National Marine Fisheries Service (NMFS)
and
U.S. Fish and Wildlife Service (FWS)

Columbia River Channel Improvements Project
Common Questions and Answers on the Biological Opinions

May 20, 2002

1. What are the conclusions of the 2002 Biological Opinions?

- Computer modeling and analysis indicates that dredging of the navigation channel will not, in the short term, adversely impact ESA-listed fish habitat.
- Lower Columbia River and estuary water depths will change only slightly (less than 2 inches near Vancouver and no difference in depth in the estuary).
- Water currents will not change in important listed fish habitats.
- Slight increases in salinity will occur within the estuary, but these increases will not reach important fish habitats.
- No additional habitat for predaceous birds will be created.
- Listed fish will not be pumped into dredges during operations, nor will they be exposed to explosives.
- Listed fish will not experience more stranding from ship wakes.
- There remains some uncertainty as to whether, after the navigation channel deepening occurs, some adverse impacts to listed fish habitats may be discovered. Therefore, a long-term, comprehensive monitoring program has been developed to track any unforseen changes in listed fish habitat, and an adaptive management process will be charged with altering or stopping the project, should any unforseen impacts be discovered.

2. Was "best available science" used in the 2002 Biological Opinions?

Yes. NMFS and FWS provided a public forum for collecting any new information on project impacts. All new information was considered in our analysis. Best available science included information identified during the Sustainable Ecosystems Institute science panel process, from NMFS' Northwest Fisheries Science Center, the Corps' 2001 Biological Assessment, and additional information identified by a multi-agency biological review team.

Two computer models evaluated changes to Columbia River estuary and river habitats. A "conceptual model" of the Columbia River ecosystem was used to guide our analysis

process. The multi-agency biological review team used these analytical tools to interpret short- and long-term changes to the lower Columbia River and estuary.

3. How does the project benefit the ecosystem?

Numerous habitat restoration projects will be constructed in shallow water and shoreline areas. Projects will occur from the estuary upstream to near-Vancouver. Restoration projects will occur in the areas of the lower Columbia River and estuary that have been most impacted by historic development projects. The habitat restoration projects will help restore these previously degraded areas, and therefore benefit listed species, especially juvenile salmon and trout. These habitat restoration projects are not designed to offset impacts of dredging; our analysis indicates the navigation channel dredging will have limited impacts to important, shallow water habitats. These restoration projects were collaboratively proposed by NMFS, FWS, the Corps, and Ports to help with the conservation of listed species and their habitats. The ecosystem restoration features of the project will restore 3,420 acres of habitat for listed fish; another 2,250 acres which will benefit ecosystem function but are not specific to listed fish species' habitat, and one project which will make available 38 miles of currently inaccessible salmonid habitat.

Several research projects will be implemented to help support ongoing ecosystem research in the lower Columbia River. These research projects will investigate location, methods of accumulation, and impacts of contaminants; habitat use by listed fish; and map all habitat features in the estuary.

4. What are NMFS and FWS requiring in their 2002 Biological Opinions?

NMFS and FWS worked collaboratively with the Corps to add numerous protective actions during dredging. These actions include dredging methods to ensure fish aren't pumped into dredge machinery, and management plans to contain any oils or other fluids that are accidentally spilled.

NMFS and FWS are requiring additional protective measures to ensure the Corps minimizes impacts on listed species. A contaminants team will annually review all information on contaminants and ensure additional contaminants sampling and analysis is completed. The Corps will investigate fish stranding caused by ship wakes, and work with the Coast Guard to adjust ship speeds, if necessary. The Corps will minimize pumping of fish into the dredge by careful monitoring and requirements to keep the dredge "drag head" under the river bottom. To minimize turbidity effects, the Corps will release dredged materials below 20 feet and into deep water areas that are less used by listed fish. The Corps shall ensure fish are not impacted during blasting of a single underwater rock formation. The Corps shall operate shallow water dredging and disposal activities within "in-water work windows". The Corps will carefully monitor

longer-term changes to shallow water beaches, marshes, and other important fish habitat features. A long-term monitoring program will track project impacts and ensure that unanticipated effects can be rapidly addressed.

5. What are the major differences between NMFS's 1999 Biological Opinion and its 2002 Biological Opinion?

The major differences between the two documents are in their level of detail and changes in the 2002 Biological Opinion to minimize effects from the project on ESA-listed species:

- The 2002 Biological Opinion has a more detailed analysis of effects than the 1999 Opinion.
- The 2002 Biological Opinion includes an analysis based on the 2001 Biological Assessment that for the first time rates certain indicators in terms of their effect on, among other things, the habitat and food sources most important to juvenile salmonids. There was no such analysis of risk and uncertainty in the 1999 Biological Assessment or Biological Opinion.
- The 2002 Biological Opinion evaluates the Corps's monitoring activities is much more detail than did the 1999 Biological Opinion. Monitoring will give us important new information as the project proceeds and help us predict certain effects on ESA-protected species. The monitoring will also reduce the overall risk and uncertainty of the project. In addition, the monitoring program itself is considerably more detailed than the one provided in 1999.
- The 2002 Biological Opinion will use what we learn from the monitoring program as the project progresses. That will help us manage it better. The adaptive management process will evaluate whether the Project's environmental protection objectives are being met and ensure that construction and maintenance are adjusted accordingly. This adaptive management process was not included the 1999 Biological Assessment or the 1999 Biological Opinion.
- The 2002 Biological Opinion includes an analysis of a number of estuary restoration features designed to restore habitat important to ESA-protected species, such as tidal marsh, and shallow water and flats. For example, the Lois Island Embayment and Miller-Pillar ecosystem restoration will use dredged material to return these areas closer to historic conditions, including natural recolonization by native plants and animals in intertidal marsh, mud flats, and subtidal habitats. In addition, one restoration project would restore habitat and reintroduce Columbian white-tailed deer to Cottonwood and Howard islands. The ecosystem restoration features of the project will restore 3,420 acres of habitat for listed fish; another 2,250 acres which will benefit ecosystem function but are not specific to listed fish species' habitat, and one project which will make available 38 miles of currently inaccessible salmonid habitat.

6. NMFS' 1999 requirement for project mitigation is missing. Why did NMFS remove this habitat mitigation requirement?

In 1999, NMFS required the Corps to implement approximately 5,500 acres of habitat restoration to offset project impacts. This requirement was based on "best available science" in 1999. In 1999, limited information was available regarding project impacts, and much greater uncertainty existed as to the short- and long-term effects of the project. When NMFS withdrew its biological opinion in 2000, the entire project was re-evaluated. Additional information was developed that provided more understanding of project effects than was possible during the 1999 analysis. The complete re-evaluation of the project led to a different requirement for habitat impact compensation.

Between 1999 and 2002, additional computer modeling of project impacts to sensitive fish habitats indicated minor project effects. In addition, a science panel was convened to review the NMFS concerns identified in the 1999 Biological Opinion. Additional data was developed from the science panel process, including a conceptual model and an inter-agency biological review team. These new data and analyses were not available in 1999. These new data and analyses are the current "best available science", and form the foundation for a completely new ESA review. The "best available science" indicates limited impacts to fish habitat from the project. Based on these new 2002 data and expanded analyses, NMFS has determined that mitigation for habitat impacts was not required.

However, the Corps' recognizes its Endangered Species Act responsibility to assist with listed species conservation. Therefore, the Corps has agreed to implementing numerous ecosystem restoration projects, which will directly benefit listed species' habitats in the Columbia River. These restoration actions will be funded by the Corps, and are integral components of the project. The FWS and NMFS supports the Corps' proactive efforts to restore important river and estuary habitats, and thereby benefit the conservation of these listed species. The ecosystem restoration features of the project will restore 3,420 acres of habitat for listed fish; another 2,250 acres which will benefit ecosystem function but are not specific to listed fish species' habitat, and one project which will make available 38 miles of currently inaccessible salmonid habitat.

7. What are the major differences between FWS' 1999 Biological Opinion and FWS' 2002 Biological Opinion?

The FWS' 1999 Biological Opinion analyzed project effects to bald eagle and Columbian white-tailed deer. The FWS' 1999 analysis found minor impacts to these species. The 1999 Biological Opinion required the Corps to carefully monitor impacts to these species, to ensure their habitats were not harmed. In addition, the Corps was required to do additional contaminants testing to avoid impacts to nesting bald eagles.

The FWS' 2002 Biological Opinion updates the 1999 document. Additional "best available information" is used to analyze the effects of ecosystem restoration activities on bald eagle and Columbian white-tailed deer. These restoration projected will have limited short-term impacts, and, in the long-term, will be greatly beneficial to the conservation of these FWS species.

The 2002 FWS Biological Opinion also reviews project effects to coastal cutthroat trout and bull trout. Impacts to important habitats for these fish species will be limited. The project's monitoring program will ensure the impacts are not greater than anticipated, and the adaptive management program will adjust the project to ensure that impacts are minimized.

8. NMFS and FWS have expressed concerns about contaminants. Are they really a problem?

Dredging and disposal of dredged materials can increase the amount of contaminants in the Columbia River. Contaminants released during dredging and disposal can transfer into listed species, and cause impacts to growth, health, survival, and reproduction. NMFS withdrew their 1999 biological opinion, in part, because of limited information at that time regarding contaminants in the Columbia River system.

Additional information has been collected and analyzed since 1999 on contaminants in the Columbia River system. The Corps reviewed existing contaminants samples from the Columbia River and estuary. Not one sample in the navigation channel, where project dredging will occur, exceeded current Environmental Protection Agency or NMFS contaminant thresholds. In addition, the Sustainable Ecosystems Institute science panel carefully reviewed available information on contaminants and project impacts to fish from these chemicals. As a result of these new analyses, the NMFS and FWS have determined it unlikely that the project will increase contaminant levels in the Columbia River to risk the health and survival of listed species.

However, NMFS and FWS are requiring a contaminants review team to monitor impacts of contaminants during project activities. This team will review all new contaminants information and determine when additional contaminants sampling is necessary. In addition, research into impacts of contaminants on listed fish, as well as investigations into the pathways that contaminants enter into listed fish, will be funded by the Corps. These contaminants research and monitoring data will be used to adjust the project in the future, and thereby ensure that effects from contaminants are minimized.

9. NMFS and FWS have been concerned that the project will harm listed species and their habitats. What are the main impacts from the project?

NMFS withdrew their 1999 Biological Opinion, in part, because of the need for more analysis on impacts to important fish habitat in the Columbia River. Fish and their important habitats could be harmed during project dredging and disposal activities, or could be harmed into the future as the ecosystem "adjusts" to the new, deeper navigation channel.

NMFS and FWS were concerned that listed fish and their prey could be impacted in the short-term during dredging and disposal activities. During dredging in the deep water (>40 feet) navigation channel, listed fish and their prey may be pumped into a dredge and killed. Dredging and disposal can create turbidity, which can cause fish to move away from these project activities and can alter fish prey availability. Dredging and disposal can change the water depth, and the river-bottom contour, thereby changing underwater fish habitat. Removal of a single, deep water rock formation will require blasting, which could injure or kill fish.

NMFS and FWS therefore carefully negotiated protective measures that will minimize and avoid short-term impacts to listed fish. Monitoring and dredging restrictions, including keeping the dredge "cutterhead" in the river bottom where fish don't occur, will ensure fish are not pumped into dredges. Blasting restrictions, including timing restrictions and minimizing the "blast zone", will avoid impacts to fish. Disposing of dredged materials may create turbidity problems for fish, but turbidity "plumes" will be minimized by disposal of materials into deeper water areas that have fewer fish. Dredging will change the river bottom contour, however, these deep water areas are not extensively used by listed fish. Limited short-term changes in some sandy beach habitats will occur, but no short-term changes to marsh and swamp habitats are anticipated. Monitoring will carefully track any short-term changes in shoreline, marsh, and swamp habitats.

NMFS and FWS were also concerned that, in the long term, as the ecosystem adjusts to the deepened navigation channel, important shallow water marsh and swamp habitats, and the food resources important to listed fish, could be impacted by changes in river currents, water depths, and salt water from the ocean.

Since 1999, additional analysis and documentation of ecosystem impacts have occurred. These state-of-the-art models indicate that the main impacts to Columbia River and estuary water depth and velocity will occur in the navigation channel, not in important marsh and swamp habitats. These predicted habitat changes in the navigation channel are small, and have minor impact to listed fish. The models do indicate that ocean salt water will extend farther into the estuary than currently. However, the models indicate the new salt water extension will mainly occur in the deep water navigation channel, and will not impact listed fish, fish prey, or important marsh and swamp habitats.

FWS and NMFS believe, based on the new information and protective measures developed since 1999, including scientific review, the comprehensive monitoring

program, and the long-term adaptive management program, that the project will not further degrade Columbia River habitats.

10. Will the project create more habitat for predatory birds?

No. While this has been a problem in the past, the Corps will not be depositing material in areas that could be used as habitat by predatory birds that feed on listed fish.

11. Will fish in deep water areas be affected?

Listed fish can be found throughout all water depths in the lower Columbia River and estuary. However, best available data indicate that most listed fish are migrating, rearing, and resting within the upper 20 feet of the water column. By restricting most project activities, such as dredging and disposal, to water depths greater than 20 feet, most fish impacts are avoided.

12. How can NMFS and FWS issue a No-Jeopardy conclusion if the lower Columbia River and estuary are degraded?

NMFS and FWS recognize the importance of the lower Columbia River and estuary to listed fish, and also recognize that these ecosystems are degraded. Most of the listed fish species pass through the lower Columbia River and estuary on their way to the ocean and back into freshwater to spawn. Therefore, to ensure the long-term survival and recovery of these listed fish populations, it is important to ensure the project won't further degrade these important fish habitats.

The two biological opinions review the status of the listed fish populations, as well as the current habitat conditions in the lower Columbia River and estuary. Extensive information has become available since 1999, which indicate the project will have limited short-term impacts to listed fish and their important habitats. Future project impacts will be monitored, and an adaptive management program will alter or halt the project, as necessary. Therefore, even though NMFS and FWS acknowledge the lower Columbia River and estuary are degraded, the project's limited impacts will not jeopardize the continued existence of listed species.

13. Why were the number of acres required for "mitigation" reduced from the 1999 Biological Opinion to the 2002 Biological Opinion?

In the 1999 opinion, NMFS identified about 5,500 acres of habitat that could be used to offset the effects of the project. NMFS subsequently withdrew that biological opinion in part because that habitat restoration did not occur.

Based on the analysis in the 2001 Biological Assessment and 2002 Biological and Conference Opinions, NMFS and FWS now believe that the short-term direct effects to habitat important to the survival and recovery of ESA-protected species are limited and habitat mitigation was considered unnecessary.

Instead, in its 2001 Biological Assessment the Corps proposed to expand ecosystem restoration and is committed to implement those actions. While not as much acreage was identified as in the 2002 Biological Opinion, the new projects are much more likely to be completed successfully. Moreover, they restore the type of habitats important to helping ESA-listed species. The Corps will pay for these restoration projects. The ecosystem restoration features of the project will restore 3,420 acres of habitat for listed fish; another 2,250 acres which will benefit ecosystem function but are not specific to listed fish species' habitat, and one project which will make available 38 miles of currently inaccessible salmonid habitat.

14. Based on a recent court ruling, is NMFS still analyzing impacts to critical habitat from the project?

Critical habitat was designated for the ESA-listed salmonids in this consultation. However, shortly before Biological Opinion was signed a federal court vacated the critical habitat designations for all the salmon population considered in this document except for Snake River sockeye, Snake River spring/summer chinook, and Snake River fall chinook. However, the analysis and conclusions regarding critical habitat will help NMFS application of the jeopardy standard even though they no longer have independent legal significance.

If critical habitat is redesignated before the Corps' proposed action is fully implemented, the analysis will be relevant when determining whether a reinitiation of consultation will be necessary at that time. For these reasons and the need to timely issue the NMFS 2002 Biological Opinion, the critical habitat analysis has not been removed from the document.

15. What are the ESA Proposed and Listed Species of Concern to this Reconsultation?

Chinook Salmon:	Snake River fall, spring/summer; Lower Columbia fall; Upper Columbia spring; Upper Willamette spring
Chum Salmon:	Columbia River

Sockeye Salmon: Snake River
Steelhead Trout: Snake River Basin, Upper, Middle, Lower Columbia; Upper Willamette
Coastal Cutthroat: Southwestern Washington/Columbia River
Bull Trout: Columbia River
Steller Sea Lion
Bald Eagle
Columbian White-tailed Deer

16. What were the key issues that prompted NMFS to withdraw its No Jeopardy Biological Opinion and led to reconsultation?

NMFS withdrew its Biological Opinion because, as it said in an August 25, 2000, letter to the Corps "to date, our agencies have not been able to reach consensus on the specific details of some of these studies (e.g., monitoring and modeling), which calls into question the conclusions of the biological opinion."

NMFS also completed further studies on the effects on the shape of the river bottom on the ecological conditions of the estuary and discovered that salmon may be susceptible to a wider range of sub-lethal impacts from certain contaminants that could re-released or redistributed to shallow-water habitats during dredging.

In its letter NMFS said it expected the Corps to accomplish the following:

- Thoroughly assess the implications of any relevant new information (e.g., the configuration of the estuary bottom, changes to the ecological conditions of the estuary; and the potential for redistribution of toxic chemicals during channel construction);
- Reach agreement on the specific details of required studies and monitoring, and a schedule for conducting this work;
- Clarify expectations for the completion of restoration work; and
- Make the necessary refinements in conservation measures provided in the biological opinion.

All of these requirements have been addressed.

17. How have NMFS and FWS consulted with the Tribes?

Pursuant to our responsibilities under Secretarial Order 3206, NMFS and FWS met with the Tribes that are members of the Columbia River Inter-Tribal Fish Commission (CRITFC), as well as CRITFC staff. We have discussed CRITFC's concerns about the project. NMFS and FWS carefully considered those concerns and addressed as many as possible in the development of the 2002 Biological Opinions. NMFS and FWS have

recommended that the Corps include CRITFC in the Project's research, monitoring, and adaptive management processes.

18. What is the relationship of the December 2000 Federal Columbia River Power System (FCRPS) Hydropower Biological Opinion to NMFS' 2002 Columbia River Channel Improvements project Biological Opinion?

Terms and Conditions:

NMFS believes that the monitoring program, adaptive management process, ecosystem research actions, and ecosystem restoration features provide the Corps with the opportunity to integrate elements of the project into a broader set of research objectives and restoration activities in the Columbia River Basin (i.e., estuary action items in the All-H paper and the FCRPS Hydropower Biological Opinion). The 2002 Biological Opinion includes Term and Conditions mandating the Corps to coordinate with the Bonneville Power Administration to provide information necessary for them to carry out Action item 162 and to ensure that the monitoring program is consistent with Action items 158, 159, 161, and 163 of the FCRPS Hydropower Biological Opinion.

Conclusions of Each Opinion:

The conclusions of the FCRPS Hydropower Biological Opinion and the 2002 Biological Opinion for the Columbia River Channel Improvements project complements one another. Both conclusions acknowledge the importance of the Lower Columbia River and estuary to ESA-listed salmonids. Estuary actions items of the FCRPS Hydropower Biological Opinion have been integrated with the Terms and Conditions of the 2002 Biological Opinion for the Columbia River Channel Improvements Project.

FCRPS Hydropower Biological Opinion Litigation:

The implementation of the FCRPS Hydropower Biological Opinion is currently undergoing a court-ordered mediation process. NMFS and the Action Agencies continue to implement the estuary action items that are also identified in the 2002 Biological Opinion for the Columbia River Channel Improvements Project.