first 20 years of the project, a portion of the 14.4 million cubic yards of dredge material will be placed in the lower estuary as ecosystem restoration if funding and acceptable locations are secured. Since there is no certainty about funding restoration projects, this material, as well as all maintenance dredge spoils, may all end up in the ocean. The task force needs to deal with either contingency. We support the continuation of the task force in order to deal with unresolved marine disposal issues, including siting and ongoing management. The task force must be given clear authority to steer such decisions.

SS-340

**Monitoring and Baseline Data:** In our October 1999 letter we requested an additional assessment of the biological and physical characteristics of the proposed ocean dumpsites be undertaken. The USACE proposal to collect baseline data during or after the project is inadequate. We recommend baseline data be collected before the project begins, and existing datasets from other agencies be examined to see if they can serve as part of the baseline data.

SS-341

**Dungeness Crab:** We recommended clamshell dredges be used in estuarine areas to reduce the entrainment of Dungeness crab, which are important prey for Council-managed groundfish species. This recommendation has apparently been ignored. Why is the USACE planning on

SS-342

SS-339. Comment noted. Specific responses are provided below for SS-340 through SS-347.

SS-340. The restoration projects that would rely on materials formerly proposed for disposal in the ocean would be based on the funding for the project. Therefore, there is no uncertainty with regard to funding these features, as the comment suggests. The preferred option does not include disposal at the Deep Water Site. The ultimate development of the SMMP management plan for ocean disposal sites is the responsibility of the USEPA and the Corps. See our responses S-30 and S-61. The Corps is in the process of potentially reconfiguring the Ocean Disposal Task Force and evaluating its roles and responsibilities.

SS-341. The comment suggests that the Federal Government proposes to collect baseline data during or after the project. This is inaccurate. The Federal Government had already begun collecting baseline data regarding the ocean disposal sites during 2002. See our response S-18.

SS-342. The Corps has conducted extensive entrainment studies based on actual dredging samples. These data indicate that the mortality to Dungeness crab from this project using hydraulic dredges is insignificant when compared to the overall crab population. The commenter has provided no information to support that clamshell dredging is any less impacting to Dungeness crab than hydraulic dredging. In addition, it is not possible to use clamshell dredges in the estuary because of weather, wave conditions and navigational traffic. Consequently, this reach must be dredged with hopper dredges.

using suction dredging when there are alternatives that will reduce impacts to economically and ecologically important species? The cost savings to the USACE for using suction dredging will end up being paid by the fishing industry. This is unfair.

SS-343 **Contaminants:** We recommended the USACE add specific information or a preliminary ecological risk assessment to the final environmental impact statement (FEIS) to define conditions in the Columbia River that would either support or negate sediments as the source for transfer of contaminants such as PCBs. While the Sustainable Ecosystem Institute addressed toxins to some degree in a report commissioned by the USACE and other agencies involved in the process, they did not address sub-lethal effects such as effects on behavior (including predator avoidance) or physiological effects (such as estrogens and estrogen-mimicking compounds that can alter sexual development of aquatic species). These sub-lethal effects may compromise stock viability. Effects on human health from increased toxins in the water column were not considered. We still believe our initial recommendation is valid.

SS-344 **Year-Round Dredging:** We requested the timing of in-water work be considered to minimize impacts to Council-managed resources. Such timing has not been sufficiently considered. Dredging in the channel and turning basins will occur continuously until project completion, and maintenance dredging will occur from November to February. Some effort needs to be made to allow dredging to stop during certain times of the year, especially when critical stocks of juvenile fish are migrating through dredging areas.

SS-345 **Mitigation:** The current Biological Opinion (BO) does not require mitigation for ocean impacts, and we feel the USACE's commitment to mitigation is suspect, because there is no guaranteed funding of mitigation activities in the project budget. In our letter, we recommended the USACE commit to mitigation and form a group of agencies and stakeholders to determine the specifics of the mitigation package. We continue to believe mitigation should be guaranteed or the project should be halted. Mitigation should not depend on hoped-for future funding. The lack of consideration of mitigation for ocean impacts is inappropriate and adversely affects many Council-managed species.

SS-346 **Forage Fish:** We recommended dredging be done around the Lewis River only between January 1 and June 1 and only with a clamshell dredge to protect juvenile smelt. We continue to believe this. However, there has been no commitment to do this by the USACE, and NMFS does not require it in the BO. Again, methods are available to minimize adverse effects to important species; and again, the cost savings to the USACE for using suction dredging will end up being paid by the fishing industry. This is not fair.

SS-347 **Essential Fish Habitat:** We recommended the FEIS for the proposed project be revised to ensure impacts to the essential fish habitat (EFH) of the Columbia River, Columbia River Estuary, and marine ecosystems are minimized to the greatest extent possible.

The EFH information in Exhibit I of the Supplemental EIS makes many unsupported statements and draws conclusions that reflect no impact on EFH for groundfish. Specific surveys must be conducted in the area on a year-round sampling basis to determine fish community structure and habitat use of Council-managed groundfish species by life stage and season. Without this information, an adequate EFH assessment of impacts to Council-managed species, their forage, and other ecosystem impacts is impossible.

SS-343. See response to comments SS-13, SS-20, SS-111 and SS-192, I. Given the low level of contaminants in the sand dredged from the channel, it is not anticipated that there will be effects on human health as a result of the channel improvement project.

SS-344. See response to state comment S-4.

SS-345. Mitigation related to ocean disposal is limited to avoidance and minimization pursuant to the MPRSA and implementing regulations. In addition, the analysis to date indicates that the ocean disposal site is not unique with regard to the habitat it provides for aquatic species. Therefore, any effect to this small area of the ocean is not likely to translate into measurable effects to aquatic populations or the fisheries that depend on them.

SS-346. The Biological Opinion does not require or limit dredging around the Lewis River to protect juvenile smelt because smelt is not a species that was subject of the consultation or the biological opinion. Additional research since preparation of the 1999 Final IFR/EIS has indicated that the project, as proposed, would not have a significant adverse effect on smelt. This research was conducted by the WDFW and the ODFW. The comment that "suction" dredging will result in additional cost to the fishing industry is not supported by the best available science.

SS-347. The Magnuson Fisheries Conservation and Management Act (MFCMA) does not require that specific surveys be done in an area on a year-round sampling basis in order to conduct the essential fish habitat analysis. The Corps will complete its essential fish habitat analysis with the services as required by the MFCMA.

The Corps is responding to NOAA Fisheries conservation recommendations and the information will be available on the Corps' website



Colonel Richard Hobernicht  
September 20, 2002  
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Corps of Engineers Response

In addition, the current EFH consultation for salmon clearly states, ". . . **the proposed action may adversely affect the EFH for chinook and coho salmon species.**" NMFS also has stated,

"While NMFS understands that the proposed dredging and disposal Impact Minimization Measures and Best Management Practices identified in Chapter 3 of the 2001 BA conservation measures described in the [sic] will be implemented by the Corps, **it does not believe that these measures are sufficient to address the adverse impacts to EFH** described above. However, the Conservation Measures outlined in Section 10 of this Opinion and all the reasonable and prudent measures and Terms and Conditions outlined in Section 12 of this Opinion are generally applicable to designated EFH for chinook and coho salmon and address these adverse effects. Consequently, NMFS recommends that they be adopted as EFH conservation measures."

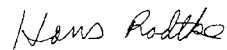
SS-347

The conservation measures in Chapter 10 relate to suggestions (not requirements) to implement a number of studies and monitoring activities, a suggestion to release pipeline-dredged materials into as deep of water as possible, and a suggestion to work with the Columbia River Treaty Tribes. None of these will provide any direct benefit to EFH, and most of the tribes' comments have not been considered. Similarly, the reasonable and prudent alternatives (RPAs) and Terms and Conditions in Section 12 include references to minimizing take, but do not explain how EFH will be protected. While they require the implementation of the dredging and disposal Impact Minimization Measures and Best Management Practices identified in Chapter 3, NMFS has stated these are inadequate to address EFH impacts. Section 12 also requires the establishment of monitoring programs (some of which may monitor effects on habitat) and indicates adaptive management may be used. However, Section 12 neither requires nor indicates how EFH impacts will be minimized.

In summary, we feel the EFH salmon consultation overlooks important issues. The USACE should identify specifically what it intends to do to minimize the adverse effects on EFH that NMFS says may occur. We believe there should be a re-initiation of the EFH consultation, because of the inadequacies of the current salmon consultation. Further, the information for the pending groundfish and coastal pelagics EFH consultation is insufficient to conduct a proper EFH assessment.

Thank you for the opportunity to comment on this important matter.

Sincerely,



Hans Radtke  
Chairman

JDG:kla

Enclosure

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U.S. Army Corps of Engineers  
October 22, 1999  
Page 2

October 22, 1999

U.S. Army Corps of Engineers  
Policy Review Branch, Attention CECW-AR-(IP)  
7701 Telegraph Road  
Alexandria, VA 22315-3861

To Whom It May Concern:

Re: "Final Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement: Columbia and Lower Willamette River Federal Navigation Channel"

The Pacific Fishery Management Council (Council) was created by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) in 1976 with the primary role of developing, monitoring, and revising management plans for fisheries conducted within federal waters off Washington, Oregon, and California. Subsequent congressional amendments in 1986, 1990 and 1996 added emphasis to the Council's role in fishery habitat protection. The 1996 amendments directed the National Marine Fisheries Service, as well as the regional fishery management councils, to make recommendations regarding federal or state agency activities that may affect the "essential fish habitat" (EFH) of a fishery under its authority. The Magnuson-Stevens Act amendments also mandate that threats to EFH be identified, and that conservation and enhancement measures be described to minimize those adverse impacts.

The proposed project has the potential to affect EFH for chinook and coho salmon as well as the following Council-managed groundfish and coastal pelagic species and their life history stages.

Groundfish Species	Egg	Larvae	Young Juvenile	Juvenile	Adult	Spawning
Spiny Dogfish			x	x	x	
Rattfish				x	x	
Lingcod		x		x	x	x
Cabezon		x				
Kelp Greenling		x				
Pacific Cod		x	x	x	x	x
Pacific Whiting (Hake)			x	x	x	
Sablefish		x	x	x	x	x
Jack Mackerel					x	
Darkblotched Rockfish				x	x	

Groundfish Species	Egg	Larvae	Young Juvenile	Juvenile	Adult	Spawning
Greenstriped Rockfish				x	x	
Thornyheads	x					
Pacific Ocean Pearch				x	x	
Widow Rockfish			x	x		
Misc. Rockfish				x	x	
Arrowtooth Flounder				x	x	
Butter Sole	x	x				
Curffin Sole	x					
Dover Sole	x			x	x	
English Sole	x	x	x	x	x	x
Flathead Sole		x		x	x	x
Pacific Sanddab				x	x	
Petrale Sole			x	x	x	
Rex Sole	x	x		x	x	
Sand Sole	x	x				
Starry Flounder	x	x	x			x
<b>Coastal Pelagic Species</b>						
Northern Anchovy	x	x		x	x	
Pacific Sardine	x	x		x	x	
Pacific Mackerel	x	x		x	x	
Jack Mackerel					x	
Market Squid	?	?	?		x	?

**COMMENTS AND RECOMMENDATIONS:**

Our comments on the final environmental impact statement (FEIS) are as follows:

- Ocean Disposal Taskforce:** The Corps committed to forming a taskforce of agencies and stakeholders to develop a management plan for the ocean disposal sites and determine studies needed to monitor and manage the sites. It is unclear in the FEIS what authority the taskforce will have and when it will be formed.

**Recommendation:** An memorandum of understanding (MOU) to form the Ocean Disposal Taskforce needs to be developed and signed by all parties prior to final designation of the deepwater site. The Corps needs to commit to long-term funding of the taskforce. The Corps needs to give the taskforce clear and significant authority in determining how the sites are managed.

- 2. Monitoring and Baseline Data:** It is our understanding that the deep water site is large enough that there should be flexibility in the dumping location within the site to protect unique habitats and biologically productive areas. For example, anecdotal information from fishers indicates that the eastern portion of the deep-water site may concentrate English sole. If this can be confirmed, disposal activities in this area should be avoided.

**Recommendation:** We request that additional assessment of biological and physical characteristics of the proposed ocean dumpsites, especially the deep-water site, be undertaken. Baseline studies of the deep-water site are needed prior to beginning disposal there. For example, habitats should be characterized using side-scan sonar, multibeam bathymetry, and various groundtruthing techniques. In addition, benthic surveys and trawl studies should be conducted to determine biological characteristics.

We request that the Corps and the Ocean Disposal Taskforce design studies to gather this baseline information prior to disposal in the deep-water site. In addition, special studies and on-going monitoring are needed to monitor impacts to aquatic resources from disposal activities and to make timely adjustments to ocean disposal strategies if monitoring information indicates that adjustments are needed (for example, the Corps funded a preliminary study to examine burial impacts to Dungeness crab. A more thorough study is needed to fully document and understand potential burial impacts).

- 3. Dungeness Crab:** Fishermen and resource agencies have raised concerns about entrainment and killing of Dungeness crab during dredging activities (in addition to ocean disposal activities). Though not a Council-managed fish species, we are concerned about this valuable resource because it is one of the few healthy fisheries remaining off the Oregon and Washington Coasts.

**Recommendation:** We agree with the Washington Fish and Wildlife Department's suggestion that a clamshell dredge be used in estuarine areas (and elsewhere where feasible) to reduce entrainment of Dungeness crab.

- 4. Contaminants:** We are concerned that the channel deepening projects impact will result in increased exposure of salmonids and other fish to contaminants such as dioxins, furans, PCBs, and DDE. Specifically, dredging activities in shallower areas on either side of the channel aimed to reduce sloughing will disturb shallower depositional zones that contain finer sediments, which are often a major source of contaminants. If resuspended through dredging, these contaminants become bioavailable.

**Recommendation:** As was suggested in comments provided on the draft EIS by the U.S. Fish and Wildlife Service (dated February 8, 1999), we recommend the Corps add specific information or a preliminary ecological risk assessment to the FEIS to define conditions in the Columbia River that would either support or negate sediments as the source for transfer of bioaccumulative compounds.

- 5. Year Round Dredging:** We are concerned that the deepening project's planned year round dredging does not take fully into consideration the life history patterns of migrating fishes, especially salmonids.

**Recommendation:** We request that in-water work timing considerations be added to minimize impacts to Council-managed resources.

- 6. Mitigation:** The project's mitigation package does not adequately address all biological impacts. For example, no compensatory mitigation has been proposed for ocean impacts. We understand that while there are existing policies and procedures for estuary mitigation, there is no real model available for ocean disposal mitigation.

**Recommendation:** The FEIS needs to include a mitigation package for estuary and ocean impacts. We recommend that the Corps commit to mitigation and form a group of agencies/stakeholders to determine the specifics of the package.

- 7. Forage Fish:** We are concerned about project impacts to forage species, such as Pacific sand lance (*Ammodytes hexapterus*) and smelt (*Thaleichthys pacificus*). Smelt have been returning in low numbers in recent years.

**Recommendation:** We concur with past comments made by Washington Department of Fish and Wildlife (WDFW) that dredging around the mouth of Lewis and Sandy Rivers be limited to the use of clamshell dredging between January 1 and June 1. We also concur with NMFS and WDFW for time closures to protect juvenile smelt from the Sandy River to Cathlamet.

- 8. Essential Fish Habitat:** We believe that the FEIS for the proposed channel deepening project needs to be revised to ensure that impacts to the essential fish habitat of the Columbia River, Columbia River estuary, and the marine ecosystems are minimized to the greatest extent possible.

Thank you for the opportunity to comment on this important matter.

Sincerely,

Jim Lone  
Chairman

SHP:rdh

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# **LETTERS FROM INDIVIDUALS**

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41997 Spruce Lane  
Astoria, Oregon 97103  
July 12, 2002

**Corps of Engineers Response**

Dear Sirs:

I am commenting on the recent findings of Corps of Engineers about cost-benefit ratios of digging the Columbia River ship channel 3 feet deeper than the present, 40 ft channel.

The latest finding was that there is about a \$1.40 benefit above the \$1.00 cost ratio vs a 2.00 to 1.00 c/b in the Corps' previous, flawed analysis exposed by the Portland *Oregonian* as actually about \$0.88 benefit to \$1.00 cost.

I-1

I don't argue too much about actual cost/benefit as that is a figure that changes likely depending what values are used when. However, I fail to see what benefit a 43 ft channel vs 40 ft will really be from Astoria to Portland/Vancouver. Particularly in a five to ten year period when likely a 43 ft channel will be inadequate anyway. It seems to me it would be a heck of a lot smarter to unload at Astoria or Longview and barge the product on into Portland and vice versa. There's a world class anchorage in Tongue Point used by the Navy during WW II already in Astoria. And an existing railroad right of way and US highway which could easily be upgraded if necessary.

I-2

The environmental effects of deepening would undoubtedly be there at least in the dredge spoils dumping wherever they occur. Long term effects might be less, after the initial deepening. I assume about the same amount of dredging would be necessary annually after deepening to 43 ft that is necessary with the present channel. A major worry is what kind of hazardous materials would be dredged up from the new 3 feet of depth also, and what disposition to be made of them.

I-3

Another definite benefit of porting down river from Portland would be the lesser risk of ships beaching and hazardous substances being spilled into the Columbia River either from ships running aground or discharging bunker fuel etc. It seems to me that barges as on the Mississippi River and large rivers in western Europe is quite feasible and to be preferred over maintaining a 100 mile canal to Portland.

I oppose deepening the Columbia River channel to Portland on the above grounds.

Sincerely,



Jack G. Robinson

I-1. The referenced *Oregonian* story was unsupported by facts or calculations the Corps could verify. Regional port considerations in Longview or Astoria were addressed in the 1999 Final IFR/EIS, and were found to be far more costly than the channel improvement alternative.

I-2. Sediment testing throughout the navigation channel has shown that the material is clean sand. Over 100 separate Corps studies representing more than 4,000 samples on the Columbia River have been identified. This information was analyzed as part of the Corps' amendment to the Biological Assessment. This information continues to be updated. The Corps is actively populating the SEDQUAL database to include these identified Corps studies. The Columbia River is composed of a series of sand waves that is continually turned over, so that the material is well mixed and very homogeneous. The material that is dredged from the 40-foot channel will be the same material dredged for the 43-foot channel. The dredged material typically has less than 1% fines, which is the fraction that would carry any contaminants. Consequently, it is highly unlikely that any contaminants in any significant concentrations would be released into the environment.

I-3. If navigation were eliminated on the river, there would be a reduced level of risk, but the financial costs of replacing existing infrastructure with a regional port are substantial, and a regional port could not be constructed without environmental impact as well. These alternatives were evaluated in the 1999 Final IFR/EIS and were eliminated due to costs and concerns with implementing them. In 1986, Congress imposed cost sharing for this type of project, which requires a non-federal sponsor to fund 25% of the total project cost and 100% of all required infrastructure and land costs. We have had no interest expressed to date from an entity willing to cost share such an alternative.

From: Margaret Allman [darknessfalls@mindspring.com]  
Sent: Tuesday, July 30, 2002 4:07 PM  
To: Mr. Willis  
Subject: Please study the Columbia River carefully before dredging

## Corps of Engineers Response

July 30, 2002

Robert Willis  
U.S. Army Corps of Engineers, Portland District  
P.O. Box 2946  
Portland, Oregon 97208-2946

Dear Mr. Willis,

The Portland District of the Army Corps of Engineers has proposed a \$156 million project to deepen the Columbia River Navigation Channel from 40 to 43 feet over a total of 106 miles. There are numerous economic and environmental concerns associated with this navigation project. The Corps attempts to address many of these issues continue to be insufficient. For this reason, I urge you to call for a wholly independent economic and environmental analysis of the Columbia River Channel Improvement Project. Such an analysis should include, at a minimum, independent evaluation of the Corps' cost-benefit analysis, the external costs to the economies of local communities dependent on the lower Columbia River, and the impacts of the project on threatened and endangered species.

I-4

The independent analysis should investigate the entire range of economic issues associated with the navigation project. The Corps analysis relies on projections that are unrealistic thereby inflating the benefits of the project while neglecting to include costs to local communities whose economies rely on the lower Columbia River. An independent analysis of these impacts must be conducted to fully understand the economic costs associated with this project.

I-5

The Corps analysis also neglects to answer key questions about the effects of this project on threatened and endangered salmon. Scientists have found that the Columbia River estuary offers critical habitat to threatened and endangered salmon and over 200,000 wintering waterfowl and shorebirds. Since 1850, the estuary has lost over 70% of its key historical wetland and riparian habitat, primarily due to the construction of agricultural levees and floodplain development. Furthermore, the Corps analysis focuses specifically on short-term impacts even though several scientists have noted that there could be significant long-term negative impacts to salmon.

I-6

Because of the outstanding environmental and economic issues associated with this project, I again urge you to call for a wholly independent review of the Columbia River Channel Improvement Project. There is simply too much at stake - federal and state taxpayer dollars and the critical habitat for threatened, endangered, and sensitive species - not to proceed with an independent review.

Please note that this message will also be sent to the Port of Longview.  
Thank you for your consideration of my comments.

Sincerely,

Margaret Allman  
2424 NW 59<sup>th</sup> ST Apt 304  
Seattle, WA 98107

**Note: This form letter was sent by many individuals. Their names and addresses are shown on the following pages.**

I-4. The Corps has undertaken a thorough analysis of the costs and benefits associated with this project, and that analysis has been reviewed thoroughly by an external expert panel. The Corps has reviewed and responded to each of the panel's comments. The results of that review are available on the Corps' website at <https://www.nwp.usace.army.mil/issues/crcip/pubs.htm>.

I-5. Impacts to endangered salmon were evaluated in the 1999 IFR/EIS and biological assessment. They were further reviewed during the preparation of the second biological assessment; conducted with an interagency team throughout the reconsultation process. During this year long process, a panel of independent experts (from the university community) reviewed the original evaluation as well as the new information developed by NOAA Fisheries on contaminants that warranted the reconsultation. Contrary to your statement the assessment did evaluate long-term impacts. A monitoring program has been developed and is underway, gathering baseline information. These studies will continue for several years. The results and need for continued monitoring will be reviewed by a multi-agency adaptive management group. This process is discussed in Chapter 6 and 7 of the Final SEIS, which is available on the Portland District web page at <https://www.nwp.usace.army.mil/issues/crcip/pubs.htm>.

I-6. Comment noted.

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Glen Zorn  
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E-103  
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Kathryn Zuber  
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Vancouver, WA 98664



**Corps of Engineers Response**

From: Donna Riddle [aqua4fun@hotmail.com]  
Sent: Tuesday, July 30, 2002 12:27 PM  
To: Mr. Willis  
Subject: Please study the Columbia River carefully before dredging

July 30, 2002

Robert Willis  
U.S. Army Corps of Engineers, Portland District  
P.O. Box 2946  
Portland, Oregon 97208-2946

Dear Mr. Willis,

I-7 | The Army Corps of Engineers proposal to dredge Columbia River like a number of their other project is a poorly planned idea. It doesn't make either economic or environmental sense. The threat to salmon as not been sufficiently addressed nor has the impact of dumping the dredged materials, which are sure to have a lot of toxic waste. I think an independent analysis is called for. Such an analysis should include, at a minimum, independent evaluation of the Corps' cost-benefit analysis, the external costs to the economies of local communities dependent on the lower Columbia River, and the impacts of the project on threatened and endangered species.

I-8 | Because of the outstanding environmental and economic issues associated with this project, I again urge you to call for a wholly independent review of the Columbia River Channel Improvement Project. There is simply too much at stake – federal and state taxpayer dollars and the critical habitat for threatened, endangered, and sensitive species - not to proceed with an independent review.

I-7 and I-8. See responses I-4 and I-5.

Thank you for your consideration of my comments.

Sincerely,

Donna Riddle  
1238 Crest Dr  
Eugene, OR 97405  
USA

Corps of Engineers Response

From: William Feddeler  
2311 NE 154<sup>th</sup> Circle  
Vancouver WA 98686  
Date: July 31, 2002  
To: U.S. Army Corps of Engineers, Portland District  
Topic: **Deepening of the Lower Columbia River:**

Between a rock and a hard place.  
*Longer, faster, higher: The Olympics*  
*Deeper, wider, straighter: The Lower Columbia River*

The issue is:

- ◆ To increase trade advantage for Oregon and Washington businesses and people along the Columbia, we are being asked to deepen the river channel by three feet.

The advantages to business and people are:

- ◆ Bigger ships with more cargo will be able to get up and down the estuary as least as far as Portland OR and Vancouver, WA.

One of the problems:

- ◆ Channel deepening will not allow passage for an increasing number of ships being built and used worldwide that are too large for the planned deepening. The project is too late with too little to be continually competitive. The channel needs to be deepened more than three feet now to really be competitive. Additionally, longer ships require a straighter and wider channel for safe passage.

The next step:

- ◆ Deepen, widen and straighten the channel another three or more feet to accommodate still larger ships in the future. Spend more money.

And the next step:

- ◆ Continue the previous step through time.

Result:

- ◆ The Columbia River Estuary becomes less and less a healthy biological regime, a scenic and geologic wonder and more and more a shipping channel.

Examples:

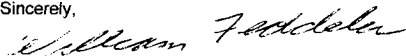
- ◆ The Chicago River.
- ◆ Most of the Mississippi.
- ◆ The Rouge River in Michigan (channeled, parts with concrete bottom and sides).

Among other problems are the large areas of river bottom composed of rock that have to be blasted away, a most expensive process and permanent fixture. Future deepening will require further blasting. That river damage will not go away.

Now, if that is what we want, than lets go for it. Money has been no object in the past. Hundreds of millions are spent on less righteous causes. The river can then be viewed as a money machine rather than a complex fishery, a scenic wonder, a place of solitude, a recreation destination, an historic treasure, a place of reverence for native peoples.

We could erect kiosks explaining the monetary gain to the businesses and our communities. Many of us view operating smoke stakes as the sign of money, jobs and good times. Besides, this section of the Columbia is overused already.... so what's the lose. Another answer is not to do it.

Sincerely,



William Feddeler

I-9. The comment mentions that the channel will be too small for many vessels. In reality, the larger vessels in the grain bulk trade are already moving on the Columbia River, and large container ships are already calling on the river also. The fact that ships could use more than 43 feet does not negate the benefits of a 43-foot channel.

**Corps of Engineers Response**

**From:** Christine Witschi [chrwitschi@yahoo.com]  
**Sent:** Thursday, August 01, 2002 1:42 PM  
**To:** Mr. Willis  
**Subject:** Please study the Columbia River carefully before dredging

August 1, 2002

Robert Willis  
U.S. Army Corps of Engineers, Portland District  
P.O. Box 2946  
Portland, Oregon 97208-2946

Dear Mr. Willis,

I-10

Please stop your plans to dredge the Columbia River. Enough critical habitat has already been destroyed in this country. This land doesn't just belong to us. It belongs to the animals too. We have no life without animals and plants, and we have no animals and plants without their habitat. For this reason, I urge you to call for a wholly independent economic and environmental analysis of the Columbia River Channel Improvement Project. Such an analysis should include, at a minimum, independent evaluation of the Corps' cost-benefit analysis, the external costs to the economies of local communities dependent on the lower Columbia River, and the impacts of the project on threatened and endangered species.

I-10. Comments noted. See responses I-4 and I-5.

Thank you  
Please note that this message will also be sent to the Port of Longview.  
Thank you for your consideration of my comments.

Sincerely,

Christine Witschi  
86733 Lower Foorrmile Lane  
Bandon, OR 97411  
USA

**From:** Maura O'Connor [dervia@yahoo.com]  
**Sent:** Saturday, August 31, 2002 12:43 AM  
**To:** Mr. Willis  
**Subject:** Columbia River Dredging Project

**Corps of Engineers Response**

August 31, 2002

Robert Willis  
U.S. Army Corps of Engineers, Portland District  
P.O. Box 2946  
Portland, Oregon 97208-2946

Dear Mr. Willis,

I urge you to call for a wholly independent economic and environmental analysis of the Columbia River Channel Improvement Project. Such an analysis should include, at a minimum, independent evaluation of the Portland District of the Army Corps of Engineers' cost-benefit analysis, the external costs to the economies of local communities dependent on the lower Columbia River, and the impacts of the project on threatened and endangered species.

I-11. Comments noted. See response I-4.

I-11

The Corps has proposed a \$156 million project to deepen the Columbia River Navigation Channel from 40 to 43 feet over a total of 106 miles. There are numerous economic and environmental concerns associated with this navigation project. The Corps' attempts to address many of these issues continue to be insufficient.

The independent analysis should investigate the entire range of economic issues associated with the navigation project. The Corps' analysis relies on projections that are unrealistic, thereby inflating the benefits of the project while neglecting to include costs to local communities whose economies rely on the lower Columbia River. An independent analysis of these impacts must be conducted to fully understand the economic costs associated with this project.

The Corps' analysis also neglects to answer key questions about the effects of this project on threatened and endangered salmon. Scientists have found that the Columbia River estuary offers critical habitat to threatened and endangered salmon and over 200,000 wintering waterfowl and shorebirds. Since 1850, the estuary has lost over 70% of its key historical wetland and riparian habitat, primarily due to the construction of agricultural levees and floodplain development. Furthermore, the Corps' analysis focuses specifically on short-term impacts even though several scientists have noted that there could be significant long-term negative impacts to salmon.

I-12. Comments noted. See response I-5.

I-12

There is simply too much at stake - federal and state taxpayer dollars and the critical habitat for threatened, endangered, and sensitive species - not to proceed with an independent review.

I-13. Comment noted.

I-13

Please note that this message will also be sent to the Port of Longview.

Sincerely,  
Maura O'Connor  
124 Jeandell Drive  
Newark, DE 19713  
USA

*Paul Vik*  
*152 East Sunny Sands Rd.*  
*Cathlamet, WA 98612*

Corps of Engineers Response

(360) 849-4109

September 7, 2002

U.S. Army Corps of Engineers, Portland District  
CENWP-EM-E  
Attn: Robert Willis  
PO Box 2946  
Portland, OR 97208-2946

Dear Mr. Willis:

Enclosed please find my written comments regarding the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement of July, 2002 of the Columbia River Channel Improvement Project.

I-14. Comment noted.

I-14

Since attending a meeting hosted by the Corps of Engineers in Astoria on January 16, 1997, I have followed this issue quite closely. Reading letters which follow will explain why. You will see that my issue is government-subsidized hit-and-run in the form of property damage caused by ship wakes.

The Corps asked folks interested in the river what we thought. I have spent a great deal of time, effort and travel to represent my issues and collaterally the interests of other beachfront owners, and hoped to gain some sympathy. I believe my concerns are reasonable and I am disappointed to find no changes in the SEIS of July 2002 that would placate me in any way. The letters that follow are re-addressed and re-dated texts of letters of comment previously submitted. They are still valid.

Thank you,



Paul Vik  
Puget Island resident

*Paul Vik  
152 East Sunny Sands Rd.  
Cathlamet, WA 98612*

**Corps of Engineers Response**

(360) 849-4109

September 7, 2002

U.S. Army Corps of Engineers, Portland District  
CENWP-EC-E  
Attn: Robert Willis  
PO Box 2946  
Portland, OR 97208-2946

Dear Mr. Willis:

The Vik family arrived on Puget Island in 1913. John Vik, my grandfather, purchased his farm at Mile 43.8 in 1915. He maintained a floating boat moorage which existed on that location until 1955, five years following his death in 1950.

In the early 1950's dredges began widening the beach at mile 43.8 known today as East Sunny Sands. They pumped some loosely-connected islands between the mouth of the Slough (known to the Corps as Netrack Slough) at the west end of what is known locally as "the sand bar" and our moorage. (This was done over the objection of Mr. Fritjof Gilbertson, owner of Puget Island Boat Works because the resulting fill blocked his launching ways.) A gap was left for our moorage. Below there, a neat beach was constructed.

About that time my uncle Arthur Vik purchased a lot fronting on Netrack Slough. Owing to the problems of maintaining a moorage in the open river due to ship wakes, as well as a desire to create some order from the islands and mosquito bogs created by endspill above our property, the float was moved to Art Vik's waterfront in 1955 and maintained as a family moorage.

We are all familiar with scenes of fish houses from the New England States and Nova Scotia. They are on postcards and calendars all over the world. That is the kind of place this was. The float was large enough for two net racks and a bluestone tank. There was a marine railway large enough to haul a 32-foot gillnet boat and a net warehouse. Four Columbia River bowpicker boats, all Vik-owned, and several outboard skiffs and sailboats moored there. The lot to the west of Art Vik had a small float also. This was where the action was for East Sunny Sands kids in the summertime, the base for all our aquatic activities. Mothers wanting to contact their kids looked there first. It was a great place to grow up.

Prior to relocation of the Vik float, "the sand bar" on the main channel side had a narrow sandy beach against a mud cutbank. I suspect that this sandy beach was the result of early

I-15. The Corps has had several meetings and discussions with you and other residents of Puget Island concerning beach erosion and ship wakes. River currents and waves very easily erode the sand placed along the shoreline by beach nourishment disposal. As explained in the 1999 Final IFR/EIS, while ship wakes do contribute to the erosion, river currents and wind waves probably combine to cause most of the shoreline erosion. The rates of erosion vary with location and also appear to vary with time since disposal. Sand placed at locations such as Jones Beach (O-46.9) and the downstream tip of Puget Island (W-38.7) erode rapidly. Aerial photographs show average erosion along shoreline of the W-43.8 disposal site to have declined from over 20 feet per year between 1978 and 1983, about 11 feet per year from 1983 to 1990, and near zero between 1990 and 1997.

The Corps has abandoned most of the beach nourishment sites used in the past for a variety of engineering and environmental reasons as listed in Table 4-4 of the 1999 Final IFR/EIS. Some sites, such as O-46.9 and W-38.7, have been discontinued because they rapidly erode sand back into the navigation channel; other sites have been abandoned because they do not have sufficient capacity to meet disposal needs, such as W-47.5 and W-58.7; and still others have been abandoned because of critical fish habitat, such as W-42.5 and W-41.3. There is potential for erosion at the disposal sites on Brown (W-46.3) and Tenasillahe (O-37.6) islands. The disposal plan attempts to minimize future erosion by utilizing the upland portions of those sites, and not placing future disposal along the shoreline. While these sites are not perfect, they were the best available options in those locations. The Corps' efforts to find stable upland disposal sites near Westport, Oregon and on Puget Island met with strong opposition from local residents.

I-15

**Corps of Engineers Response**

“beach nourishment” but none had been done there for years. Not long after relocation of the Vik float, spoils were deposited all along "the sand bar" clear to its downstream end. The Viks and other owners on Netrack Slough objected, pointing out that filling so close to the slough mouth was going to result in shoaling when that fill eroded. That is exactly what happened. Sharp gray river sand began washing into the mouth of the slough, greatly accelerated by the violent surf generated by the surge that precedes a ship and by wakes in combination with shallow water.

Today the float has been abandoned to the owners of the next lot to the east who have no hope of maintaining it and waves break where the Vik float used to be. About 300 feet of “the sand bar” have eroded away and cottonwoods older than 1 (57 years) are falling in the river.

I-15

Today I own by inheritance 100 feet of John Vik’s original 300 feet of frontage. What would my lot be worth with a moorage attached? Were it not for ship wakes the Vik family would likely still have a moorage on the open river, Were it not for ship wakes and spoils mismanagement, the Vik family would have a moorage on Netrack Slough. Because of the ship channel we lost our moorage twice!

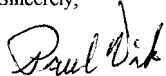
Appended to this letter is a copy of a newspaper article from the June 19, 1973 edition of The Daily News, Longview, WA, dealing with attempts to gain some satisfaction. (Peter Vik mentioned in the article was my father). You can see that the Corps then, like today, is shrewd about taking responsibility for damages.

Corps officials are trained to deflect such charges by pretending to assume that the damaged party is requesting a new public works project. We’ve heard that lately, as well as “cost benefit ratio,” “local funding,” etc.

I am not asking for compensation for our destroyed moorage: that is long in the past. What I am requesting is that provisions be made so this sort of abuse does not happen in the future. The Vik family has been the victim of government subsidized, aided and abetted hit-and-run!

Corps representatives responding to my comments above will defend themselves by citing laws and regulations preventing them from making things right. Well, the government owns the channel so the government needs to change the laws and regulations.

Sincerely,



Paul Vik  
Puget Island Waterfront Property Owner

cc: Agency and public distribution

# Corps won't dredge island slough

CATHLAMET — An attempt to persuade the Corps of Engineers to dredge Netrack Slough on Puget Island failed Monday when a corps representative denied that the agency was primarily responsible for siltation in the slough.

The meeting between several Puget Island residents and Don Price of the Army's Rivers and Harbors Division had been arranged by the Wahkiakum County board of commissioners. Nogi Fritzie and brothers Arthur, Peter and Britanus Vik declared that the slough

was no longer navigable except at high tide because the corps had dumped spoils in the area, and that river traffic had pushed the sand into the slough.

Fritzie added that his property was being eroded, and he asked that the bank be ripped and the channel opened to allow boats to get in and out. He said the channel used to be navigable.

And Arthur Vik told Price that originally the corps had agreed that the silting problem was caused by the dumping of spoils from work in dredging a 40-foot channel in the Columbia River. "Get a local agency involved, they told us," Vik went on, "and we'll do the work. Then after the port district agreed to act as the local agency, the corps did an about face and said they couldn't do it."

Price offered the comment that his study of past records indicated the channel had been accessible only during high water ever since 1937. "We have," he agreed, "dumped dredging spoils on either side of the channel and some of the shoaling is due to our spoils, but this is a minor part of the problem."

His statement drew a rebuttal from Britanus Vik. "I was here in 1913 and have soundings from that time. You didn't go back far enough, because the slough was already pretty well shut off by 1937."

"Well, we could correct it," Price said slowly, "but the project cost would have to be exceeded by benefits derived, and our study doesn't show that would be the case."

Bill Canham, chairman of the board of commissioners and a resident of Puget Island himself, asked Price if the corps would install a jetty to prevent sand from blocking the channel.

Price estimated the cost would be about \$200,000 plus maintenance, and said again that figure would have to be balanced against benefits. "I see no way you can get help from the corps or any other governmental agency," he concluded.

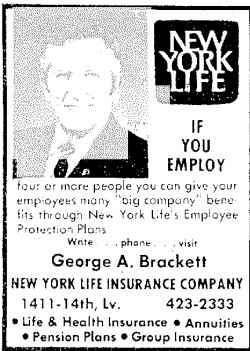
The disappointed Islanders remarked that their interests had been damaged by dredging designed primarily to benefit the Port of Portland. Along the same line, Prosecuting Attorney George Hanigan said he felt local interests had been damaged by a federal project — dredging the 40-foot channel.

"Does it make a difference to the corps," Canham asked, "between a slough with many people located on it and one with a few people?"

Price said it did make a difference, but he did not alter his stand when Fritzie pointed out that many more people would use Netrack Slough if it were opened. The slough is located on the Columbia River side of Puget Island, at East Sunnysands.

In other business, the board discussed the possibility of asking the State Highway Commission to increase the subsidy Wahkiakum County receives for operation of the Puget Island-Westport ferry.

The state pays 60 per cent of the operating costs and the commissioners thought 75 per cent would be more realistic. It was noted that the number of Cathlamet residents working at Wauna has declined in the past few years, with a resultant decrease in paid fares on the ferry.



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*Paul Vik  
152 East Sunny Sands Rd.  
Cathlamet, WA 98612*

**Corps of Engineers Response**

(360) 849-4109

September 7, 2002

U.S. Army Corps of Engineers, Portland District  
CENWP-EC-E  
Attn: Robert Willis  
PO Box 2946  
Portland, OR 97208-2946

Re: Columbia River Deepening EIS Final Draft, August 1999

Dear Mr. Willis:

Reading Sections 5.1.5.3, 6.2.2. , and 6.2.3.1, plus various Corps responses to comments, one gets the feeling that Corps' staff believes that landowners outside the dike on Puget Island have no business being there and are a nuisance best handled by ignoring, denying, passing the buck, etc. any responsibility toward them. I have been told that Corps staff members have remarked that structures should not be allowed outside the dike on Puget Island.

I-16. Comments noted. See response I-15.

I-16

When John Vik, my grandfather, came to Puget Island in 1913, there were no dikes. When the dikes were constructed about 1917, his house was left outside the dike as were most others. In those days travel was by boat so houses were near the riverbank and each had a boat landing. There are several houses still standing on East Sunny Sands Road that existed before the dikes were built, and many houses built since are on sites of houses torn down. John Vik moved his house, which still stands, to the inside of the dike after the dikes were completed, but maintained a float, net house, garage, water tower, on his land outside the dike. When he sold his farm in the late 1940's he built a house outside the dike and moved there. I am the owner and resident of that house today.

Over the years the Corps of Engineers has been the main force in facilitating development outside the dikes on the main channel side of Puget Island. I believe that when John Vik arrived here the river bank was mud cutback. However, I was born in 1945 and I don't remember anything but a sandy beach. My house is on sand fill that is dredge spoils deposited before my lifetime, and the sandy beach of my early recollection was the slope established when the spoils spilled over the cutback.

In the early 1950's the Corps began widening the beach on East Sunny Sands (River Mile 43.8.) In their efforts to gain permission to do so they asked landowners to sign easements to place sand against their property and in so doing emphasized the increase in value, potential future building lots, etc. I recall hearing a Corps representative in about 1955 or

**Corps of Engineers Response**

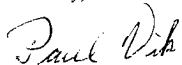
1956 expressing his frustrations, ‘ “I can’t understand why people treat me with such suspicion. Think of all the free land we are giving them.” ’

The problem that landowners susceptible to wake damage face is that from the mouth of the river to Longview, they represent fewer than 400 votes, are divided into two states, five counties, and several Congressional districts. There are also few areas in the country, i.e. Sacramento River, Sabine River in Texas and the Mississippi River, where this situation exists. Any chance of influencing laws that will protect us, ha! We are only left to be stepped on. That leaves the courts as the only avenue of redress.

I-16

I was not against the 43-foot channel proposal to begin with, but I took interest because over the years I have seen abuses both in catastrophic wake damage and daily wear and tear. I tried to alert the proponents of the channel to our concerns so these issues can be addressed to our satisfaction and get us on your side. My time has been wasted. I have shifted my views to supporting a coalition out to block the project in the courts. I am sorry, there is no other choice now.

Sincerely,



Paul Vik  
Puget Island Waterfront Property Owner

cc: Agency and public distribution

*Paul Vik*  
152 East Sunny Sands Rd.  
Cathlamet, WA 98612

Corps of Engineers Response

(360) 849-4109

September 7, 2002

U.S. Army Corps of Engineers, Portland District  
CENWP-EC-E  
Attn: Robert Willis  
PO Box 2946  
Portland, OR 97208-2946

Dear Mr. Willis:

Chapter 5.1.5.3., Bank Erosion, "addresses" the role of ship wakes in regard to that problem. There are 2,000 ship calls per year to ports upriver of Puget Island. Each ship passes Puget Island twice, resulting in 4,000 wake events per year. That averages a wake event every 2 hours and 11 minutes.

I-17. Comments noted. See response I-15.

The effect of these wake events on shallow sloughs and backwaters should be considered. In these waterways, particularly at their mouths, wake events frequently manifest themselves as violent surf. The visible waves that emanate from a ship are not the only cause, but preceding a ship as it moves through a narrow channel is a surge which typically manifests itself as a slight but rapid rise in water level. Following this rise, the water then lowers abruptly to a level below what it was originally. On mud flats and shallow sloughs this becomes a violent sloshing that lasts 20 minutes or more after the ship has passed.

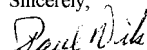
I-17

Between Puget Island and White's Island is a labyrinth of sloughs that are so affected. I grew up there, and a typical after-school activity was to row my 16-foot flatbottom skiff around "the Sand Bar" on which is disposal site 45. It became second nature to predict the approach of a ship by the behavior of the currents in these sloughs.

Tidal fluctuations generate currents also but they are gentle compared to wake events, no sloshing. There are 706 high waters in the 1999 Astoria Tide Table. This means 1,412 gentle current reversals to be compared with 4,000 sloshing ship wake events.

The destruction of the Vik moorage site on what the Corps calls Net Rack Slough was a result of this kind of damage. I have submitted several letters dealing with the Vik moorage and spoils disposal history at River Mile 43.8. I am told that there are on file at the Wahkiakum County court house aerial photographs furnished by the Corps of Engineers which verify my story. No doubt these photos and more are in the archives of the Portland office if anyone wishes to check.

Sincerely,



Paul Vik  
Puget Island Waterfront Property Owner  
cc: Agency and public distribution

*Paul Vik  
152 East Sunny Sands Rd.  
Cathlamet, WA 98612*

Corps of Engineers Response

(360) 849-4109

September 7, 2002

U.S. Army Corps of Engineers, Portland District  
CENWP-EC-E  
Attn: Robert Willis  
PO Box 2946  
Portland, OR 97208-2946

Dear Mr. Willis:

See Volume 1 of Channel Deepening EIS Section 5.1.5.3. Your discussion seems to imply that the only bank erosion generated by the navigation channel project, past, present or future, is from shipwakes. River currents are considered natural so the channel project has no responsibility for their result.

I-18. Comments noted. See response I-15.

You need to consider the results of your sand disposal at the site you call "Brown's Island." One of your objections to beach nourishment is that it is too costly because the material eventually erodes back into the channel and must be rehandled, yet you cling to beach nourishment at Brown's Island and the upstream end of Tenasillahee Island. In fact, the DMMS plan states that a benefit of using Tenasillahee Island is the restoration of the beach in this "highly erosive site." This is a glaring contradiction.

I-18

I have been asking myself, why are not Brown's Island and Tenasillahee Island also costly since the sand deposited at these sites also erodes away?

During recent use of the Brown's Island site it suddenly became clear that much of the sand that erodes from that site migrates into the Cathlamet Channel, and the Corps expects to not have to deal with it again. There is another benefit to this, in that it reduces the cross section of the Cathlamet Channel, thus forcing water into the main channel, resulting in increased water flow and improved flushing there. Increased water flow and improved flushing can also be translated into bank erosion and higher water levels during freshet conditions.

In 1948 Puget Island suffered a flood. The water did not top the dikes; rather, the dike failed. On Christmas Day, 1964, water flowed across the dike on East Sunny Sands at "River Mile 43.8" in a thin sheet for about 1 hour. Veterans of the 1948 flood observing that remarked that it was higher water than in 1948. However, residents of the Welcome Slough area insisted otherwise and showed marks on docks, foundations, etc., to support their assertions. (The dike at mile 43.8 was raised in 1978.)

On January 20, 1996 there was a freshet condition, storm at sea, and high tide. Forecasters were predicting flooding, with much attention given to it by Puget Islanders. The water was high at

**Corps of Engineers Response**

River Mile 43.8, but no real problem. On February 6, 1996, we experienced the highest water ever seen at River Mile 43.8, nine inches higher than in 1964. I have lived here since birth in 1945 and vividly remember events when I was age two. My uncle was born on Puget Island in 1915. He was here (and is still living) before the dams and their touted flood control abilities.

However, a waterfront resident of the extreme west end of Puget Island and one on the Cathlamet Channel near the SR 409 Bridge reported that the water was higher at those locations on January 20th than February 6th.

By 1964 the Corps had had 16 years since 1948 to divert sand down the Cathlamet Channel. By 1996, 48 years had elapsed.

Therefore, Corps management of dredge spoils at the Browns Island site is resulting in a weir effect, with higher water levels and higher current velocities at River Mile 43.8 during freshet conditions. I discussed this in a one-on-one discussion with a Corps hydraulic engineer and he emphatically denied that it was part of a plan or that it was even happening.

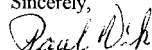
I-18

It makes no difference whether dredge spoils, washing into the Cathlamet Channel, are part of a plan or there by accident - the net result is the same. If the Corps had directed the dredge pipeline to discharge where the sand is going when it erodes from Brown's Island into the Cathlamet Channel it would have been prevented from doing so immediately. The same thing is happening in the Clifton Channel as a result of your management of your Tenasillahee Island site. Those side channels are a lot cheaper than an upland disposal site, right?

At any rate, reduced cross section of the Cathlamet Channel as a result of erosion from the Brown's Island site is responsible for higher flood levels and stronger current velocities resulting in increased bank erosion and other detriments in the main channel, both on Puget Island and the Oregon side of the river at n-file 43.8. Dike improvements carried out in the late 1970's protected the inside of the dike from flooding in 1996--and we are thankful for that--but these improvements did nothing to protect property owners outside the dike. One wonders if the Corps knew in the 1970's that the very scenario I have described was going to result, and the dike improvements carried out then and financed by Uncle Sam were necessary to prepare for the consequences.

The scenario I have described is the only plausible explanation for clinging to beach nourishment at those two locations, while abandoning it at other traditional sites such as Willow Grove, River Ranch, East Sunny Sands, Ohrberg's Beach and Vista Park.

Sincerely,



Paul Vik

Puget Island Waterfront Property Owner at Mile 43.8

cc: Agency and public distribution

*Paul Vik*  
152 East Sunny Sands Rd.  
Cathlamet, WA 98612

Corps of Engineers Response

(360) 849-4109

September 7, 2002

U.S. Army Corps of Engineers, Portland District  
CENWP-EC-E  
Attn: Robert Willis  
PO Box 2946  
Portland, OR 97208-2946

Dear Mr. Willis:

The 43-foot channel FEIS emphasizes a change in dredged spoils disposal from "beach nourishment" to "flow lane disposal." One of the Corps' objections to beach nourishment is that beaches so formed are not stable and the material erodes back into the channel, necessitating rehandling which makes beach nourishment too costly. I fail to understand how placing the material elsewhere underwater would not have the same result. That procedure is, of course, compatible with hopper dredges which are unable to place material ashore. To employ pipeline dredges for flow lane disposal in areas suitable for beach nourishment is a doubtful reduction in cost.

I-19. The change in practice from beach nourishment to other disposal options has been very effective for the Puget Island reach of the river. Currently, there is virtually no maintenance material to dredge in this stretch of the river because the change in practice has been efficient in reducing the dredging need by reducing erosion from shoreline disposal sites. Additionally, NOAA Fisheries will not allow repeated use of shoreline disposal.

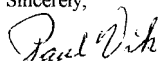
We anticipate there will be some movement of sand placed in flowlane disposal sites. During construction, there are only a few areas in the entire project reach where flowlane disposal is used. Over time, there may be some re-handling of material placed in the flowlane but it is unlikely to migrate upslope into shallow side channel areas. The comment about salmon avoidance of deepwater areas pertains to juvenile salmon.

I-19

Bugby Hole is proposed as a flow lane disposal site because it is deep. I suppose the Corps thinks they can fill it. Sand has been migrating down the Columbia River for centuries. Bugby Hole has remained deep. The reason it is deep is because sand does not settle there. Do Corps planners believe that Bugby Hole will be a "stable" disposal site? I suspect they are hoping that as sand is washed from Bugby Hole it will find its way into Clifton Channel. The Cathlamet Channel at Puget Island and Clifton Channel are clearly being used as disposal sites. Dredged material is accumulating in those places. The FEIS needs to identify them as disposal sites.

Corps planners have stated that salmon avoid the deep areas of the river. The swing drift near Skamokawa is 90 feet deep. I graduated from Wahkiakum High School in 1963. In those days a kid whose dad had a drift right on the swing drift was among the elite.

Sincerely,



Paul Vik  
Puget Island Waterfront Property Owner

cc: Agency and public distribution

*Paul Vik  
152 East Sunny Sands Rd.  
Cathlamet, WA 98612*

**Corps of Engineers Response**

(360) 849-4109

September 7, 2002

U.S. Army Corps of Engineers, Portland District  
CENWP-EM-E  
Attn: Robert Willis  
PO Box 2946  
Portland, OR 97208-2946

Dear Mr. Willis:

Please consider some thoughts herein submitted which I wish to have appended to my verbal remarks at the workshop in Kelso on December 19, 1998.

I-20. Comments noted. See response I-15.

At that time I described the action of ship wakes in the mouth of the slough on the upriver end of Puget Island meeting the river between disposal sites 43.8 and 45.0 and the resultant erosion of the downstream end of the "the sand bar," the island on which is located disposal site 45.0.

I-20

Erosion caused by ship wakes has been mentioned at Environmental Roundtable meetings, in one-on-one discussions, and in written comments. Standard Corps response is that wind waves, current and tidal action are causing erosion and, while the ships wakes contribute to the problem, they are not the main event.

Wind waves do not push a surge ahead of themselves causing rapid fluctuations of water level as does the passing of a ship. The surge that precedes a ship has been used to raise the water level to assist in freeing stranded vessels by deliberately steaming a ship at full power as it approaches the scene of the stranding. (Ask the pilots about this). The effect of that surge upon shallow water is what I described December 19th.

Also, there were 705 tide cycles in 1998. In the backwater sloughs, as at the upper end of Puget Island, these cause current reversals regardless of river level.  $705 \text{ cycles} \times 2 \text{ directions per cycle} = 1,410 \text{ current changes}$ .

There are 2,000 ships calls per year above Puget island, resulting in 4,000 wake events per year. A typical wake event causes the water to rise, lower, rise,

**Corps of Engineers Response**

lower, then return to normal level. In shallow slough mouths this combines with swells to result in violent action. Tidal fluctuations result in gentle buildup of flow in shallow sloughs and do not muddy the water as do ship wakes.

In my verbal remarks I recall stating that 4,000 ship transits per year average a wake event every 2 hours and 11 minutes. 705 tide cycles per year x 2 results in a current change every 6 hours and 13 minutes on the average.

Thank you,

A handwritten signature in cursive script that reads "Paul Vik".

Paul Vik  
Puget Island resident



*Paul Vik*  
152 East Sunny Sands Rd.  
Cathlamet, WA 98612

**Corps of Engineers Response**

(360) 849-4109

September 7, 2002

Mr. Robert Willis  
U.S. Army Corps of Engineers  
Portland District, CENWP-EM-E  
PO Box 2946  
Portland, OR 97208-2946

Dear Mr. Willis:

The objectivity of any environmental impact statement is always in question since the statement is prepared by the proponents of the project. Objectivity nonetheless is the goal. However, in response #13 to comments of Ben Meyer of NMFS in Volume II: Comments and Responses, August 1999, we learn that "Corps regulations preclude us from including costs associated with erosion to beaches or structures built on fill outside of flood control structures on a federally sponsored navigation channel."

I-21. Comments noted. See response I-15. Further, while costs associated with beach erosion are not included in the analysis of national costs and benefits for the project, the potential for the project to cause limited erosion in certain reaches of the river is analyzed in the Final SEIS. The Corps, therefore, disagrees with the statement that the SEIS is not a "complete and objective report."

I-21

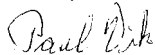
Thus we have in print the fact that before the Corps began preparing the channel deepening EIS, they were precluded by law from writing a complete and objective report.

Imagine a private corporation stating that "we don't have to evaluate certain aspects of our impacts because our board of directors passed a resolution prohibiting us from doing so."

If the Corps is handicapped by law from writing a complete EIS then the Corps is not qualified to write that statement. How may other such regulations have affected this EIS?

Government projects must be held to the same criteria as are private sponsors.

Sincerely,



Paul Vik  
Puget Island Waterfront Property Owner

cc: Agency and public distribution

*Paul Vik*  
152 East Sunny Sands Rd.  
Cathlamet, WA 98612

Corps of Engineers Response

(360) 849-4109

January 21, 1999

President Bill Clinton  
The White House  
Washington, DC 20510

Dear Mr. President:

According to a short newspaper article that appeared during 1998 in The Daily News, Longview, Washington, you hosted the President of either Uruguay or Paraguay on a tour of Gulf Coast navigational channel dredging projects to point out serious environmental consequences of such development. His government is proposing to undertake the construction of a long channel to facilitate passage of ocean vessels up a river there and the article concluded by quoting your statement, "The United States Government does not want that channel constructed."

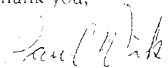
The US Corps of Engineers has been studying the deepening of the Columbia River navigational channel from an authorized depth of 40 feet to 43 feet.

The Feasibility Study and Environmental Impact Statement has been issued and their recommendation to Congress is to proceed with the project.

I have followed this study rather closely over the past two years by attending ten public meetings hosted by the Corps and submitting both written and verbal comment. I have heard of no opposition to this project from your office.

My question is this: How can you oppose a navigational improvement in a foreign country when a project involving 18 million cubic years of spoils is being proposed in your own country?

Thank you,



Paul Vik

cc: Sen. Slade Gorton, R-Wash.  
Sen. Patty Murray, D-Wash.  
Rep. Brian Baird, D-Wash.

I-22. The President's positions on projects in Uruguay or Paraguay are unrelated to the President's position on the Columbia River channel improvement project.

I-22

9-12-02

Dear Commander,  
 We are adamantly  
 opposed to dredging the  
 Columbia River  
 Channel <sup>(deeper)</sup> beyond 40'.  
 This project should  
 not be done. It will  
 devastate the lower  
 Columbia ecosystem  
 and the economy of  
 the region.

Sincerely,

*Willetta Eastland*  
*William Eastland*



Mr. & Mrs. William Eastland  
 92581 Tomberg Rd.  
 Astoria, OR 97103

503-458-6641  
[apanda@pacifier.com](mailto:apanda@pacifier.com)

I-23. Your comment is noted but we do not agree that the economy of the region or the Lower Columbia River ecosystem will be damaged by this project. Please refer to both the economic analysis and the ESA consultation published for this project.

Corps of Engineers Response

September 12, 2002

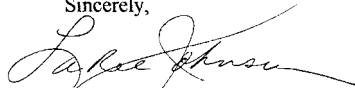
To Whom it May Concern:

I-24 | I was unable to attend the meeting in Astoria. I am against deepening the channel and causing any more interference to the river ecosystem.

Man in his infinite wisdom seems to destroy so much of what he loves. We love the river and yet we dam it, pollute it and try to alter it to suit our needs and greeds. We need to learn to appreciate our environment rather than control it.

Everyone has stated the reasons a hundred times. I won't waste ink or paper. I am a resident of Astoria, and I vote NO. I oppose dredging. Bigger is not better, and there is always a price to pay. Sacrificing our environment and the fish is too big a price.

Sincerely,



LaRee Johnson  
P. O. Box 601  
Astoria, OR 97103

I-24. The Corps' analysis shows that this project will result in economic benefits to the nation. The Corps has reviewed the project for environmental impacts. The project includes mitigation that avoids, reduces and minimizes environmental impacts, and where appropriate compensates for environmental impacts. The project also includes ecosystem restoration features intended to aid in the recovery of endangered species.

September 12, 2002  
Astoria, Oregon 97103

Corps of Engineers Response

U S ARMY CORPS of ENGINEERS  
COMMANDER  
USAED-Portland-(ATTEN: CENWP-PM-E)  
PO BOX 2946  
Portland Or 97208

COLUMBIA RIVER CHANNEL IMPROVEMENT PROJECT

Draft SIER and EIS

Commander,

As a long time Commercial Fisherman on the Columbia River and resident of the Astoria area in Clatsop County I must recommend rejection of the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement in its present amended form. It still leaves too many Negatives and Potential Problems related to the huge deepening project proposed for the Columbia River from Astoria to Portland and actually creates new nemeses that were not in the Original Draft.

It is my feeling that if the COE and sponsering agencies had given , originally at the outset 10 years ago, equal consideration and importance to all river groups and users, this problem of moving commerce would have been compromised and solved long ago. There are other methods and ways of doing this that would fit our fragile system and still maintain a viable transportation network without stirring things up much more than they now are.

I-25. See responses I-3 though I-5. Please refer to the two new biological opinions received for the project. The three federal agencies believe the proposed project including restoration features will aid in the recovery of the listed species.

I-25 We are dealing with the greatest most versatile river on the Pacific Coast and perhaps in the entire United States, and when considering its water, its fish(most importantly salmon) and wildlife as well as the environment and land forms we must be extremely carefull about drastic changes. Just because we "can do it" doesn't necessarily mean "we should do it."

It is evident that we have reached the "saturation point" of maintaining the "status quo" of a natural river or creating a "stagnant, man manicured, artificial series" of ponds and ditches. It is time to say "Big is Big Enough" and "Deep is Deep Enough".

Portland is not now, nor will it ever be a deep water port. To attempt this project towards that end would be playing "Russian Roulette" with our environmentally sensitive river. Lets not make the same overdevelopment mistake that we made on the upper river with its hydropower system, on the lower river.

I continue to say no, there is a better way.

Thank You,  


Jon Westerholm  
Member Salmon For all & CRFPU  
93798 Jackson Rd  
Astoria, Oregon 97103

September 13, 2002

**Corps of Engineers Response**

Comander,  
USACE-Portland  
Attn: CENWP-PM-F (CRCIP)  
P.O. Box 2946  
Portland, Oregon 97208

Commander:

The plan to deepen the channel of the Columbia River from the ocean up to Portland is unreasonable. The costs of all kinds are much too high and the benefits too low.

I-26 What would be done with the immense amount of dredge spoils is a pressing question. It is already difficult to deal adequately with the smaller amounts created during maintenance dredging.

I-27 What is in the layer from 40 to 43 feet is a large question. There are sure to be some contaminants we would rather not stir up.

I-28 The 'wetlands' which have been created as mitigation in the past have often been inadequate in quality and quantity. To create better wetlands which function more as do their natural counterparts would be VERY expensive. What is currently proposed for mitigation is quite unacceptable ....

I-29 To deepen to 43 feet would allow SOME modern ships to enter, while many others would continue to be excluded. Why should all of us along the lower Columbia, folks who live here, raise our children here, picnic and swim here, be subjected to this hornswoogle in order that a few large (generally foreign) ships can more efficiently pass us by....

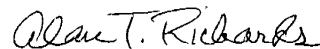
I-30 We like to imagine a more sustainable world. That world would surely include cooperation in which large ships would call at the COAST, from which goods would be transported by means of rail (much more efficient than by truck).

I-31 We feel for those in Portland whose port jobs would be lost or limited by such a reasonable system, but we would support efforts to help them in the transition to new employment. The Army Corps of Engineers needs to find other, more positive projects, on which to focus its efforts. This one is an unhealthy budget-buster.

Sincerely,



Ann MuschÉ  
Alan T. Richards  
250 Knappton Road  
Naselle, WA 98638



I-26. The Corps' analysis shows there are economic benefits to the nation to implement this project. Both NOAA Fisheries and the USFWS have issued opinions that conclude the project can be implemented without jeopardizing ESA stocks. We have prepared a very detailed plan for the dredged material removed during construction of this project as well as future maintenance of the deepened channel. Please refer back to the 1999 Final IFR/EIS and the Supplemental EIS for those plans.

I-27. Sediment testing throughout the navigation channel has shown that the material is clean sand. Over 100 separate Corps studies representing more than 4,000 samples on the Columbia River have been identified. This information was analyzed as part of the Corps' amendment to the Biological Assessment. This information continues to be updated. The Corps is actively populating the SEDQUAL Database to include these identified Corps studies. Representative sediment samples were collected in 1997 from areas in the Columbia River that would require dredging if deepened for this project. A total of 67 separate shoals were identified and tested. The information generated by this effort is presented in Appendix B of the 1999 Final IFR/EIS. The data generated show the material to be dredged is clean sand with very low percent fines or organic material and the few contaminants when found are at concentrations well below established levels of concern.

I-28. The Corps disagrees that the wetland mitigation proposed for this project is unacceptable. Corps mitigation efforts are based upon utilization of the USFWS's Habitat Evaluation Procedures (HEP). This analysis addresses habitat quantity and quality for both impact (disposal) and mitigation sites. HEP is a credible methodology to evaluate project-related, including wetland habitat, impacts and gains (mitigation sites). The Corps utilized an interagency process to develop the mitigation plan. Our wetland mitigation areas are relatively large and integrated into blocks of land containing riparian forest elements. The Woodland Bottoms and Martin Island mitigation locations are adjacent to natural wetland and riparian forest habitat, thus they provide a travel corridor for wildlife along the Columbia River. Based on past experience with similar projects, the Corps is confident the proposed mitigation projects will be successful. Further, the mitigation plan includes performance standards against which mitigation will be measured through future monitoring.

I-29. The Columbia River is a resource to the region with users and neighbors ranging from farmers and ports to ships and fishermen. Additionally, there are many recreational users. These multiple uses generate conflicts. The purpose of the NEPA analysis is to consider the environmental impacts of the proposed project, often times on competing interests.

I-30. The concept of a regional port in Astoria was discussed in the 1999 Final IFR/EIS. The costs of such a port would be extremely high, particularly considering the complete lack of supporting infrastructure (rail and highway). The environmental impact to the estuary would likely be significant as well, as there is limited viable land in the area, and port development would likely require some fill of existing habitat.

I-31. The Corps disagrees. The benefit to cost analysis for this project clearly demonstrates it is in the federal interest to deepen the Columbia River. Please refer to Exhibit L for additional information. Also, see response I-24.

Ltr-Channel Deepening09-02

September 13, 2002

Commander,  
USACE-Portland  
Attn: CENWP-PM-F (CRCIP)  
P.O. Box 2946  
Portland, Oregon 97208

Commander:

We are writing to persuade you to abandon the channel <sup>deepening</sup> ~~widening~~ project on the Columbia River.

As new parents we are concerned about the sediments, long-undisturbed, which would be dug up in order to create a 43-foot-deep channel. These sediments would be spread around in abundance on the shores along which our family lives. We feel that the huge amount of material, even if it were entirely benign, is too much for our region to absorb without damage to our landscape, to our environment.

We wish that you would see that the costs of this project are far beyond any benefits

Sincerely,



Lisa Trudell  
Tom Trudell

I-32. The material to be dredged and disposed from this project is clean sand with very low percent fines or organic material and the few contaminants when found are at concentrations well below established levels of concern. See response to I-27, and Appendix B of the 1999 Final IFR/EIS. Shoreline disposal will be restricted to three existing disposal sites where the material will serve beneficial uses, such as shore protection and sand supply. This will result in less shoreline disturbance than has occurred in recent years. Some of the upland disposal sites and shoreline disposal sites are also beneficial use sites where the material may be used for sand supply, recreation and/or conservation purposes.

**William Michael Jones**

2716 NE Mason  
Portland, OR 97211  
503-284-0502

**Corps of Engineers Response**

September 15, 2002

Michael Zevenbergen  
Environmental Defense Section  
U. S. Department of Justice  
7600 Sand Point Way, N.E.  
Seattle, WA 98115-0070

Thomas E. White  
Secretary, United States Army  
Office of the Army  
The Pentagon  
Washington, D.C. 20460

Commander, U.S. Army Corps of Engineers-Portland  
Attn: CENWP-PM-F (CRCIP)  
P.O. Box 2946  
Portland, OR 97208-2946

Laura Hicks  
Planning, Programs and  
Project Management Division  
Portland District Corps of Engineers  
P.O. Box 2946  
Portland, OR 97208-2946

RE: Reconsideration of the Columbia River Channel Improvement Project and the Columbia River Channel Deepening Project

Dear Sirs:

I am William Michael Jones. I live at 2716 N.E. Mason, Portland, Oregon. I am the Plaintiff in a civil action in which you are collectively the federal defendants. That action is captioned Jones v. Rose, (CV-00-1795-JO). I am reliably informed Michael Zevenbergen represents the federal defendants, although he has not to my knowledge appeared before the court. Part of my purpose in writing this letter is to welcome Michael Zevenbergen to *Jones v.*

I-33. Comment noted.

I-33

Page 1



**Corps of Engineers Response**

*Rose*. Part of the purpose of my letter is to raise issues as comment rather than litigation concerning the Columbia River channel deepening and maintenance. Please consider this letter comment in any public review process concerning Corps of Engineers dredging in the Columbia River below Bonneville dam. In particular consider this comment as a continuation of the testimony offered in Vancouver, Washington on July 31, 2002, and a continuation of testimony offered previously in NEPA processes concerning channel deepening of the Columbia River.

I-33

I have recently participated in the process in which the U.S. Army Corps of Engineers, Portland District, is preparing to supplement the Final Integrated Feasibility Report / Environmental Impact Statement for the Columbia and Lower Willamette River Federal Navigation Channel Oregon and Washington.<sup>1</sup> The final report was last circulated in 1999. This project is also known as “The Columbia River Channel Improvement Project and the Columbia River Channel Deepening Project.”

I-34

The process to supplement the CDEIS is reconsideration that presents an opportunity to resolve issues in a forum rather than in court. Despite the fact that I make the claim that the Channel Deepening EIS (“CDEIS”) was made void when National Marine Fisheries Service, (NMFS), withdrew their opinion in other litigation.<sup>2</sup>

I-34. Comment noted. NOAA Fisheries withdrawal of its 1999 Biological Opinion has no effect on the validity or adequacy of the 1999 Final IFR/EIS. The SEIS provides new and updated information to complement the information originally provided in the 1999 Final IFR/EIS. Much of the new information results from the ESA reconsultation.

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<sup>1</sup> For the lack of a better short hand notation, I will for the purposes of this comment use: “CDEIS” for “Final Integrated Feasibility Report/ Environmental Impact Statement, for the Columbia and Lower Willamette River Federal Navigation Channel Oregon and Washington,” and “Supplemental CDEIS” for its supplement. In addition I will use the short hand notation “DMMS” for the document entitled “The Columbia and Lower Willamette River Navigation Channel Integrated Dredged Material Management Study” and the notation “O&M SEIS” for the document entitled “Supplemental Environmental Impact Statement.”

<sup>2</sup> As a result of its inadequate biological opinion (BiOp), Northwest Environmental Advocates, (NWEA) sued the National Marine Fisheries Service in February, 2000. The Ports intervened in the lawsuit and both the Ports and NMFS asked the court to dismiss the case. Judge Barbara Rothstein ruled in NWEA's favor. As a result of Judge Rothstein's ruling, NMFS withdrew its biological opinion in a letter to the Corps on August 25, 2000. The letter explained NMFS' ongoing disagreement with the Corps about specific details of the studies and uncertainty that the biological opinion's conservation measures would adequately offset the impacts of the project, in light of new information about the estuary.

The failure of the Corps to adhere to the procedures required by NEPA in producing the CDEIS has resulted in a study that substantively fails to provide the Corps of Engineers with the information needed to make a rational decision on whether this project should proceed. I do not attempt to determine the outcome of that decision, but only hope to influence the Corps to adhere to the procedures required by law.

To this point my attempts to be involved in the public interest review of both channel deepening and Corps maintenance dredging have frankly been a waste of time. The Corps has simply ignored every point that I raise in my attempts to achieve reasoned consideration of channel deepening and maintenance dredging.

It is possible for the reconsideration to moot many of the claims I make in the current litigation. I doubt, however that Corps reconsideration will moot the current litigation, because the CDEIS is heavily tiered on previous NEPA documents that I do challenge in *Jones v. Rose*.

I-35 The Columbia River Improvement Projects process is fundamentally flawed because the Corps fails to realize that the deepening project reauthorizes an entire new maintenance program; the SCDEIS must not build or tier on a maintenance program that it will replace. The Portland District Corps has for many years acted as if the commonly accepted rules and laws did not apply to the Civil Works division. *Jones v. Rose* attempts to resolve this lawlessness.

I apologize in advance for the length of the argument found in this comment. The PD-Corps has attempted to avoid reasoned decision making by truncating the CDEIS. One of the major ways the PD-Corps truncates consideration is by attempting to grandfather or tier upon past illegal actions and processes.

In an attempt to remove those issues from the litigation prior to providing the long argument necessary to rebut the validity of the CDEIS and its supplement, I will take this

### Corps of Engineers Response

I-35. As demonstrated below and throughout these responses to comments, the 1999 Final IFR/EIS and the SEIS together satisfy the requirements of NEPA and provide the Corps and the public with all information needed to make an informed decision on the channel improvement project. Contrary to the comment, these documents do not ignore the effects of maintenance, rather, they evaluate the effects of both construction of the improved channel and subsequent maintenance.

opportunity to provide the Corps a list of corrective actions that would moot many of the issues before the Court in *Jones v. Rose* concerning the CDEIS and O&M SEIS.

#### Corps of Engineers Response

##### ACTIONS NECESSARY TO VALIDATE THE SUPPLEMENTAL CDEIS:

- I-36 1. The site listed as number 1 in the BIOLOGICAL ASSESSMENT COLUMBIA RIVER CHANNEL IMPROVEMENTS PROJECT TECHNICAL APPENDICES Volume II December 28, 2001 APPENDIX C. PROPOSED DISPOSAL SITE DESCRIPTIONS, • West Hayden Island, O-105.0, is the site of admitted illegal fills and other alleged illegal actions, and has never been properly specified as a dredged spoils disposal site under CWA 404. This site should be removed from the Supplemental CDEIS until issues surrounding its illegality are resolved in *Jones v. Rose*.
- I-37 2. The Portland District Corps (“PD-Corps”) must accept the fact that the High Tide Line is the jurisdictional limit of the waters of the United States when applying the Clean Water Act below the Bonneville dam. Because an EIS is required to consider the impacts of a project relative to the applicable laws, the supplemental CDEIS must reflect the strictures of the CWA. The CDEIS fails to reflect the correct jurisdictional limits of the CWA in many ways. This failure is particularly obvious in a mistaken concept prevalent in the CDEIS and Supplemental CDEIS. That concept implicitly states that an area that is not a wetland is upland. This concept must be corrected, because many impacts to the waters of the United States are denied consideration, being thought to be uplands. This idea is part and parcel of two additional errors that have vitiated reasoned consideration of impacts and the requirement of federal law. The first error is the Corps refusal to understand that the jurisdictional limits of the CWA exceed the jurisdictional limits of the Rivers and Harbors Act. The second is the Corps’ refusal to accept the well-know physical fact that the Columbia River is tidal below the Bonneville Dam.

I-36. The Corps disagrees with the allegations in this comment regarding the West Hayden Island disposal site (O-105.0). These allegations are the subject of ongoing litigation in *Jones v. Rose*. Unless and until the court rules otherwise, site O-105.0 as a whole is a lawful disposal site and will remain part of the Corps’ ongoing maintenance program and of the proposed channel improvement project.

There are several small areas on the borders of and within site O-105.0 in which, wholly unrelated to the channel improvement project, dredged material was historically discharged without authorization. The affected areas have a combined size of slightly over 1 acre out of the 120-acre disposal site. The Port of Portland has applied for an after-the-fact permit for these discharges. The Corps is currently reviewing the Port’s application. The Corps will not place fill in waters of the United States within site O-105.0 as part of the channel improvement project.

I-37. The jurisdictional limits of the Clean Water Act are the subject of ongoing litigation in *Jones v. Rose*. As the commenter well knows, the Corps interprets the Clean Water Act as establishing the Ordinary High Water Mark as the jurisdictional limit, not the High Tide Line.

3. The Supplemental CDEIS should reflect and account for the legal requirements of the CWA.

### Corps of Engineers Response

The CWA requires site-specific specification for each disposal site, complete with notice and opportunity to comment. It ordinarily would be the case that this review would be separate from a Programmatic EIS, but the PD-Corps feels that mention of a site in the Programmatic EIS with a Record of Decision, (ROD) and a programmatic 404(b)<sup>3</sup> complies with CWA § 404.

I-38 Before channel deepening begins, each site of dredged spoils disposal<sup>4</sup> must be properly specified under the Clean Water Act § 404. Black letter law has determined proper site-specific and programmatic reviews under the CWA should be separate from the EIS and requires a separate ROD for CWA compliance. Cost for CWA § 404 compliance in addition to the Supplemental CDEIS are costs that must be accounted to the proposed project.

I-39 A. If the Corps plans to continue their illegal method of specification of dredged spoils areas, at a minimum, the Supplemental CDEIS should identify which actions in waters of the United States will be given separate 404 review. The Corps could, under CWA § 404(e), propose types of Civil works disposal areas, but to this point that national option has not been taken. Because in the past no individual maintenance disposal site has been reviewed separately, it must be assumed all sites that will receive dredged spoils from construction or maintenance of the deeper channel will receive their full Corps public interest 404 review in the Supplemental CDEIS.<sup>5</sup>

I-38. The revised 404(b)(1) evaluation that accompanies the Final SEIS satisfies the requirements of the Clean Water Act. The 404(b)(1) evaluation was distributed for public review and comment prior to any action by the Corps, and has been revised in response to public comments. The evaluation addresses the requisite factors set out in the joint USEPA-Corps guidelines for each incidence of discharge of dredged or fill material into waters of the United States that is associated with the channel improvement project and that would require an individual (as opposed to nationwide) 404 permit if not part of a Corps project. *See* 40 CFR Part 230 (guidelines); 33 CFR 336.1 (Corps' consideration of same in Corps' dredging projects). Specifically, the 404(b)(1) evaluation provides detailed information about dredged material discharge at: the two upland disposal sites with wetlands; flowlane disposal sites; three shoreline disposal sites; two sumps; one wetland mitigation site; and several ecosystem restoration sites. The evaluation makes the requisite factual determinations and findings of compliance for each discharge associated with the project, and concludes that the discharge is in the overall public interest.

I-39. The Corps disagrees with the comment's characterization of Corps' disposal site selection. As noted above, the revised 404(b)(1) evaluation that accompanies the Final SEIS addresses each incidence of discharge of dredged or fill material into waters of the United States that is associated with the channel improvement project and that would require an individual permit under Section 404 of the Clean Water Act if not part of a Corps project. However, because certain discharges associated with the project, specifically discharge of return water from contained upland disposal areas, are covered by a nationwide permit under Section 404(e) of the Act, they are not addressed by the 404(b)(1) evaluation. These return water discharges are addressed by the ESA reconsultation, the 1999 Final IFR/EIS, and the SEIS. Finally, return water discharges will be addressed in the water quality certifications from Oregon and Washington for which the Corps has applied.

<sup>3</sup> A programmatic 404(b) review is evidence of ignorance of the CWA § 404. A 404(b) analysis is accomplished by the Corps through a public interest review to meet the requirements of CWA § 404(b) that clearly states **each** specification of a disposal area will be given the review to be specified by the EPA.

<sup>4</sup> This includes mitigation activities below the high tide that restrict the flow and reach of the waters of the United States.

<sup>5</sup> If the one page description of the site West Hayden Island, O-105.0 found in the BA appendices is intended to fill this requirement, it should be noted that it is woefully inadequate and has many inaccuracies. Not the least of these is the Corps claim that this site is leased for the purpose of a confined dredged spoils disposal area. If this is

### Corps of Engineers Response

I-40. As noted above, the revised 404(b)(1) evaluation provides detailed evaluation and public interest review of all regulated discharges of dredged material. Additional information regarding these discharges is contained in the Final SEIS.

I-41. Again, the revised 404(b)(1) evaluation, and by incorporation the 1999 Final IFR/EIS and this SEIS, provide an alternatives analysis for all regulated discharges of dredged material. The analysis evaluates alternative locations for various disposal sites and discharges. As a result of the analysis and disposal site refinements, the total area of wetland fill associated with the project has been reduced from 30 acres for the plan evaluated in the 1999 Final IFR/EIS to approximately 16 acres in the current plan.

I-42. The only mitigation action that involves discharge of dredged or fill materials into waters of the United States is the wetland mitigation project at the Martin Island embayment (creation of intertidal emergent marsh habitat). As noted above, the revised 404(b)(1) evaluation provides a detailed evaluation and public interest review of this mitigation feature. Additional information on wetland impacts and the proposed Martin Island mitigation project are contained in Exhibit K-7 (*Wildlife and Wetland Mitigation*).

B. If no separate CWA § 404 is proposed, the CDEIS must contain the entire site-specific public interest review for each disposal site permitted by the Supplemental CDEIS.

I-40 Failure to consider site specific aspects of the public interest review for areas considered to be permitted by the programmatic Supplemental CDEIS in that document are grounds for challenging the entire Supplemental CDEIS. As the Supplemental CDEIS now stands, there is no semblance of a public interest review in the Supplemental CDEIS for any disposal areas that will receive dredged spoils from either construction or reauthorized maintenance of that deeper channel.

C. Each CWA 404 specification requires a site-specific alternative analysis.

The alternative analysis required by a 404(b) review is a site-specific consideration of the area to be filled where alternative disposal sites are considered. The CWA § 404(a) requires the public be given notice and allowed the opportunity to comment on that site-specific review.

I-41 This alternative analysis is not to be confused with the programmatic alternative analysis. That analysis asks the question, "Should this project go forward?" The alternative analysis for site-specific 404(b) reviews asks the question, "Is this specific site the most environmentally and financially sound site for spoils disposal in the area?" The Corps can only answer this question with the full Corps public interest review.

I-42 D. If the Corps plans no other site-specific review for mitigation projects included in the project, the Supplemental CDEIS that proposes site-specific mitigation plans that restrict the reach or flow of waters of the United States must contain the total requirements of the Corps' Public Interest Review for a CWA § 404 Permit. Any plan for an action of the Civil Works

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true the Corps has misappropriated WRDA funds. Under the terms of the local cooperation agreement the Port and other local sponsors must provide the disposal sites at no charge. There is also the issue of this area being entirely below the high tide line and filled without a valid CWA § 404 specification of any kind.

**Corps of Engineers Response**

Division in the Waters of the United States, either dredged spoils disposal or mitigation that impacts the natural benefits of a site-specific area must include, under Federal law, specific plans for mitigation of negative impacts. The requirement for CWA § 404 specifications includes even temporary dredged spoils disposal into waters of the United States that are posited as mitigation.

E. The costs of mitigation of CWA § 404 impacts must be included in cost-feasibility determinations in the Supplemental CDEIS. The Corps has used the fiction that they avoid wetlands to excuse the fact that there is not now proposed - nor has there ever been mitigation for the loss or destruction of Waters of the United States. One of the most egregious examples of this failure is the fact that the Corps does not re-vegetate or contain unconsolidated dredged spoils disposal after placement. This failure to mitigate even by avoiding the destruction of contiguous areas is Corps policy even when the Corps admits contiguous areas are valuable wetlands. West Hayden Island has several wetlands ruined by unconsolidated fills, then determined not to be wetlands due to the presence of dredged spoils. The Corps has disallowed wetlands that meet the hydrology and vegetation requirements for wetlands because migrating dredged spoils are not considered hydric soils. Nowhere in the Supplemental CDEIS is the cost of CWA § 404 mitigation included.

I-43

F. The Supplemental CDEIS may not attempt CWA §404 compliance if a sponsor will perform the work.

Corps regulations require that if a sponsor performs the work a formal CWA 404 independent permit must be obtained. If a party other than the Corps, usually the local sponsor, opts to construct the project in lieu of the Corps, that party needs an independent permit. If the party enlarges or modifies the Corps project, non-nal permit evaluation procedures will apply to the portions of the project not included in the Corps planning evaluation. Where local sponsors

I-44

I-43. The proposed project would result in the filling of approximately 16 acres of wetlands. Compensatory mitigation for these wetlands impacts, including the Martin Island is included in the proposed project, and the costs of the mitigation are included in the projected costs for the project. The Corps disagrees with the other allegations in the comment, which relate to the Clean Water Act jurisdictional issue that is the subject of ongoing litigation in *Jones v. Rose*. The Corps will contain dredged material behind containment dikes at all 29 upland disposal locations. Dredged material placed in the Lonestar gravel pit would be contained within the pit walls. Dredged material placed within Martin Island lagoon for wildlife mitigation purposes and to aid establishment of intertidal marsh vegetation would be contained within that man-made lagoon. Only at three shoreline disposal sites would dredged material not be contained. Thus the Corps will not impact contiguous areas, including wetlands, with our disposal operations. Most disposal locations are scheduled for repeated use throughout project construction and O&M dredging and disposal operations thus allowing the Corps to avoid requirements for and impacts to additional lands, including wetlands. Our disposal site selection process also focused on utilization of existing or former disposal sites to avoid impacts to additional lands. The establishment of vegetation on an upland disposal site would not represent wetland mitigation as site conditions would be unsuitable for wetland plants.

I-44. The commenter appears to be interpreting law and/or regulation and Corps regulatory guidance. The Corps will comply with all applicable law and regulation, and will follow all guidance as appropriate. To the extent the comment is asserting facts pertaining to West Hayden Island, the assertion is the subject of ongoing litigation in *Jones v. Rose*.

## Corps of Engineers Response

perform ancillary work to the Corps-constructed project (e.g., a berthing facility) or perform work required as part of the local cooperation agreement (e.g., a diked disposal area), the sponsor needs a permit. *See* the COE Regulatory Guidance Letter 88-09. The failure to require compliance with specific site reviews of the CWA, when the Port-owned dredge “Oregon” worked maintaining the navigational channel, had resulted in the destruction of the environmental values of West Hayden Island. Corps compliance with this regulation would have avoided that damage.

4. Proper site-specific and programmatic reviews under Executive Orders 11988 and 11990 must become part of the Supplemental CDEIS.

I-45 These executive orders require mitigation for the loss of beneficial aspects of floodplains and wetlands. Specific plans for mitigation and estimates of those costs must be included in the Supplemental CDEIS.

5. The Supplemental CDEIS must reflect the requirements of the WRDA and account for the costs of compliance with the WRDA.

I-46 The Water Resources Development Acts provide direction to the Corps of Engineers on the hundreds of projects it undertakes. Each WRDA contains authorizations, de-authorizations and housekeeping provisions regarding Corps water resources development activity. The WRDA of 1986 is considered the Omnibus Act. Most of the general provisions in the later WRDA's either amend or add to its sections. It was the intention of the 1986 WRDA to require every new separable element and growth increment, including any beach enhancements of projects previously authorized, to reflect the new cost sharing formulas and environmental requirements found in the WRDA.

I-45. The Final SEIS analyzes potential floodplain effects of the project in compliance with Executive Order 11988. *See* Section 7.4.17 and Exhibit K-6 (*Floodplains*). Similarly, the Final SEIS analyzes potential wetland effects of the project in compliance with Executive Order 11990. *See* Section 6.6.2, Section 6.10 and Exhibit E (Section 404(b)(1) Evaluation). Contrary to the comment’s suggestion, neither Executive Order requires compensatory mitigation. Rather, they require avoidance and minimization, which the Corps has provided. Finally, as noted above, the project does include compensatory mitigation for wetland losses as part of a mitigation plan developed by an interagency team, and the costs of that mitigation are included in the total project costs, and also included in the benefit-to-cost calculation.

I-46. Comment noted. The project, as described in the 1999 Final IFR/EIS and this SEIS, complies with the requirements of the Water Resources Development Act (WRDA), including the cost-sharing requirements.

## Corps of Engineers Response

I-47 A. The 1986 WRDA Section 902(d)<sup>6</sup> requires specific mitigation plans for impacts to bottomlands, such as the Cottonwood and Oregon Ash, heavily impacted by Columbia River dredging, whether or not they are wetlands.

B. The site-specific review of the beach fills and the requirements of the WRDA must occur in the Supplemental CDEIS.

I-48 The WRDA considers beach nourishment, whether called “shoreline fills” or “beach enhancements” a separable element. The WRDA requires beach fills paid for by the government to be open to the public. The Portland District Corps Civil Works Division has violated and continues to violate the WRDA and its own Regulations concerning beach enhancement found in ER 1165-2-130, 3 (d) and (e), requiring those beaches to be open to the public and to be subject to all applicable statutes and regulations.

C. The supplemental CDEIS must provide specific plans to mitigate impacts to meet the requirement of the WRDA

I-49 To this point the Corps has violated the WRDA requirements to make a determination of Negligible Adverse Impacts. Section 906 of the WRDA provides that the Secretary of the Army shall not submit any proposal for the authorization of any water resources project to the Congress unless such report contains, in part, “a determination by the Secretary that such project will have negligible adverse impact on fish and wildlife.” 33 U.S.C. § 2283(d). The present failure to

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<sup>6</sup> These are in part the environmental requirements of WRDA-86 Section 902(d) which clearly state requirements for federal dredging projects and their maintenance after 1986:

“(d) Mitigation plans as part of project proposals. After November 17, 1986, the Secretary shall not submit any proposal for the authorization of any water resources project to the Congress unless such report contains (1) a recommendation with a specific plan to mitigate fish and wildlife losses created by such project, or (2) a determination by the Secretary that such project will have negligible adverse impact on fish and wildlife. Specific mitigation plans shall ensure that impacts to bottomland hardwood forests are mitigated in-kind, to the extent possible. In carrying out this subsection, the Secretary shall consult with appropriate Federal and non-Federal agencies.

I-47. The commenter mistakenly references WRDA 1986, Section 902, which refers to maximum cost of projects. The Corps concludes the commenter meant to reference Section 906(d). The WRDA requires either a mitigation plan for fish and wildlife losses associated with a project or a determination by the Secretary that the project will have a negligible adverse impact on fish and wildlife. The channel improvement project includes a detailed mitigation plan for projected adverse effects to wildlife and wetlands. *See* Exhibit K-7 (*Wildlife and Wetland Mitigation*). The mitigation plan was developed through a cooperative interagency process that included both state and federal resources managers. The bottomland hardwood forest referred to in the comment does not occur in the Pacific Northwest. Rather, this particular habitat type occurs in the lower Midwest and southeastern United States (from Texas-Louisiana, up the Mississippi River to Illinois, then eastward to Virginia, down the eastern seaboard to Northern Florida and across the Gulf States). The wildlife mitigation plan for this project does have a riparian forest mitigation component that will more than address the estimated loss of riparian forest habitat (not wetlands) due to project related actions.

I-48. The Corps disagrees with the comment’s allegation of “violations” of WRDA. The 1999 Final IFR/EIS and the SEIS provide detailed analyses of the three sites proposed for shoreline disposal of dredged material from the channel improvement project. All three sites will occur on public lands.

I-49. The Corps disagrees with the comment’s allegation of “violations” of WRDA. As noted above, the channel improvement project includes a detailed mitigation plan for projected adverse effects to wildlife and wetlands. *See* Exhibit K-7 (*Wildlife and Wetland Mitigation*). As noted in his report dated 23 December 1999, the Chief of Engineers determined that additional studies and coordination would be performed to address concerns regarding fish species. Since the submission of the Chief’s Report, both NOAA Fisheries and USFWS have determined that the project will not jeopardize salmonid species. Additional studies have been completed or are being conducted on smelt, sturgeon, and Dungeness crab (*see* Final SEIS, Exhibit K-1, K-2, K-4). Exhibit K-1, Smelt, has concluded there will be no impact to the species due to dredging and disposal operations. Exhibit K-2, Sturgeon, includes a mitigation strategy of minimization and avoidance in the event further studies indicate mitigation is warranted. Exhibit K-4, Dungeness crab, addresses minimization and avoidance for entrainment of crab and further discusses the small impact due to disposal operations.



consider and mitigate the negative impacts on fish and wildlife caused by dredged spoils disposal is a violation of the WRDA.

I-50 D. The supplemental CDEIS does not consider or offer explanations of violations of the WRDA by the Corps when it uses disposal sites on beaches in Oregon without the State Land Board's approval as required by the WRDA. In addition the Corps uses disposal sites that were condemned.

These are clear violations of the WRDA that would be continued if the Supplemental CDEIS is not changed. The Port of Portland has alienated waters of the State that belong in the Public Trust due to the Corps' violation of the WRDA.

E. The present CDEIS contemplates fills that are misappropriations of WRDA funds.

I-51 The Corps has not properly apportioned the cost sharing formulas found in the WRDA. By relieving local sponsors of their obligation to share project costs, defendants have also relieved local sponsors of financial incentives to reduce or eliminate unneeded or oversized aspects of the project. The local sponsors have thereby increased the likelihood that the Project will cause more environmental damage than is necessary. The Port of Portland (POP) exceeded the definition of beach nourishment when it filled above the High Tide Line when performing channel maintenance. When the POP filled on top of beach enhancements, they appropriated those fills, declaring them uplands and private property due to Corps violation of the WRDA. The beneficial use of the spoils was not accounted for, and the Corps made payments from WRDA funds.

I-52 6. The CDEIS should discuss the effect of sand fines below 30 microns on fish. Those considerations should establish limitations on private parties working in the navigation channel identical to the limits adopted by the Corps.

### Corps of Engineers Response

I-50. The Corps and the Port of Portland disagree with the comment's allegation of "violations" of WRDA. Although no specific "violations" are alleged in the comment, the Corps notes that sponsor ports are required, as part of the Project Cooperation Agreement, to provide all lands, easements and right-of-way required for project disposal sites.

I-51. While the comment provides no specific factual basis for the allegation of "misappropriation of WRDA funds," the Corps disagrees with the allegation. The cost sharing called for in the 1999 Final IFR/EIS and the SEIS requires the sponsor ports to share in the costs of many aspects of the project and is entirely consistent with WRDA. The comment's allegations regarding the Port of Portland appear to pertain to past activity involving issues that are before the court in *Jones v. Rose* and are therefore not appropriate for detailed response here.

Although not part of the current litigation, I believe there is an issue the Corps must address. It is not enough to say the dredged spoils are clean sand. Sand fines smaller than 30 microns suspended in dredging and disposal, even if called mitigation, have disastrous consequences on fish.<sup>7</sup>

I-52 This issue is made more important because the Corps often allows private sponsors and other private parties to mine the navigation channel under the authorization of the Corps' maintenance dredging. This private mining often occurs during periods the Corps has promised not to work, when the fish are migrating. The Supplemental CDEIS should discuss both issues. The effect of fines on fish and the limits the Corps will impose on private parties working in the navigation channel under the authority of the CDEIS.

**Specific Argument produced to challenge the validity of the Supplemental CDEIS:**

For the most part my specific challenges to the CDEIS stem from three types of mistakes in the process.

- I-53 **I. The CDEIS and all of the dredging documents produced by the Corps are fundamentally flawed by the Portland district's failure to understand the difference in jurisdictional limits of the RHA and the CWA.**
- II. The CDEIS is tiered on previous illegal documents and illegal actions to avoid the reasoned and complete consideration required by law.**
- III. The CDEIS is a continuation of the Portland district's use of a programmatic EIS to forego required site-specific environmental analysis and specific CWA 404 permits required by law.**

<sup>7</sup> It is also obvious that mitigation that proposes to store temporarily dredged spoils in water would only exacerbate the effect of suspending fines of 30 microns or less. Re-suspending those fines a second time would needlessly harm fish.

**Corps of Engineers Response**

I-52. The 1999 Final IFR/EIS and the SEIS address the effects of short-term localized suspended sediment and turbidity increases associated with the project. See Sections 6.2, 6.6 and 6.7. The potential effects of these increases on fish were also addressed through the ESA reconsultation. See Biological Assessment at 6.1.1, 6.1.5 and 6.1.36; NOAA Fisheries Biological Opinion at 6.2.2.1; and USFWS Biological Opinion at 5.3.2.1. The proposed project does not include "other private parties" mining the navigation channel.

I-53. Comment noted. Responses to specific issues are provided below in response to comments I-54 through I-59.

**I. The CDEIS and all of the dredging documents produced by the Corps are fundamentally flawed by the Portland district's failure to understand the difference in jurisdictional limits of the RHA and the CWA.**

I-54 Portland district Corps to severely under-consider the impacts of dredged spoils disposal on waters of the United States.

The Portland District Corps' failure to understand the jurisdictional limits of the CWA is obvious in three underlying assumptions found in all P.D. Corps NEPA dredging documents.

1. The Corps assumes Waters of the United States are identical to navigable waters except for wetlands. For this reason the Corps bases its consideration of impacts using the standard of Mean High Water rather than the High Tide Line.<sup>8</sup>
2. The Corps assumes that if a Water of the United States is not a wetland that it is an upland and therefore not an impact to be considered in the CDEIS.

*See Biological Assessment Columbia River Channel Improvements Project 12-27*

I-55 *December 28, 2000,*

**“Upland** High land; ground elevated above the meadows and intervals which lie on the banks of rivers, near the sea, or between hills; land which is generally dry; -- opposed to lowland, meadow, marsh, swamp, interval, and the like. **Generally any area that does not qualify as a wetland** because the associated hydrologic regime is not sufficiently wet to elicit development of vegetation, soils and/or hydrologic characteristics.”

Thus, when the Corps says “Upland” it may be an area below the HTL recently filled by the Corps. The Corps does not feel the need to re-vegetate any of its fill. But if that filled area was left alone in its normal circumstance it would support wetland vegetation. The Corps has

<sup>8</sup> Perhaps the most current best explanation of the distinction between the CWA and RHA jurisdictional limits HTL and MHHT is found in the **Federal Register** / Vol. 64, No. 139 / Wednesday, July 21, 1999 / Notices page 39354:

**“Tidal waters landward of the mean high tide line are waters of the United States, but they are not navigable waters of the United States. Therefore, tidal waters landward of the mean high tide line are subject to Section 404 of the Clean Water Act, but not Section 10 of the Rivers and Harbors.”**

**Corps of Engineers Response**

I-54. The Corps disagrees with the comment's assertion that the NEPA and Clean Water Act evaluations for this project are “fundamentally flawed.” The Corps interprets the Clean Water Act as establishing the Ordinary High Water Mark as the jurisdictional limit, not the High Tide Line. As noted above, the issue of the jurisdictional limits of the Clean Water Act is currently the subject of ongoing litigation in *Jones v. Rose* and is therefore not appropriate for more detailed response here.

I-55. See response I-54. Shoreline disposal sites proposed for the channel improvement project have been evaluated under the revised Section 404(b)(1) guidelines and have been subject to public review and comment. Also see response to comments SS-179 and I-38.

**Corps of Engineers Response**

destroyed many acres of aquatic resources by deciding no wetland hydrology exists despite wetland vegetation, because the hydrology criterion was not met. The Corps would make this determination based on the fact it was above the OHW line when the jurisdictional limit, if it applied, was the HTL. Any Area below the HTL contiguous with the Columbia River is a water of the United States and any activity raising the bottom of a water of the United States requires a permit or its equivalent.

I-55 For example all of the area identified as mp 0-105 on West Hayden Island that is proposed for dredged spoils disposal was below the HTL before it was illegally filled.<sup>9</sup>

Another example is that the CDEIS proposes shoreline disposal sites. Shoreline disposal sites require a CWA 404 Permit or the equivalent public interest review. The definition of shoreline disposal sites is not different from to fills regulated by the WRDA. Those fills are regulated as beach nourishment sites. The Corps has isolated interior wetlands on WHI with shoreline disposal sites, whatever the Corps would call them. The WRDA does not allow the Corps to eliminate public access with a fill into waters of the United States, but this has been the result of fills so defined.

3. The Corps is under the impression that impacts to waters of the United States need not be mitigated nor considered if they are not a wetland.

I-56 The Corps proposes no mitigation for dredged spoils disposal in the CDEIS. Both the CWA and WRDA and executive orders require mitigation even if the areas filled were not wetlands. The Corps should require this mitigation and the prospective cost should be included in the economic analysis.

I-56. See response I-54. The Corps disagrees with the statement that the proposed project does not include mitigation. To the contrary, the project includes a detailed plan to provide extensive mitigation for wildlife habitat from impacts to agricultural lands, riparian lands and wetlands. See 1999 Final IFR/EIS, Appendix G and response to comment I-47.

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<sup>9</sup> Illegally filled waters of the United States continue to be waters of the United States.

**II. The CDEIS is tiered on previous illegal documents and illegal actions to avoid the reasoned and complete consideration required by law.**

The CDEIS is incomplete because its structure bases its consideration on the belief that the CDEIS need only consider the additional impacts of deepening the channel three more feet. This is not true. The project would be a reauthorization of maintenance dredging for the deepened channel. If previous consideration of maintenance dredging is incomplete, then the CDEIS is fatally flawed unless correctly considered in the present process.

It is a fact that the Corps tiered<sup>10</sup> the CDEIS on previous NEPA and non-NEPA documents that I do challenge. The Ninth Circuit has decided, concerning tiering, that if a current document tiers on a previous document, the Court may review the portion of the previous document tiered upon. Without extensive restructuring of the CDEIS, a supplement will fail to avoid the current litigation.

The Columbia and Lower Willamette Rivers Navigation Channel, Oregon and Washington, Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement (“CDEIS”) was prepared simultaneously with the “The Columbia and Lower Willamette River Navigation Channel Integrated Dredged Material Management Study and Supplemental Environmental Impact Statement, (“O&M SEIS”). The Channel Deepening EIS is

**Corps of Engineers Response**

I-57. The Corps disagrees with the comment’s characterization of environmental documentation for other projects as “illegal” or otherwise inadequate. Nevertheless, the 1999 Final IFR/EIS and Final SEIS for the channel improvement project are not “tiered” on any prior documents. These project-level documents fully evaluate the potential effects of the channel improvement project. As required under CEQ’s NEPA regulations, the 1999 Final IFR/EIS and Final SEIS incorporate by reference material from prior project-level studies where appropriate (i.e., where the effect is to cut down on bulk of the EIS without impeding agency and public review of the action). 40 C.F.R. 1502.21. Incorporation by reference differs from tiering, in which project-level documents narrow the range of issues considered in prior program-level documents. 40 C.F.R. 1502.20.

For purposes of evaluating the effects of the channel improvement project, the 1999 Final IFR/EIS and Final SEIS fully address the effects of maintenance dredging as well as the effects of deepening the channel to 43 feet. Throughout the 1999 Final IFR/EIS and Final SEIS, the quantities of material to be dredged and disposed included both construction and maintenance quantities, as well as incremental changes in future maintenance quantities associated with deepening. Similarly, the evaluation of potential effects of the project covers both construction and maintenance activities. Additional analysis of the effects of maintenance dredging for the 40-foot channel is contained in the June 1998 *Dredged Material Management Plan & Supplemental Environmental Impact Statement* (DMMP), which is properly incorporated by reference in the 1999 Final IFR/EIS and Final SEIS (i.e., briefly summarized and cited).

For the purposes of comparing alternatives, the “No Action Alternative” is maintenance of the 40-foot channel, which is the Congressionally authorized present course of action that was approved in the 1998 Record of Decision. It is therefore the appropriate choice for the no-action alternative. See CEQ “Forty Most Asked Questions” at Question 3. Use of the 40-foot channel as the no action alternative does not mean that its effects are not evaluated. On the contrary, as noted above, the effects of maintenance dredging are addressed in the 1999 Final IFR/EIS and Final SEIS are therefore available to the public and to decision makers.

<sup>10</sup> Tiering refers to the coverage of general matters in broader environmental impact statements (such as national program or policy statements) with subsequently narrower statements or environmental analyses (such as regional or basin-wide program statements or ultimately site-specific statements) incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared. Tiering is appropriate when the sequence of statements or analyses is:

1. From a program, plan, or policy environmental impact statement to a program, plan, or policy statement or analysis of lesser scope or to a site-specific statement or analysis.
2. From an environmental impact statement on a specific action at an early stage (such as need and site selection) to a supplement (which is preferred) or a subsequent statement or analysis at a later stage (such as environmental mitigation). Tiering in such cases is appropriate when it helps the lead agency to focus on the issues which are ripe for decision and exclude from consideration issues already decided or not yet ripe. (See 40 CFR 1508.28 and ER 200-2-2, Appendix 3, page 60).

**Corps of Engineers Response**

not only tiered on the environmental considerations of the 1999 O&M SEIS, it also uses that option as the no-action alternative (Vol. 1, 9-11).

The O&M SEIS was tiered on the unconsidered and illegal past and vitiated itself with past and unconsidered fundamental assumptions in previous documents. It was the lack of consideration that caused an SEIS to be necessary in the first place. The CDEIS makes the same error by proxy when it assumes present dredging to be the “no build” option. The CDEIS and the 1999 O&M SEIS are also tiered on three O&M dredging FONSI’s<sup>11</sup> and the original 1975 EIS entitled, “1975 Final Environmental Impact Statement Columbia and Lower Willamette River Maintenance and Completion of the 40 Ft. Navigation Channel Downstream of Vancouver, Washington and Portland, Oregon.”

The CDEIS and O&M SEIS rely heavily on the 1975 EIS for justification of the environmental impacts. The 1975 EIS was not sufficient when it was produced and is certainly unable carry the load required by NEPA some 24 years later.

A Finding of No Significant Impact is a decision to not produce or supplement an EIS, and *cannot* double as a CWA 404(b)(1) review or expand the original EIS. A FONSI may not be tiered on a previous FONSI. An Environmental Assessment that determines an EIS is not necessary serves as the basis for the relevant FONSI. No EA or FONSI can correct errors or change the 1975 original EIS.

I-58. As noted above, the 1999 Final IFR/EIS and Final SEIS are not tiered on prior documents and fully evaluate the effects of channel deepening and of maintaining the channel once deepened. The 1999 Final IFR/EIS and Final SEIS effects analysis for the channel improvement project includes a detailed evaluation of the potential cumulative effects of the project (Section 6.12).

<sup>11</sup> For example: It is relevant that the environmental analysis for maintenance dredging challenged in *Jones v. Rose* between 1983 and 1999 consists of four FONSIs:

12-16-1983	Oregon Maintenance Dredging	River Mile 3-106
5-12-1989	Oregon Maintenance Dredging	River Mile 3-106
6-12-1989	Oregon Maintenance Dredging	River Mile 40-106
4-29-1994	Oregon Maintenance Dredging	River Mile 3-106

A FONSI is the decision not to make an environmental analysis and subsequent NEPA processes may not disregard their cumulative impact without independent review.

When in 1998 the O&M SEIS was finally produced, the *cumulative* acts and their impacts should have been considered. They were not. Each successive EA must consider all the previous EAs which determined an EIS was not necessary in order to determine if a SEIS is necessary. The changes and new locations of disposal sites in the aggregate, roughly doubling the number of disposal sites, should have triggered an SEIS. They did not. The changes to the 1975 EIS found in the FONSI were never given the reasoned consideration required by NEPA and other laws.

I-58 These documents clearly attempt to supplement the 1975 EIS. All changed the scope of the Corps maintenance program, added disposal sites, and were based on Environment Analysis documents never given public notice or allowed public comment. All of the above documents are tiered on the 1975 EIS. The *Jones v Rose* complaint clearly alleges the 1975 EIS clearly cannot complement the CDEIS in the way required by NEPA. Clearly the fact all previous NEPA dredging documents are legally insufficient prevents the Corps from truncating the CDEIS to the consideration of only *additional* impacts. Without major restructuring it is unlikely the Supplement to the CDEIS can escape the current litigation. The CDEIS and the O&M SEIS tiers not just on the process, but all of the previous O&M dredging impacts as they exist, whether previously considered or legal. In both NEPA processes dredging impacts were the “no-action” alternative. The CDEIS is fatally flawed when it tiers on existent illegal dredging impacts. Yet the Corps tries to build its case for channel deepening by grandfathering its own illegal actions.

Additionally [T]iering to a document that has not itself been subject to NEPA review is not permitted, for it circumvents the purpose of NEPA. See *Kern v. United States Bureau of Land Management*, 284 F.3d 1062 (9th Cir. 03/22/2002). Corps DMMS plans are not NEPA

documents. Because the CDEIS or the O& M SEIS may not *tier* to a DMMS, adequate consideration of dredged spoils impacts depend on the analysis contained in the EIS itself. The sum total of the analysis for many issues in the CDEIS and the Supplemental CDEIS is the assumption that it was considered in the 1998 DMMS and other non-NEPA dredged material disposal plans: For example the fact that certain disposal sites were considered in a previous *non* NEPA plan is not a consideration of the environmental consequences of the effects of channel deepening. The CDEIS must itself address those impacts.

**III. The CDEIS is a continuation of the Portland district's use of a programmatic EIS to forego required site-specific environmental analysis and specific CWA 404 permits required by law.**

The Corps has failed to produce site-specific EIS's for Corps actions in each of the dredging documents listed above. The Corps has consistently used the ROD for the programmatic NEPA and maintenance dredging DMMS coupled with a programmatic 401(b) review in lieu of a CWA 404 public interest review. Other courts have already found this process to be inadequate for compliance with the CWA.

Where there are large scale plans for regional development, NEPA requires both a programmatic and site-specific EIS. *See City of Tenakee Springs*, 778 F.2d at 1407. The Corps has not produced site specific EIS's for dredged spoils disposal connected with maintenance dredging. Two simultaneous Corps actions on West Hayden Island serve as an example of this confusion of site-specific and programmatic reviews. First its requirement that the Port prepare an EIS for filling on WHI, and second its own simultaneous failure to prepare an EIS for Corps filling of hundreds of acres on WHI.

**Corps of Engineers Response**

I-59. As discussed in response to comments I-38 through I-44, the revised 404(b)(1) evaluation fully satisfies the requirements of Section 404 of the Clean Water Act for discharges of dredged or fill material associated with this federal navigation project. Similarly, as discussed in response to comments I-57 and I-58, the project-level 1999 Final IFR/EIS and Final SEIS for the channel improvement project fully satisfy the requirements of NEPA for evaluating and considering the potential environmental effects of the project, including site-specific effects.



**Corps of Engineers Response**

The Ninth Circuit has taken the position, that they [a]ssume that government agencies will comply with their NEPA obligations in later stages of development.” *Conner v. Burford*, 848 F.2d 1441, 1448 (9th Cir. 1988), cert. denied, 489 U.S. 1012 (1989). That assumption is no longer tenable where the Corps has blurred the distinction between a site-specific EIS and a programmatic EIS. The Corps has made it perfectly clear on West Hayden Island and the length of the Columbia River to the ocean, that the Corps considers its “Columbia and Lower Willamette River Navigation Channel Integrated Dredged Material Management Study (DMMS)” and “Supplemental Environmental Impact Statement” (the “O&M SEIS”) to be sufficient for use as site-specific EIS’s and CWA 404 permits when implementing dredged spoils disposal. At this point one must assume that the Corps does not intend to produce site-specific reviews for Channel Deepening projects. If this is not true the Corps should identify which parts of the plan will receive site specific reviews in the CDEIS.

I-59

When the CDEIS considers the DMMS and O&M SEIS as the “no build” option, it adopts the *failure* to provide site-specific reviews in those documents as part of its consideration.

**Issues before the Court relevant to the Validity of the Supplemental CDEIS:**

The following issues, here briefly described, are currently before the Court in *Jones v. Rose* and are relevant to the sufficiency of the Supplemental CDEIS.

1. The CDEIS is tiered on more than just illegal documents. The CDEIS is tiered on the illegal dredging actions of the Corps and others. For example,

I-60

a. A confined disposal site is assumed on West Hayden Island because of the fact that the Corps and Port have illegally created a dredged spoils disposal area on WHI.

I-60. Comment noted. The Corps disagrees with the allegations of “violations” of various laws in this comment. Some of the issues addressed by the commenter are currently the subject of ongoing litigation in *Jones v. Rose* and are therefore not appropriate for detailed response here. To the extent substantive comments relate to the proposed channel improvement project and the adequacy of the NEPA documentation for the project, they are addressed in the above responses to comments I-33 to I-59 and in responses to other comments. Those that are not a subject of the ongoing litigation in *Jones v. Rose* are addressed point by point below.

**Corps of Engineers Response**

b. The Port has illegally condemned land used for maintenance dredged spoils disposal. The illegal confined disposal site on WHI is located on property condemned by the Port for that purpose. The WRDA, Water Resources Development Act, forbids the condemnation of property for dredged spoils disposal. The Port’s deed for the disposal site on WHI was transferred under the threat of condemnation.

I-60 (con’t).

c. Specific illegal actions - such as the failure of PGE to mitigate a permitted disposal and the Port of Portland’s illegal diking of wetlands - have created conditions in the waters of the United States on WHI which are not of *normal circumstance*. Until these issues are resolved, consideration of WHI as part of the CDEIS supplement is premature.

I-60

d. The Port is without authority to alienate public trust property without permission from the state. The Port is, as a sponsor, required by the WRDA to provide dredged spoils disposal sites. The Port has avoided due process to provide sites for disposal that it did not own.

e. The CDEIS and previous NEPA documents are not sufficient to provide compliance with The Water Resources Development Act, WRDA. The WRDA requires mitigation. NEPA requires public consideration of that mitigation.

f. The Corps does not understand the difference between maintenance and construction as it relates to the levels of consideration mandated by NEPA for the purposes of the WRDA. For example: Maintenance of an authorized project requires no needs statement, because the need was established in the original authorization. The channel deepening project is a reauthorization of the project and cannot rely on the non existent needs statement of a maintenance program previously authorized.

(f) The 1999 Final IFR/EIS presented the purpose and the need for this federal action. The Final SEIS further describes additional purpose and need for project modifications made since the 1999 Final IFR/EIS.

g. Construction of this Channel Deepening project is a privately sponsored project. Disposal sites for construction must be considered separately from disposal sites for

(g) The Corps disagrees. This project is not being “privately sponsored.” A non-federal sponsor is required by federal law for this project. The non-federal sponsors for the project are public entities.

maintenance. Site-specific purpose and need and alternative site consideration are a must for privately sponsored disposal sites. In addition, the private sponsor must obtain a CWA 404 permit for a construction disposal site. Mitigation is required.

h. Beach *nourishment* or whatever euphemism the Corps would use for dredged spoil disposal along a shoreline for construction is authorized in a different section from dredged spoil disposal in the WRDA, and Corps regulations regard such fills as separable elements liable to certain regulations. The Corps regulations require a site-specific CWA § 404 specification for fills on beaches or shores. **Neither the WRDA nor Corps regulations allow federally-funded land creation that excludes the public from the shoreline.**

i. The Corps to this point has used the combination of a programmatic Record of Decision for the programmatic EIS coupled with a programmatic 404(b) evaluation in lieu of site-specific CWA 404 permits. The programmatic 404(b) evaluation amounts to the affirmation, without specifics, that wetlands will be avoided. Although this procedure is illegal in many ways, it points to a deficiency in the procedure in the combining of purposes for the production of the CDEIS. The CDEIS is a programmatic document. Its use in lieu of a site-specific EIS is a violation of law. An example of the problems that can be created by this Corps misunderstanding is the fact that the Port has discontinued production of an EIS or supplemental EIS on West Hayden Island, even though its production was assumed in both the CDEIS and DMMP.

j. It is black letter law that an EIS may not serve as a CWA permit.

k. The CDEIS and supplemental CDEIS are themselves itself a violation of the Executive Orders (“EO’s”) EO #11988 and EO #11990, and is tiered on documents that are in violation of those executive orders. For example: No actual consideration of EO #11988 is

#### Corps of Engineers Response

I-60 (con’t).

(h) All disposal sites, including shoreline disposal, have the same authorization on this project. A 404(b) evaluation has been prepared for disposal in waters of the United States. See responses I-38 to I-40. The project does not create land that excludes the public from the shoreline.

(j) It is unclear the commenter means by this comment. The Corps does not issue itself permits on its projects; however, the Corps does comply with requirements of Section 404 of the Clean Water Act. See responses I-38 to I-40.

(k) See response to I-45.

I-60

found in the Supplemental CDEIS, the CDEIS, the DMMP or any document on which they are tiered. The CDEIS document claims such consideration will be given. Consideration of the floodplain is required by NEPA in the document. This consideration must include effects on the beneficial values of the floodplain in excess of the displacement of floodwaters.

l. Corps compliance of EO #11988 is based on a finding of “No Practical Alternative,” yet the Portland District Corps has never made such a finding in any dredging document.

m. Public notice of a finding of No Practical Alternative is required by Corps regulation. None has ever been given, due to the fact no such finding has ever been made.

n. An analysis of floodplain effects that derives its meaning from the removal of fill below sea level in tidal waters borders on fraud.

o. In application of NEPA documents upon which the CDEIS is tiered, there was – and continues to be - wetlands destruction. Although the CDEIS and DMMP claim otherwise the lack of consideration is a violation of EO #11990. There is probably no better example of the disastrous effect of this cavalier approach to wetland effects than Benson Pond. Benson Pond was filled in as part of a beach nourishment action occasioned by the fact that a beach nourishment disposal area was depicted on a dredged management plan. This was done despite the fact that the entire area was previously delineated as a wetland by the Corps. The fill at Benson Pond cut off over one hundred acres of delineated wetlands from the river. An additional wetland west of Benson Pond was cut off from the river by several dredged spoils shoreline disposals. Such actions require that the review and action forcing provisions of Executive Order #11990 be part of the CDEIS. Past actions and NEPA documents may not be tiered upon in a way that avoids such consideration.

### Corps of Engineers Response

I-60 (con't).

(l) The Final SEIS has been revised to further clarify compliance with the Executive Order 11988.

(m) See response to I-60(l). Adequate public notice is provided through the NEPA process.

I-60

**Corps of Engineers Response**

p. Because the Corps repeatedly uses earlier fill sites, many wetland areas that were previously wetlands do not meet the vegetation criteria of the Corps, although the past and present normal circumstances would support such vegetation. The required consideration of normal circumstances triggers the review and action forcing provisions of EO #11990.

I-60 (con't).

q. The Corps and the sponsors typically do not re-vegetate the edges of their dredged spoils disposal. This failure is most egregious when those dredged spoils disposal are next to delineated wetlands. West Hayden Island is replete with examples of wetlands where the vegetation is suffocated by migrating dredged spoils. Exacerbating this condition is the fact that Corps wetland specialists have on WHI regarded the surface presence of these dredged spoils as Pilchuck soils that defeat a wetland delineation. Unless the Corps required immediate re-vegetation of dredged spoil disposal contiguous to wetlands, the loss of those wetlands must be considered in the context of the review and action forcing provisions of EO #11990.

I-60

r. Cumulative and related effects must be considered.

Under NEPA, the "scope" of an EIS is the "range of actions, alternatives, and impacts" that it must consider. Among these are "connected," "cumulative," and "similar" actions, and "indirect" and "cumulative" impacts. 40 C.F.R. § 1508.25. Also included as an impact is induced growth. By law, the Corps must assess the indirect impacts of growth inducing effects related to changes in land use patterns, changes in population density, and indirect adverse effects on air and water as well as the ecosystem.

The Corps hoped to avoid this consideration in the CDEIS by explaining that the effects will be minimal because the present maintenance program was the "no build" option. In this vein the Corps stated,

"Incremental environmental impacts from the channel deepening itself are expected to be minimal since the deepening will be limited to the existing channel footprint

(r) We disagree. Oregon ash-forested floodplain on West Hayden Island is present in the vicinity of the City of Portland. Tracts of this habitat type can be found on Sauvie Island, Government Island, the Sandy River delta and the Vancouver Lowlands, for example. The project does not include plans to discharge in wetlands on West Hayden Island. See response I-58 pertaining to cumulative impacts.

in which dredging has taken place for many years. For this reason, the Corps cumulative effects analysis in the CDEIS focused on habitat impacts from increased sediment disposal resulting from the project as the best means for assessing cumulative environmental effects." CDEIS, Response #13.

This claim of "minimal environmental impacts" is evidentially based on the Corps' interpretation that the word "cumulative" in the context of this project does not have the same meaning as it would have in any other context. Instead, the Corps interprets cumulative to represent only the additional harm stemming from this proposed incremental increase in dredging. This is not acceptable. The FEIS, both as a matter of law and good sense, must cover the cumulative effect of past, current, and proposed dredging on the river system. See *40 C.F.R. § 1508.7*.

I-60 For example the Oregon Ash forested floodplain on West Hayden Island is effectively the last wetlands of its type in the vicinity of the City of Portland *not* filled by Corps, or Port's legal and illegal fast land creation. This failing of the CDEIS is compounded by the fact that all previous plans and NEPA documents focus solely on the beneficial impact of international trade represented by this expansion of industrial land.

Another significant omission from the Corps' alleged cumulative effects analysis is that of future dredging projects. The Corps alludes to future deepening projects but does not address them in the document.

In attempting to assess impacts on future port development the Corps makes the following prediction: "Actions related to channel deepening would include: ... continued development of port facilities to meet future needs; and contributing to the maintenance of current levels of economic and population growth in the region." Vol. I at 6-57. Yet in direct contradiction, the Corps states "channel deepening in itself would not induce additional ship

traffic. Likewise, it would not contribute to development of additional ports or port facilities." Vol. I at 6-51.

#### Corps of Engineers Response

I-60 This failure to address future impacts undermines the credibility of the CDEIS and its sufficiency under the law. Does the CDEIS assess the possible impacts that industrial land creation could have upon surrounding areas? Since past negative impacts alone have been highly significant, the Corps' failure to address this area contains no evaluation whatsoever of the impact on natural resources of future Port of Portland or other Port land creation, using fill mined from and derived from Federal maintenance dredging. The Corps does not just ignore the induced future development of WHI that it uses as a principle part of its needs analysis. The Corps continues to deny that the Port of Vancouver's plan to use dredge spoils from the deepening project to fill over 600 acres of valuable habitat at the Gateway site in the name of Port development is a connected, cumulative, and similar action. The CDEIS does not disclose nor does it analyze the environmental impacts of this connected port development, which, instead, is billed as beneficial use of dredge spoils. Future development of West Hayden Island and the Gateway area will have extensive impact on wildlife and the environment. Regardless of whatever alleged development benefits are associated with this action, the environmental cost must also be fully assessed in the reconsideration of the CDEIS. The Supplemental CDEIS adopts the same logic. Correctly assessing the failure of this strategy in the Supplemental CDEIS, the Corps has tried another tact to avoid the consideration of cumulative and related effects. The Corps has had the private sponsors claim in the Supplemental CDEIS that marine development would occur whether or not channel deepening occurs.

The Corps believes that those statements relieve the Corps of site-specific consideration of cumulative and related impacts. While very clever, this is wrong. Obviously a project that

would re-authorize maintenance dredging does not escape review of the dredged spoils disposal because it was authorized by the previous project. As example, the Port of Vancouver says the development would use dredged spoils in the future from already authorized maintenance dredging. The Corps must consider post and present and future effects of related actions whether they would occur if the project occurred or not.

At some point the consideration of cumulative past and present related actions must be applied to site-specific situations.

s. The omission of a reasonably complete discussion of possible mitigation measures would undermine the "action forcing" function of NEPA. Without such a discussion, neither the agency nor other interested groups and individuals can properly evaluate the severity of the adverse effects. *Robertson v. Methow Valley Citizen's Council*, 490 U.S. 332 (1989).

To meet the objections of the other federal agencies the Corps has proposed mitigation of a highly speculative nature involving temporary and permanent "in water" disposal of dredged spoils. Where the CDEIS proposed to only study the impacts posed by the project to the fish in the estuary, the supplemental CDEIS acts without studies. This mitigation also reduces the cost of the project giving the Corps a reason to act without consideration. The Supplemental CDEIS, like the CDEIS, fails to appropriately evaluate reasonably foreseeable significant adverse or positive effects on aquatic species because they are both only a part of complete mitigation. Neither the CDEIS or Supplemental CDEIS has data or analyses from which to draw conclusions. To fully evaluate its adverse effects, the project should not commence until *after* studies are done and appropriate mitigating actions are specifically designed and funded.

#### Corps of Engineers Response

I-60 (con't).

(s) See responses to I-28, I-45, and I-49.

I-60



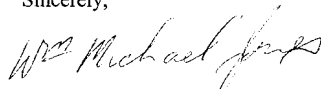
t. Illegally filled waters of the United States remain waters of the United States until they obtain proper specification. The Corps may not determine that a site is not a water of the United States because the Corps previously illegally filled it.

#### Corps of Engineers Response

**Conclusion:** I propose a meeting to discuss and focus these issues in the context of the upcoming reconsideration. Beyond the prospect of legal and reasoned consideration in the context of the reconsideration of the CDEIS, a clear statement of the federal government on any of these issues would advance or avoid the current litigation. Perhaps it is possible that if we are I-61 unable to agree on the relevance of some issues, we might be able to seek the guidance of the court prior to the publishing of the supplemental CDEIS.

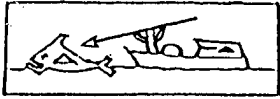
I am available for any dialogue concerning these or other issues. Please call. In addition I will very happily make my time available to demonstrate the physical degradation caused by the Corps' failure to make the adequate considerations required by law.

Sincerely,



William Michael Jones

I-61. Since this letter was received, a Port of Portland representative met with the commenter. The Corps and sponsor port representatives continue to be available to meet to discuss these comments and responses at the commenter's convenience.



FISH HUNTER

## T. HAWK FISH

DANIEL J. & CLAIR STEPHAN  
1365 ALTOONA ROAD  
ROSBURG, WA 98643 (206) 465-2468

Corps of Engineers Response

September 14, 2002

Commander, USACE-Portland  
Attn: CENWP-PM-F(CRICIP)  
P.O. Box 2946  
Portland, OR 97208-2946

Gentlemen:

Re: Columbia River Channel Deepening Project

We would like to comment for the record on the proposed deepening of the Columbia River. To begin with, we are not totally opposed to the idea of a deeper channel, but we are deeply concerned about the disposal sites that have recently been proposed, and renamed as "Restoration" sites. Also, we are disturbed about the way the Corps and others keep finding what they hope will be more acceptable *sounding* solutions for accomplishing the same end result, including the new project name, Columbia River "Channel Improvement" project.

I-62. Comment noted.

I-62 We live a stone's throw from the Columbia River channel, in the historic site of Altoona, Washington. My husband, a Chinook Indian, was born and raised here, and we've resided here for over 66 years. During that time, we have witnessed and been affected by continual changes in the river's features, most of which have been created by the Corps. In the early 1950's, we could observe Astoria, Oregon without any visual obstructions, in contrast to today, as Rice Island looms higher and higher every year with dredge spoils.

My husband's Chinook Indian ancestors have always lived in this area, utilizing the Chinook salmon and other abundant fish species in their diets, and as a way to earn a living. He himself has gillnetted since he was 9 years old, learning the trade from his parents. All that time, he carried out his fishing between the Pillar Rock area and the mouth of the Columbia, most of it between Pillar Rock and to the Grays Bay, and along the Miller Sands area. As the years passed, one by one, the drifts had to be abandon because of shallowing of the river due to dredging, and the driving of pile dikes-all for the sake of "channel deepening, or if you will..channel "improvement"! We now look out our window and see ship waves breaking on sand bars where we used to drift with fairly deep gillnet gear. Other drifts are useless because of channel markers, etc. that have been installed to aid in ship navigation.

I-63 Worst of all, we lost the historic, former Columbia River Packers (later BumbleBee) cannery dock buildings which were knocked down and destroyed in November, 1998. We have every reason to believe that wakes from fast moving, deep draft ships contributed the that disaster. The wake varies with size and speed of the ships of course, but there are certain ones such as the Hanjin container ships that cause extreme wave action...pulling heavy drift logs off the beach, out under the dock area where they would lodge and knock out pilings. When the

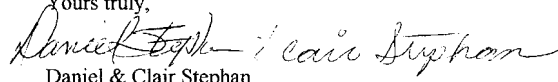
I-63. Comment noted.

dock collapsed, a large log had wedged under a corner of the building where a large boiler stood, toppling several pilings. That corner went down, creating a domino effect as the whole structure sagged and fell into the river. Since there was no way to document which ships had passed in the night, it was impossible to file any kind of loss claims against anyone. But, it only stands to reason that after years of faster and deeper ship traffic moving up and down the river, and numerous incidents of these types where logs damaged the underpinnings of the structure, that the final blow would one day occur!

We spent years, and thousands of dollars replacing dislodged pilings in our attempt to preserve the old cannery. We contacted the U.S. Coast Guard and pleaded for speed limits to be imposed to reduce the damage, but to no avail. Our concern now, with the Corps (and the various Ports) plans to deepen the channel, is that there will be less and less concern for the facilities that exist along the shores, and for the people that enjoy recreation or attempt to earn their living in the once respected commercial fishing industry on the Columbia River. All indications point now to the number one priority being in the interest of bigger and faster ships for international commerce.

I-64

The proposed dumping sites along the lower Columbia River, including the Miller Sands area for "restoration" are really the last straw. It amounts to the loss in our particular fishing area of one of the best, and only gillnet drifts left! We haven't heard of any consideration in the plan to mitigate the loss to the fishermen! We have contacted the Corps in the past and requested dredge spoils be pumped on the beach in front of Altoona...as the fishing drifts have already been destroyed here! We urge you to strongly look for other ways to dispose of the spoils, including along the river's north shore between Pillar Rock and Harrington Point before you proceed to destroy yet more fishing grounds! We have always cooperated with the Corp in the past, allowing utilization of our dock as a staging area, and as a personnel loading convenience for Port of Portland crews. We have a plaque on our wall thanking us for that from the Port of Portland, but we would rather have some sand dumped here as a means to save the Miller Sands fishing drift!

Yours truly,  
  
Daniel & Clair Stephan  
1365 Altoona Rd  
Rosburg, WA 98643

Cc: USCG

## Corps of Engineers Response

I-64. The proposed restoration action would impact approximately 14% of the 1,629-acre Miller Sands Drift. Thus, the restoration action would not impact 86% of the area available for the drift. Some alteration in how the drift is fished would occur because of the pile dike structures and subsequent infill of material.

We have conducted an extensive review through our planning process of potential disposal sites in the project area. Disposal on the beach between Pillar Rock and Harrington Point would adversely impact shallow water habitat, including Critical Habitat as designated by the NOAA Fisheries for various salmonid stocks in the Columbia River. Consequently, state and federal resource agencies would not allow consideration of shoreline disposal other than at Miller Sands, Skamokawa and Sand Island at St. Helens, Oregon.

**Corps of Engineers Response**

**From:** Jere Albright [mailto:jereshome@kalama.com]  
**Sent:** Saturday, September 14, 2002 9:43 PM  
**To:** Willis, Robert E  
**Subject:** Dredging the Columbia?

I-65 | I have lived near the Columbia River since 1946. In that time, I have seen untold thousands of acres of wetlands covered with dredges spoils from the Columbia River! I think that it's time we stop! As a youngster, I can remember untold numbers of Ducks and Geese, Beaver, Muskrat and various other wildlife in these areas. I used to spend hours hunting and fishing these areas! Now, they are gone forever! I wish that my Grandchildren could enjoy our area, as I once did! I say "NO MORE DREDGING!".

Thank You!  
Jere Albright  
Kalama, WA

I-65. The proposed project contains wildlife mitigation directed at off-setting project related impacts. The project also includes significant ecosystem restoration features directed at restoring historic alterations to important habitats along the lower Columbia River. In addition, many state, federal, local and non-governmental entities are currently directing their efforts at habitat restoration along the lower Columbia River. The Corps is participating in these efforts through various authorities provided through congressional action. The Corps hopes these various efforts are successful in partially restoring the lower Columbia River ecosystem.

**Corps of Engineers Response**

Patrick Huber  
721 E. 11<sup>th</sup> St.  
Davis, CA 95616

Dear USACE:

I-66 | I am writing in regards to the proposed dredging of the Columbia River. We are currently at a crossroads for the fate of the native salmon runs in the Northwest. Many runs have dwindled to the point that they have to be listed as endangered. This proposed project displays an incomplete ecological analysis of the effects of this project on the Columbia River salmon runs. There can be little doubt that a project of this magnitude will have a significant impact on the salmon that use this river. While we are currently trying to find ways to bring the runs back from the brink of extinction, if this project will seriously impact the runs, we should table the proposal for the indefinite future. The analysis should look to future effects of this action, rather than just short-term ramifications. Further, the environmental analysis should take a hard look at the economic impacts to communities associated with the potential harm to the salmon runs. I feel that when these actions are taken, it will be seen that this project is too costly (ecologically and economically) to justify the large federal expenditure.

I-66. See response to I-5.

Sincerely,



Patrick Huber

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# **LETTERS OF ENDORSEMENT**

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July 31, 2002

Ladies and Gentlemen:

Thank you for this opportunity to testify today.

I am Capt. Phillip Massey and I am a member of the Columbia River Pilots Assoc. I have made my living on the Columbia, Willamette and Snake Rivers and along the Pacific Coast for 36 years.

As an advocate of a deeper, safer channel I would like to address an irony that has been prevalent throughout the years that channel deepening has been under study. Over the past 50 years the general public has developed justifiable cynicism when dealing with government and big business. They were misled about Viet Nam, Watergate, Iran-Contra and so on. They have been lied to by Tobacco, Big Oil and most recently Enron, Arthur Anderson, World.Com and others. Many of us have come to believe that government and big business lie, while environmental groups tell the truth. The irony is that during the many years of studying channel deepening the opposite has been true.

The opponents have told the public that this project is a rush job. For over 12 years this project has undergone study after study by government, industry, public, environmental and media entities. I shudder to think of how many millions of taxpayer dollars have been wasted on restudies and studies of the restudies. It made sense 12 years ago and it makes sense today.

The opponents have ranted about polluted, toxic, even radio active dredge spoils. While there are contaminated areas along the banks of the Portland harbor, the Columbia dredge materials have a long history of being used for construction projects, public parks and beaches and even children's sand boxes.

Environmental extremists would have us believe the river is in this downward spiral. That is just not true. Mill discharges are the cleanest they've ever been; city and town discharges are the best they've ever been. Tugs, ships and recreational vessels now contain all their wastes on board to be properly disposed of ashore. When I started on the river you could go months without seeing a Bald Eagle. Today the sightings are daily; along with Osprey, Herons, Mallards, Swans Terns and dozens of others birds that make their living from a healthy river. And one might ask: If all the fish are gone, what is this exploding population of birds eating?

Self appointed shipping experts say that <sup>it</sup> is ridiculous to have ships come 100 miles inland to deliver and receive cargo. I would ask those 'experts' to take a look at a map. Find out how many hours it takes to get ships to and from large ports like Houston, New Orleans, Baton Rouge, even New York and Baltimore. Look at how many miles Seattle, Tacoma, and Vancouver, B.C, are from the open ocean. The fact is our six to eight hour transit times for tankers, bulk carriers, and container ships are very competitive with other West Coast Ports.

Dreamers continue to tell us that our efforts should be dedicated toward Astoria. I was once an advocate of that myself. Twenty years ago there was an effort to locate a super grain terminal at Astoria, and supply it almost entirely by upriver barges. Turns out shippers don't want to be obligated to just one mode of transportation - they need to have the option of rail and trucks. Today grain terminals need to be able to process 100 car unit trains; having space for 300 to 600 rail cars. Container facilities need even more rail car space along with space for hundreds of trucks and thousands of containers. The impact and expense of building a heavy-duty two-rail line and a four lane modern highway to Astoria would be many, many times that of developing and maintaining the river channel. On your next drive to Astoria take note of the miles after mile of sensitive wetlands the highway and rail would pass through, and try to imagine the bridges, trestles, and fill that would be required. Millions of Oregon Lottery dollars were spent dredging the Tongue Point docks and turning basin and to this day the only revenue that facility generates is the storage of a few barges. I am told the area has filled back in. Moving the region's shipping needs to the mouth of the river is such a ridiculous fantasy it merits absolutely no further comment or consideration from anyone.

Those who think they know a lot about economics have said Portland and Vancouver should abandon their pursuit of bulk cargoes and containers, and go after niche cargoes. I would like to point out it is the niche cargoes that have failed us. The Fiber Optic Cable dock has quit, the aluminum ore docks are down, and logs and lumber are a fraction of the past. We can not support more than 40,000 family wage jobs and billions of dollars in taxpayer owned port facilities with Pendleton Shirts and Intel Processors.

Even with all the misinformation the public has been fed, a strong majority still supports a safer, deeper channel. Our area is suffering far more than other West Coast Ports, The world has heard of dam breaching, drought problems and channel opposition, and the message has been the Columbia Ports are closing for business. It is vital to make up for lost time and money and move ahead with this project with all speed.

## COLUMBIA RIVER PILOTS

13225 N. LOMBARD  
PORTLAND, OREGON 97203  
503-289-9922  
FAX 503-289-9855

Colonel Richard Hobernicht  
Commander, USAED-Portland  
Attn: CENWP-PM-F (CRCIP)  
P.O. Box 2946  
Portland, OR 97208-2946

August 31, 2002

Re: Letter in SUPPORT of Channel Deepening

Colonel Hobernicht:

I am a Dispatcher for the Columbia River Pilots. In addition to other tasks, one of my responsibilities is determining when- and if- deep draft vessels can safely transit the river. As such, I am very much aware of how ships are influenced by tide, river levels and the restrictions imposed by the current 40-foot navigation channel.

It has been established that a 43-foot channel will greatly benefit the region's commerce by allowing existing vessels to load more as well as making it feasible for the next generation of ships to call here in the future. **A deeper channel will also provide significant savings for today's ships by reducing the costly delays incurred while waiting for tidal sailings.**

Even with drafts of 38-feet, many ships now loading in the river are routinely delayed as they wait for appropriate sailing 'windows'. Depending on tidal conditions and the occurrence of shoaling or sand waves, these delays can range from a couple hours to as long as 24 hours while ships wait for adequate river levels. The costs incurred from these delays can be substantial and result from tug standby expenses, shifting charges, dockage fees and vessel idle time. These costs will be dramatically reduced with the expansion of favorable sailing windows made possible with a 43-foot channel.

**Most important, all ships will recognize a much greater margin of safety while operating in the Columbia River due to an immediate improvement in handling capabilities.** Although cost savings are frequently cited as the basis for this project, the increased safety benefits of a deeper channel are rarely, if ever, mentioned. The river pilots require a minimum two-foot under keel clearance to facilitate safe ship handling. By increasing the channel depth three feet in places, ships gain an additional cushion of water that will greatly enhance their handling characteristics, resulting in a much safer operation on the river.

These conditions are equally important for inbound vessels with draft. Presently, loaded ships drawing 36-feet or more are required to arrive in Astoria two hours prior to high water, which allows transit up river on a flood tide. Most of the oil tankers that call here usually arrive fully loaded at their maximum draft of around 36-feet or more. A deeper channel will help these deeply laden ships to avoid anchoring off the coast time or slow steaming to wait for favorable tides. Once in the river, they will also recognize a much safer transit due to improved ship handling.

For these reasons, it is crucial for the region's continued environmental protection and economic viability to proceed with the deepening of the Columbia River navigation channel.

Sincerely,



Dan Butler, Dispatcher  
Columbia River Pilots





September 4, 2002

Colonel Richard Hobernicht  
Commander, USAED – Portland  
Attn: CENWP-PM-F (CRCIP)  
PO Box 2946  
Portland, OR 97208-2946

**Re: Channel Deepening**

Dear Sirs:

I am writing to address the importance of the Columbia River Channel Deepening project, both for the Port of Vancouver, USA and for the Columbia River region as a whole. Maritime trade is perhaps the key force in the economic vitality of our region. We believe it is essential to ensure that international trade remains viable on the Columbia River.

Trade on the Columbia directly produces over 40,000 family-wage jobs. More than 1,000 businesses in our region, employing tens of thousands of people, use the Columbia and Snake River system to transport their products. Farmers in eastern Washington, Oregon, and 11 other western and midwestern states also depend on this amazing river system to move their products around the world; in 1999, for example, the Columbia-Snake river system handled 43 percent of U.S. wheat exports. That makes the Columbia River a vital part of the largest wheat handling system in the nation. The lower Columbia River alone is the second largest grain export system in the world.

Trade on the river system has a ripple effect on the rest of our region. In Vancouver alone, 5,500 jobs are directly tied to maritime and industrial activities at the Port of Vancouver, and the purchases of these workers adds \$124 million each year to our local economy. The Corps' cost/benefit analysis on channel deepening has conservatively estimated a \$1.50 federal benefit for every \$1 spent. By implementing this project, we will see immediate, direct benefits to river trade, as well as significant long-term benefits to the local and regional economy over and above the federal benefits.

Currently, Oregon has the highest unemployment rate in the country, with Washington a close second. In such difficult economic times, it is even more important that maritime trade remains a secure and growing economic force.

The Port of Vancouver and our partners in the channel deepening project are committed to both economic and quality of life benefits along the river. The recent biological opinions by the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) has determined that channel deepening can take place without any detrimental effects on protected river species – in fact, the river's ecosystem will be improved by restoration projects proposed in the plan, which go beyond mitigation to leave the river better than it was.



NMFS has already demonstrated its commitment to protecting the river ecosystem by withdrawing its 1999 Biological Opinion in order to incorporate the latest scientific information. The information included in the 2002 Biological Opinion clearly shows that environmental concerns will continue to be a priority for those involved in channel deepening, including adaptive management (monitoring) plans even after the project is completed.

Environmental restoration is not required but is encouraged under the Endangered Species Act. The proposed mitigation, which is required, together with the proposed restoration, points to the sincere intent of all parties to maintain and even improve the environment and the river system. Mitigation and restoration planned for the channel deepening project will not only sustain the current ecosystem, it will improve and strengthen its health. Achieving environmental gains from a project like this is a high standard to meet, but it is the right standard. These biological opinions make it clear that the channel deepening project will move forward in an environmentally responsible manner.

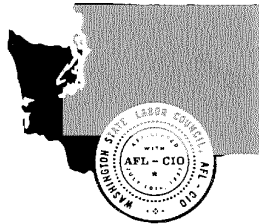
Channel deepening has broad-based support from businesses, labor unions, farmers, ports, and communities throughout the Northwest. Such strong and diverse support indicates how vital channel deepening is to our region's continued health and growth. I urge you to acknowledge this need and proceed with deepening the Columbia River channel.

Thank you for your time and consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Lawrence L. Paulson".

Lawrence L. Paulson  
Executive Director, Port of Vancouver



Washington State Labor Council, AFL-CIO  
314 First Avenue West  
Seattle, WA 98119  
206-281-8901  
FAX: 206-352-9415

September 5, 2002

TO: Colonel Richard Hobernicht  
USAED - Portland

FROM: Rick S. Bender, President *RSB*

SUBJECT: Columbia River Channel Deepening Project

On behalf of the Washington State Labor Council, AFL-CIO, and its 450,000 affiliated union members, I want to thank you for providing this opportunity to comment on the Draft Supplemental Feasibility Report and EIS for the Columbia River Channel Deepening Project, which is vitally important to the economic and environmental health of our region. At this point, it is clear that this project can and should move forward in order to benefit the Columbia River's economy and environment.

The Columbia River's navigation channel must be deepened in order to maintain the vitality of this transportation route and our region's trade-based economy, particularly during these difficult economic times.

Deepening the channel is critical to transporting the \$14 billion in annual maritime cargo and to sustaining the jobs, farms and businesses in this region. It will also ensure that the Columbia River can accommodate the larger, more fuel-efficient ships that are increasingly dominating the world's trade fleet.

This project has broad-based support from labor unions, farmers, ports, businesses and communities throughout the Northwest. Over 40,000 local family wage jobs are dependent upon, and another 59,000 Northwest jobs are positively influenced by, Columbia River maritime commerce. Over 1,000 businesses rely on the Columbia to transport their products around the world.

The vitality of these jobs and businesses require cost-effective maritime transportation. Without a deeper channel, farmers and businesses will be damaged and many jobs lost. The economic benefits are large and diverse; rural and urban, east and west, Washington and Oregon, all will be impacted by this project. I urge you to complete the necessary steps to ensure that the Columbia River Channel Deepening Project moves forward so that we may all begin to realize the benefits of its completion.

Thank you.

*rsb/afl-cio*



Administration Annex • 207 North 4th Ave • Kelso, WA 98626-4195  
(360) 577-3041 • Fax (360) 425-7760 • www.cwcog.org

September 5, 2002

Colonel Richard Hobernicht, Commander  
U.S. Army Corps of Engineers  
P.O. Box 2946  
Portland, OR 97208-2946

Attention: CENWP-PN-F (CRCIP)

Re: Input Regarding the Columbia River Channel Deepening Project and Draft Supplemental Integrated Feasibility Report and EIS

Dear Colonel Hobernicht:

We appreciate the opportunity the Corps of Engineers has provided to gather more input regarding the Columbia River Channel Deepening Project. The project has been of keen interest for the local governments and other interests of the Cowlitz-Wahkiakum region for many years. It has been on the COG's list of federal issues for most of the last ten years and has been in the top ten on that list. It is an issue that will have long term affects upon the local governments, communities and citizens of this region in many ways, most beneficial but some of important concern.

The Columbia River deep draft navigation channel is an asset of national and international significance that provides strategic access to world markets that moved \$14 billion in cargo in 2000 alone. The channel enables industries in our region like Weyerhaeuser, Longview Fibre, Steelscape, and Kalama Export along with our public ports, to remain competitive in today's extremely volatile world trade scene. Of critical importance to this region, is that the industries that rely on the channel provide family wage jobs that are more difficult to create and even save today. In addition, channel commerce activity generates millions of dollars annually in state and local taxes through Cowlitz County ports that support our schools, public services and infrastructure. We think the technical review panel's findings on the project's benefit-cost bear this out; the benefits should be even greater at the regional level than the national scope of the original evaluation.

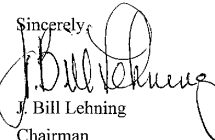
Counties of Cowlitz and Wahkiakum • Cities of Longview, Kelso, Kalama, Woodland, Castle Rock and Rainier, Oregon • Town of Cathlamet  
• Ports of Longview, Kalama, Woodland and Wahkiakum #1 & #2 • PUDs of Cowlitz and Wahkiakum Counties • School Districts of Longview,  
Kalama, Kelso, Woodland and Castle Rock • Beacon Hill Sewer District • Cowlitz 2 Fire & Rescue • Lower Columbia College • Lower  
Columbia Community Action Council • Cowlitz & Lower Columbia Economic Development Councils • Longview Housing Authority

Colonel Richard Hobernicht, Commander  
September 5, 2002  
Page 2

As you are well aware, concerns have been expressed by Wahkiakum County and the lower river ports and communities as to the potential impact of the channel deepening project and the effects of the existing navigation channel and shipping activities. These concerns and impacts to lower river ports and communities need to be addressed. Among these are insuring that erosion damage to Puget Island is addressed as soon as possible along with the siltation of side channels and Grays Bay that has impeded navigation access to ports and marinas and influenced flooding in river tributaries such as the Grays River. Wahkiakum County and the lower river ports group have not been idle, waiting for a "rescue." They have taken the initiative to coordinate the examination of environmental situations in the lower river and are identifying various needs and projects that should be pursued if and when the channel project moves ahead. The Columbia River Channel Coalition, through its board members and staff, have been working with the lower river group to address their concerns and how to solve some long ignored issues noted above.

Now, the channel deepening project is at a critical stage of moving ahead. Now more than ever, we stress its importance to the shaky regional economy and the fact that positive steps are underway to resolve impacts to the lower Columbia region. The Cowlitz-Wahkiakum Council of Governments, at its meeting on August 22<sup>nd</sup>, once again discussed the project, its status, its positive impacts and concerns of lower river groups and communities. Our conclusion: we urge the Corps of Engineers to proceed with the project and implement mitigation measures to resolve project related issues in the lower river.

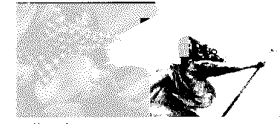
Again, thank you for making available this opportunity to comment.

Sincerely,  
  
J. Bill Lehning  
Chairman

JBL:SHH:nh

cc: Representative Brian Baird, U.S. Congress  
Senator Patty Murray, U.S. Senate  
Senator Maria Cantwell, U.S. Senate

007 Channel Letter to COE sh09-022



The office of  
**Vera Katz**  
Mayor Portland Oregon The City That Works

September 6, 2002

Commander, USAED-Portland  
Attn: CENWP-PM-F (CRCIP)  
PO Box 2946  
Portland, OR 97208-2946

Re: Columbia River Channel Deepening Project

Dear Sir,

I am writing on behalf of the Portland Business Alliance (the Alliance). The Alliance is the outgrowth of the merger of the Portland Metropolitan Chamber of Commerce and the Association for Portland Progress. We represent over 1700 Portland area businesses, from large global corporations to small local companies.

We want to express our strong support for the proposal to deepen the Columbia River Shipping Channel. This is an issue of utmost importance not only to our members but also to the entire region. Conservative estimates are that over 40,000 jobs in this region and state are dependent upon maritime activity flowing through the Port of Portland.

The Columbia River basin and the international trade that flows through it is a key component of the economy of the Western United States. The Corps Environmental Impact Statement does an excellent job of analyzing the benefits to the region and the nation of deepening the channel.

The Pacific Northwest is a major producer of agricultural and manufactured goods that are exported to world markets. Portland, Oregon is the second largest export port on the West Coast. These exports bring external dollars into the region and the country; they help the balance of trade between the U.S. and our foreign trading partners.

The economic benefits of the Columbia system spread beyond the western valleys to rural Oregon and Washington. In addition to the export of wheat and other commodities, the Port is the gateway for value added food processing, a growing industry in the Pacific Northwest in large part because of the container-on-barge system created by the Columbia River system. These family wage jobs are important to the diversification of the rural northwest's economy.

For all these reasons, we urge the Corps to proceed with the Columbia River Channel deepening project.

Sincerely,

  
Judy Pepper  
Chair, Public Policy Committee

SEP 04 2002  
10

September 9, 2002

Commander Hobernicht  
USACE-Portland  
Attn: CENWP-PM-F (CRCIP)  
P.O. Box 2946  
Portland, OR 97208-2946

Dear Commander Hobernicht:

I appreciate the fact that the U.S. Corps of Engineers took the time and effort to conduct a Supplemental Environmental Impact Statement (SEIS) on the Columbia River channel deepening, and I am pleased that you are holding public hearings to ensure that the process remains open and transparent.

Deepening the Columbia River channel to accommodate larger container vessels is a necessity if the Port of Portland is to remain competitive with other West Coast ports for container service in the 21st century. This is not a luxury item to boost trans-Pacific trade. This is about preserving access to world markets for our community and economic health of our region.

I am pleased that the SEIS has demonstrated a positive economic benefit of the project. The revised 1 to 1.5 cost-benefit ratio reflects strong national benefits despite recent downturns in international markets. In addition to these national benefits, this project will support the over 40,000 regional jobs and 1,000 businesses dependent on maritime trade. Direct container service through Portland will save these businesses over \$68 million a year.


It is imperative for the Corps and its partners to ensure that the project is not done at the expense of the treasured ecosystems of the Lower Columbia. The fact that NOAA Fisheries and the U.S. Fish and Wildlife Service have issued "no jeopardy" opinions on the Columbia River channel deepening project illustrates that the necessary environmental steps are falling into place. The City looks forward to future environmental review of the project.

With warm regards,

  
Vera Katz  
Mayor

SEP 04 2002  
10

DOWNTOWN OFFICE: 526 S.W. Yamhill Street, Suite 1000 • Portland, Oregon 97204 • 503-224-8684 • Fax: 503-323-9186  
CHINATOWN OFFICE: 221 N.W. Second Avenue, Suite 300 • Portland, Oregon 97209 • 503-228-9411 • Fax: 503-228-5126  
www.portlandalliance.com

 1221 SW 4th Avenue, Suite 340  
Portland, Oregon 97204-1995  
Phone: 503-823-4120 Fax: 503-823-3588  
TDD: 503-823-6868 www.ci.portland.or.us/mayor/

The City of Portland

Portland's Mayor: Vera Katz, Portland's City Manager: Thomas Stewart-Finney

I am Peter Williamson, Executive Director of the Port of St. Helens, representing the Port District. We are a sponsor of the proposed deepening project. Thank you for providing this chance for public comment on the Draft Supplemental Feasibility Report and EIS for the Columbia River channel deepening project, which is vitally important to the economic and environmental health of our region. With the completion of the Biological Opinions (by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service) and the completion of these Draft Supplemental reports, it is clear that this project can and should move forward to benefit the Columbia River's economy and environment.

CHANNEL DEEPENING IS IMPORTANT FOR OUR ECONOMY.

We must deepen the Columbia River navigation channel from 40 to 43 feet to maintain the vitality of this transportation route and our region's trade-based economy, especially during these difficult economic times.

Deepening the channel is critical to transporting the \$14 Billion in annual maritime cargo and to sustaining businesses, farms, and jobs in our region.

Deepening the channel will ensure that the Columbia River can accommodate the larger fuel-efficient ships that increasingly dominate the world trade fleet.

This project has broad-based support from businesses, labor unions, farmers, ports, and communities throughout the Northwest.

This project has the support of Columbia County's largest private employer, Boise and the Scappoose/St. Helens Chamber of Commerce.

Over 40,000 local family-wage jobs are dependent on and another 59,000 Northwest jobs are positively influenced by Columbia River maritime commerce.

This project will allow U.S. Gypsum to load their ships to 43' for raw materials at their new plant in Rainier. This will change the plant economics substantially.

Over 1,000 businesses rely on the Columbia to transport products around the world.

The vitality of these jobs and businesses require cost-effective marine transportation. Without a deeper channel, farmers and businesses will be damaged and jobs lost.

As the Supplemental Report estimates, the benefit-to-cost ratio for this project is strong with \$18.3 million in annual national transportation savings. I believe the estimates of \$1.46 in benefits for every \$1.00 in construction costs is actually quite conservative.

In addition, Northwest businesses and farms will gain major regional economic benefits from this project that cannot be and are not included in the Corps' analysis.

The economic benefits are large and diverse – rural and urban, east and west, Oregon and Washington – throughout our entire region.

Columbia River maritime commerce provides \$208 million dollars in state and local taxes that benefit communities throughout our region.

CHANNEL DEEPENING IS ALSO IMPORTANT FOR OUR ENVIRONMENTAL

This project will require dredging just 54% of the navigation channel – or only 3.5% of the total Columbia River between the mouth and Portland/Vancouver. The remaining areas in the channel are already naturally deeper than 43 feet.

This Supplement report is a key part of the project's extensive environmental review, which is important both to mitigating actual environmental impacts and to ensuring that we leave the river better off than it was before the project.

Achieving net environmental gains is a high standard for a project like this, but it is the right standard to apply. Ecosystem restoration will begin first. The project will restore areas not affected by the project.

The estuary and Ecosystem of the Columbia River are important and can be protected and enhanced while the channel deepening project advances.

An independent scientific panel was convened last year to review endangered species questions. The panel concluded that the deepening project will have no measurable negative effect on threatened and endangered fish in the river.

The Biological Opinions issued by National Marine Fisheries and U.S. Fish and Wildlife also demonstrate the environmental protections and benefits of this project.

It is significant that this report details beneficial uses for the clean sand dredged from the Columbia River. We must work to eliminate ocean disposal in order to protect crab and other ocean habitat, and this report demonstrates how this goal can be achieved.

The Port is scheduled to use this clean sand material for remediation of a former wood treatment facility, and for reclamation of an existing surface mine near the Scappoose Industrial Airpark which under current law is not required to be reclaimed by the current operations. This is in the area of Sauvie Island, and allows us to avoid negative impacts to the Wildlife refuge and provide these positive benefits to our local environment.

The Channel Deepening project will benefit our economy and our environment.

I urge you to finalize this Supplemental report and grant the pending regulatory permits and the Record of Decision to move this important project to completion.



1725 Ocean Avenue Raymond, Washington 98577 U.S.A.

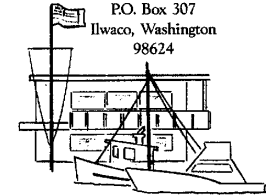
COMMISSIONERS

Timothy A. Bond  
Douglas D. Smith  
Gerald J. Heintz

Jim Neva, Manager

Commissioners  
FRANK UNFRED  
chairman  
PAUL C. POLILLO  
secretary  
JIM STIEBRITZ

PORT OF ILWACO



Mack Funk  
manager

Area Code 360  
Phone 642-3143  
FAX 642-3148  
www.portofilwaco.com

10 September 2002

Col. Richard Hobernicht  
Commander, USAED-Portland  
Attn: CENWP-PM-F (CRCIP)  
P.O. Box 2946  
Portland, OR 97208-2946

RE: Columbia River Deepening Project


Dear Col. Hobernicht:

The Port of Willapa Harbor would like to go on record in support of the Columbia River Deepening Project. We believe this is vital to the economy of the entire Pacific Northwest.

We cannot, as a region, remain competitive if ships are forced to leave our major ports without a full load due to an inadequate channel. This also has a great impact on the economy of the Midwest, which relies upon Northwest ports for shipment of their product.

We appreciate your efforts to move this project forward.

Sincerely,

  
Jim Neva, Manager  
PORT OF WILLAPA HARBOR

SEP 04 2002  
16

INDUSTRIAL SITES ON U.S. HWY. 101 • UTILITIES AND GENERAL CARGO DOCK  
AIRPORT, COMMERCIAL FISHING AND RECREATIONAL BOAT BASINS

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E-MAIL portofwh@willapabay.org

FAX (360) 942-5865

September 10, 2002

Col. Richard W. Hobernicht  
Portland District Commander  
US Army Corps of Engineers  
PO Box 2946  
Portland, OR 97208

Public Hearing on the Columbia River Channel Deepening Project

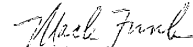
Dear Col. Hobernicht,

The Port of Ilwaco supports navigational dredging as an essential requirement for commercial activities. We strongly believe that dredge disposal practices should emphasize beneficial uses such as the placement of dredge material on Benson Beach in order to minimize the impact on crab fisheries.

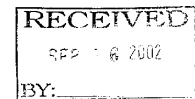
On September 3 the Port of Portland made a presentation in Ilwaco to tell us how they were using dredged material to improve wetlands. We learned that Multnomah County Oregon prohibits in-water disposal of certain dredged materials.

We understand that federal law requires you to employ the "least cost" option for dredged material disposal. I believe that the definition of least cost must be closely examined. For example consider how much money federal taxpayers are spending to undo the actions of the past in the swamps of Florida. Perhaps if the least cost was more carefully considered some of the "mistakes" made in Florida could have been prevented.

Sincerely,

  
Mack Funk

Cc: Davis Moriuchi



# Kalama Export Company LLC

2211 N. Hendrickson Drive  
Kalama, WA 98625  
Phone: (360) 673-3900  
Fax: (360) 673-3910

September 11, 2002

Colonel Richard Hobernicht  
Commander, USACE- Portland  
Attn: CENWP-PM-F  
P.O. Box 2946  
Portland OR 97208

Dear Mr. Hobernicht.

On behalf of Kalama Export Company, I am writing to express our support for deepening the lower Columbia River channel. It is vital to our region's economy that the channel depth be improved from forty to forty three feet.

Since this facility began operation in 1984 we have loaded more than 1600 Panamax class vessels with feed grains. This is almost 90 Panamax class vessels per year. On average due to present draft restrictions these vessels sail with 5700 metric tons of slack space. This is a 10% built in inefficiency.

A study done in 1993 determined that the loss of feed grain exports on the Columbia River would result in the loss of 763 regional jobs and \$54.5 million dollars in economic activity.

While, I have given you an example of our facility, Deepening the channel is critical to transporting the \$14 Billion in annual maritime cargo and to sustaining businesses, farms and jobs in our Region. Over 40,000 local family wage jobs are dependent on and another 59,000 regional jobs are positively influenced by Columbia River maritime commerce.

Deepening of the channel will not only mean more efficiency for existing vessels but also ensure that the Columbia River will accommodate the larger fuel-efficient ships of the future.

I urge you to finalize the supplemental report and grant the pending regulatory permits and the Record of Decision to move this important project to completion.

Thank you for the opportunity to share my views on the Columbia River Channel improvement project. Efforts by the Corp of Engineers to expedite completion of this important navigation improvement will be greatly appreciated.

Sincerely,



Steve Oakes  
Vice President of Operations

SEP 04 2002  
10c





September 11, 2002

US Army Corps of Engineers, Portland District  
Attn: Commander  
USAED-Portland (ATTN: CENWP-PM-B)  
PO Box 2946  
Portland, Oregon 97208-2946

RE: Columbia River Channel Deepening

The Oregon Economic and Community Development Department has reviewed the US Army Corps of Engineers' Final Integrated Feasibility Report for Channel Improvements and Environmental Impact Statement (EIS). The Oregon Economic and Community Development Department supports deepening the Columbia River channel to 43 feet as proposed in the EIS. We offer the following comments concerning the economic impacts of this proposal.

Maintaining economically competitive ports on the Columbia River is a key to Oregon's economy remaining competitive in a global market. The Columbia River serves as a vital trade corridor for Oregon's manufactured goods and agricultural commodities as well as a large share of the nation's grain exports. In 1997, approximately 30 million metric tons of cargo valued at \$13 billion moved through the lower Columbia River ports. This is due in part to the lower Columbia River providing the shortest route to Asian markets for exports. Asian markets not only receive the majority of the waterborne trade from the West Coast, but have also served as a critical component of Oregon's economic growth during this decade. The Oregon Economic and Community Development Department believes it is necessary to maintain a strong and direct link to Asian and international markets in order to ensure Oregon's current and future economic health and diversity.

The Oregon Economic and Community Development Department supports the analysis and conclusion of the EIS and the supplemental reports. The reports document that overtime there has been growth in the level of waterborne commerce on the Columbia River. With this growth we have seen an increase in the average vessel size due in part to the efficiency gains for

Page 2: Columbia River Channel Deepening

shippers using larger, deeper draft vessels to transport bulk items such as grain as well as containerized goods. Without deepening the channel, these vessels cannot come into Portland fully loaded, thus making the Columbia River ports less competitive. This creates market pressure to utilize California and Puget Sound ports, increasing the costs of shipping cargo to and from Oregon. If the Columbia River channel is not deepened, Oregon companies will probably lose business to other locations with lower transportation costs and Oregon consumers will simply have to pay more.

Sincerely,  
  
Michael A. Burton  
Assistant Director



Cook, Marci E NWP

**From:** Willis, Robert E NWP  
**Sent:** Thursday, September 12, 2002 8:37 AM  
**To:** Cook, Marci E NWP  
**Subject:** FW: C.R.Channel Improvement Project, Draft Int.Feas.Rpt. and

-----Original Message-----

**From:** betsey and thron [mailto:betr@seasurf.net]  
**Sent:** Wednesday, September 11, 2002 3:36 PM  
**To:** Willis, Robert E  
**Cc:** perryd@portptld.com; robert johnson  
**Subject:** C.R.Channel Improvement Project, Draft Int.Feas.Rpt. and EIS

Mr. Willis:  
 I attended the public hearing (referenced above) last night in Astoria and want to comment on an issue on which, as a Columbia River Bar Pilot, I might shed some light.  
 I cannot speak specifically to the beach erosion on Puget Island: that is the domain of my able colleagues in the River Pilots. However I can say that, from my point of view, ship speed and wake damage are not issues that will be exacerbated by deepening the channel to 43 feet. Deeper loaded ships are not necessarily faster or more hydrodynamically "incorrect". Speed, hull shape, channel topography and proximity to the bottom all contribute to wake formation.  
 Ships loaded to 43 feet travelling in the improved channel will no doubt travel at the same speed, and quite likely, absent turn wideners and the like, at slower speeds than now utilized. Slower speeds generally mean less wake.  
 There is constant research into the hydrodynamics of hull shape with a goal of reducing resistance thereby increasing efficiency (reducing fuel consumption)...reduction of resistance translates into less wake as there is a direct relation between resistance and wave formation. The better the hull design the less the wake. Bulbous bows and asymmetric sterns are examples of such improvements that come immediately to mind. No doubt more will follow considering the tremendous savings possible.  
 Channel topography is, to some extent, determined in the design phase. I presume that a similar percentage of ships will sail with minimum underkeel clearance in the 43 foot channel as now sail in the 40 foot channel.  
 Given the above, it is conceivable that less wake damage could occur on the river in the future, especially if the 43 foot channel is obtained.  
 As for safety, I doubt that a 43 foot ship in a 43 foot river (not bar) channel is appreciably more dangerous than the current 40 foot ship in the 40 foot river channel. In a similar vein, I imagine that better capacity utilization would result in less ships in the river, with less exposure to risk.  
 I am confident that the channel can be deepened in an environmentally responsible manner. Given the overwhelming evidence of economic and social benefits, along with an absence of demonstrably significant safety concerns, I urge that the 43 foot channel be pursued to completion.  
 Captain Thron Riggs  
 Columbia River Bar Pilots



International

LONGSHOREMEN'S AND WAREHOUSEMEN'S UNION

2435 N.W. FRONT AVE. PORTLAND, OREGON 97209 PHONE 503-224-9310 FAX 503-224-9311

Local 8

FAX MESSAGE

**TO:** Commander **Date:** 9-12-02  
U.S. Army Corps of Engineers  
**Fax Number:** 503-808-4756  
**From:** B. Holte  
**Total Number of Pages:** 4

If there are any problems with this fax, please call (503) 224-9310

Open!!!

**Supplemental Feasibility Report and EIS for the Columbia River channel deepening project, which is vitally important to the economic and environmental health of our region.**

- **With the completion of the Biological Opinions by the National Marine Fisheries Service and the U.S. Fish and Wildlife Service, and the completion of these Draft Supplemental reports, it is clear that this project can and should move forward to benefit the Columbia River's economy and environment.**

**CHANNEL DEEPENING IS IMPORTANT FOR OUR ECONOMY.**

- **It is imperative that the Columbia River navigation channel depth be increased from 40 to 43 feet to maintain the vitality of this transportation route and our region's trade-based economy.**
- **Deepening the channel is critical to the handling of the \$14 Billion in annual maritime cargo that flows up and down the Columbia River and to sustaining businesses, farms, and jobs in our region.**
- **Deepening the channel will ensure that the Columbia River can accommodate the larger fuel-efficient ships that are dominating the world trade fleet.**
- **This project has broad-based support from businesses, labor unions, farmers, ports, and communities throughout the Northwest.**

- **Over 40,000 local family-wage jobs are dependent on Columbia River maritime commerce and another 59,000 Northwest jobs are positively influenced by Columbia River maritime commerce.**
- Over 1,000 businesses rely on the Columbia River to transport products around the world.
- The vitality of these jobs and businesses require cost-effective marine transportation. Without a deeper channel, farmers and businesses will be damaged and jobs lost.
- As the Supplemental Report estimates, the benefit-to-cost ratio for this project is strong with \$18.3 million in annual national transportation savings. I believe the estimates of \$1.46 in benefits for every \$1.00 in construction costs is actually quite conservative.
- **In addition, Northwest businesses and farms will gain major economic benefits from this project that cannot be, and are not, included in the Corps' analysis.**
- **Columbia River maritime commerce provides \$208 million dollars in state and local taxes that benefit communities throughout our region.**

**CHANNEL DEEPENING IS ALSO IMPORTANT FOR OUR ENVIRONMENT.**

- This project will require dredging just 54% of the navigation channel – or only 3.5% of the total Columbia River between the mouth and Portland/Vancouver. The remaining areas in the channel are already naturally deeper than 43 feet.
- This Supplemental report is a key part of the project's extensive environmental review, which is important both to mitigating actual environmental impacts and to ensuring that we leave the river better off than it was before the project.
- Achieving net environmental gains are a high standard for a project like this, and it is the right standard to apply.
- The estuary and eco-system of the Columbia River are important and can be protected and enhanced while the channel deepening project advances.

- An independent scientific panel was convened last year to review endangered species questions. The panel concluded that the deepening project would have **no** measurable negative effect on threatened and endangered fish in the river.
- The Biological Opinions issued by National Marine Fisheries and U.S. Fish and Wildlife also demonstrate the environmental protections and benefits of this project.
- The channel deepening project will benefit our economy **and** our environment.
- I urge you to finalize this Supplemental report and grant the pending regulatory permits and the Record of Decision to move this important project to completion.

I appreciate the opportunity to submit comments for the record on behalf of the International Longshore and Warehouse Union, Local 8.

Sincerely,

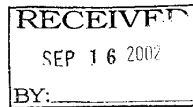
INTERNATIONAL LONGSHORE &  
WAREHOUSE UNION, LOCAL 8

  
Bruce Holte  
President

**INTERSTATE COLUMBIA RIVER IMPROVEMENT PROJECT (ICRIP)**  
**P.O. Box 3529**  
**Portland, OR 97208**  
**Port of Kalama            Port of Longview**  
**Port of Portland        Port of St. Helens**  
**Port of Vancouver      Port of Woodland**

September 13, 2002  
Mr. Robert E. Willis  
Page 2

September 13, 2002



Mr. Robert E. Willis  
Chief, Environmental Resources Branch  
CENWP-PM-E  
Post Office Box 2946  
Portland District  
U.S. Army Corps of Engineers  
Portland, Oregon 97208-2946

Comprehensive Environmental Response, Compensation, and Liability Act. We understand that at that time additional engineering and environmental review would have to be pursued for the Willamette channel improvements to be constructed.

The sponsor ports look forward to entering into a Project Cooperation Agreement (PCA) with the Corps of Engineers prior to construction of the project. The sponsor ports are capable of funding our obligations for cost sharing the proposed project. The states of Oregon and Washington have both appropriated the necessary non-federal cost share for the Columbia River navigation project. Specific details will be provided in the sponsors' financing plan to be submitted with the PCA.


We urge the Corps to complete the steps necessary to bring the project to construction as expeditiously as possible. We stand ready to carry out our obligations as non-federal sponsors.

Dear Mr. Willis:

Sincerely,

We are writing on behalf of the Interstate Columbia River Improvement Project (ICRIP), which consists of the following ports: the Ports of Kalama, Longview, Vancouver, and Woodland in Washington and the Ports of Portland and St. Helens in Oregon. We are pleased to serve as the non-federal co-sponsors for the Columbia River Channel Improvement Project and stand ready to fulfill our obligations as required for a federal navigation project.

  
Bill Wyatt  
Oregon Sponsor Representative  
Executive Director  
Port of Portland

  
Lawrence L. Paulson  
Washington Sponsor Representative  
Executive Director  
Port of Vancouver USA

We would like to reconfirm our support for the modified Columbia River Channel Improvement Project, as described in the Draft Supplemental Integrated Feasibility Report and Environmental Impact Statement (IFR/EIS).

We support the proposed project including modifications made as a part of the Endangered Species Act consultation and subsequent Supplemental EIS, which will provide improved habitat for Lower Columbia River endangered fish and wildlife. The preferred project alternative beneficially uses dredged material to create habitat, avoids ocean disposal for project construction, and delays ocean disposal of maintenance material for up to ten years. The ecosystem restoration features, adaptive management, monitoring and ecosystem research added to the channel project ensure the project meets the high expectations of the citizens of this region for an environmentally sound and economically viable project.

All six sponsors continue to support the recommendation to delay the construction of the Willamette River channel improvements until resolution of sediment cleanup issues associated with its designation as a federal National Priorities List site under the



**WASHINGTON WHEAT COMMISSION**

907 W. Riverside Avenue • Spokane, Washington 99201-1006  
(509) 456-2481 • FAX (509) 456-2812

September 13, 2002

Colonel Richard Hobernicht  
Commander, USAED-Portland  
Attn: CENWP-PM-F (CRCIP)  
P.O. Box 2946  
Portland, OR 97208-2946

Dear Colonel Hobernicht:

On behalf of the Washington Wheat Commission (WWC) and the Washington Association of Wheat Growers (WAWG), we express appreciation for the opportunity to provide comment on the Draft Supplemental Feasibility Report and the EIS for the Columbia River channel deepening project; a project that is vitally important to the economic and environmental health of our region. We support the deepening of the Lower Columbia River channel.

Portland is THE largest wheat export port in the U.S. and the second largest grain-exporting center in the entire world. A large share of this exported wheat originates from Washington farms. Over 85 percent of our wheat production is exported to customers around the globe with the Washington wheat industry ultimately generating over one billion dollars to Washington's economy alone. Thus, there are clearly regional benefits to the project.

This project is also of national significance as grain from across the country moves through the Lower Columbia gateway. Competitor grain exporting nations are continually enhancing infrastructure to meet changing transportation needs and to increase efficiency. Now, with the completion of the Biological Opinions and Draft Supplemental reports, it is clear the project can and should move forward so that the U.S. can likewise meet its regional and national transportation needs.

It is encouraging that the environment will also benefit from the project. We note the conclusion of an independent scientific panel last year that the deepening project will have no measurable negative effect on threatened and endangered fish in the river. Likewise, beneficial uses of the clean sand dredged from the Columbia River have been detailed.

Please note the Washington wheat industry's support of the deepening project. We encourage the granting of regulatory permits and the Record of Decision to move this important project to completion.

Sincerely,

James R. White  
Chairman  
Washington Wheat Commission

Bruce Nelson  
President  
Washington Association of Wheat Growers

September 10, 2002

Commander USACF  
Portland, Or.

In regard to the deepening of the Columbia River channel, I am totally in favor. As a long time resident of the coast I can remember fishing interests and others, opposing each and every opportunity to improve the economics of the region.

Commercial fishing out of Astoria has been declining for many years. Canneries etc. have been closed or have moved to other locations. The thousands of sport fishermen that depend on the lower Columbia provide economic support for the area,

Astoria needs to attract some type of industrial activity that will provide jobs. The Columbia is, and has always been a great asset. Lets use it to full advantage.

Keith Olds  
715 S, Franklin  
Seaside, Or. 97138

- My name is Tony Galati. I'm the district manager of Hyundai America Shipping Agency which is a wholly-owned subsidiary of Hyundai Merchant Marine based in Seoul, South Korea. Hyundai has been my employer for the last 14 years. Our container ships call weekly in the Columbia River.
- I am grateful you have provided this opportunity to speak to the issue of Columbia River Channel deepening. It is something I think is economically essential to the region.
- Since graduation from college 23 years ago, my livelihood has been derived, almost exclusively, from Columbia River-generated commerce. I am on intimate terms with the needs of producers, suppliers, importers, exporters, and especially shipping lines, whose profitabilities are also centered on a viable channel.
- While I can't speak to some dimensions that this channel deepening issue involves – because I'm not an expert on the technical and environmental sides of it – there are two points I would like to specifically address, points that I am qualified to answer to.
- The first is this: I was hired 14 years ago by Hyundai when Hyundai decided to resume active calls at the Columbia River. We have had weekly calls ever since, and the likelihood is that those calls will continue well into the future, given certain conditions. One of those conditions is very simple: a channel that is deep enough to safely accommodate a newer generation of ships. 14 years ago this was not so much of a problem, although at that time, periodically, the timing of transit of fully loaded ships was oriented to tidal behavior to ensure enough clearance for safe transit. The big difference between then and now is the fact that today's vessels are much larger and carry deeper drafts and channel depth has become a constant, rather than periodic, issue.  
Today's ships are 2 and a half to 3 times larger than ships back then. A direct consequence for Hyundai today is that we are now sailing, after loading at Portland, 11 to 16 percent lighter than actual vessel capacity. This is a huge sacrifice for Hyundai to make to continue to service this market, but it demonstrates the importance they have identified with this region. Nevertheless, it could be a transitory thing

because it's clear that, with newer technologies, as vessels sizes grow, unless the Columbia River meets new demands this region will no longer be able to compete for direct container vessel service. An additional 3 feet in the channel would give us, and our competitors, a significant edge in maintaining direct calls.

- That leads to my second point: should transit of vessels become impossible, this region, in my opinion, would face insurmountable problems. Space on container ships is a limited thing and the ocean freight we charge is relative to a simple supply and demand structure. When vessel capacity is in heavy supply, ocean freights are low, and when vessel capacity is limited, rates go high. There are currently 3 Transpacific carriers offering container service in the Columbia River, and several others who lease space from us. Losing routine and competitive service here, in other words "limiting supply" would have an awful impact on this region because it would permanently raise ocean freight rates and render many of the commodities produced here uncompetitive with other regions on the west coast. Some high value commodities would be able to absorb higher costs, but many of the lower valued cargoes would not, at least consistently, simply because a substantial increase in transportation costs would make those commodities unattractive to foreign buyers who will be able to buy more cheaply from other, and likely foreign, sources.
- I urge you to grant the permits and approvals to move this project to completion. Thank you for listening to me.

From: Robert Johnson [mailto:realjohn@pacifier.com]  
Sent: Thursday, September 12, 2002 7:23 PM  
To: Robert.E.Willis@usace.army.mil  
Cc: perryd@portptld.com; Sebastian DEGENS  
Subject: Channel Deepening

CHANNEL DEEPENING COMMENTS:

Dear Mr. Willis:

After attending the Channel Deepening meeting in Astoria Sept. 10th I am compelled to comment on a few points relating to this project. I make these comments as an active Columbia River Bar pilot and one intimately familiar with the daily workings of commerce on the River. Further, I was the Time Charter Operations Manger for a major grain trading company earlier in my career giving me insight into the business of shipping.

The need for channel deepening is obvious and paramount to the continued commercial viability of the Columbia River. The economic engine to Northwest business provided by international trade is irrefutable. A large percentage of the containers leaving the River are carried on ships which can only be partially load due to draft restrictions. The large main haul lines going to the Far East, the home of our largest trading partners, will without question load deeper and utilize the deeper channel. Panamax bulk carriers carrying feed grains will be able to load cubically full at about 43' so will utilize the deeper channel. We are presently loosing significant volumes of potash exports because panamax vessels are loaded in Canada rather than Portland due to the 40' draft restriction. Handymax bulkers are becoming a much bigger portion of the vessel mix in the bulk trades. With a load draft of about 38' they will utilize the deeper channel to widen the window of when they can transit the River saving valuable time. As one on the bridge guiding these large vessels with very close underkeel clearance and setting the restrictions on their sailings I know how the River system is being pushed and the regular need for a deeper channel. Recently the Bar Pilots had a request to load a ship to 39' in Portland and bring it to Astoria for further loading. This was not done because it is not a safe or an economically viable practice. We need a deeper channel so fully loaded ships can transit the River to sea.

My chartering experience taught me much about shipping economics. I find the comments in the press and bandied about in the public that "the benefits of channel deepening will be reaped by foreign shipping companies" to be far from reality. What is actually said in the study is that foreign containership operators will benefit. In the short run that may be true. They will gain the initial profit. However competition will soon drive down rates and the gain will be shared by all the parties utilizing container transport. In the bulk arena, charter market competition in the transpacific trade will translate quickly into lower freight rates. In commodities trading, where a few cents per unit can be the profit margin, a lower freight rate will make American commodities and the Columbia River more competitive in the international market.

The debate over channel deepening has been long and arduous for all sides. Much ground has been given by people with vastly different views. We are at an equitable middle point and it is now time to put the plan to action and move forward so the benefits of a 43' channel can start to be gained.

Thank you.

Capt. Robert W. Johnson