Endangered Species Act - Section 7 Consultation Biological Opinion

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Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation

Smith and Bybee Lakes Habitat Improvement Project,
Willamette River, Multnomah County, Oregon

Agency:	U.S. Fish and Wildlife Service
Consultation Conducted By:	NOAA's National Marine Fisheries Service, Northwest Region
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Issued by:	for Michael R Course D. Robert Lohn Regional Administrator
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1. INTRODUCTION

1.1 Background and Consultation History

On March 19, 2002, NOAA's National Marine Fisheries Service (NOAA Fisheries) received a letter from the U.S. Fish and Wildlife Service (USFWS) requesting informal consultation on the proposed project to construct a water control structure in Smith and Bybee Lakes, Oregon. In the biological assessment (BA) attached to the March letter, the USFWS noted that studies done in December 2001 had documented the presence of chinook salmon (presumed to be of the Upper Willamette River ESU) in the North Slough arm of the Columbia Slough.

In addition, because of proximity of Smith and Bybee Lakes to the Columbia River and the Columbia Slough, other anadromous fish may occur within the action area. These include Upper Columbia River (UCR) chinook salmon (*Oncorhynchus tshawytscha)*, Lower Columbia River (LCR) chinook salmon, LCR steelhead (*O. mykiss)*, Middle Columbia River (MCR) steelhead, Upper Columbia River (UCR) steelhead, Upper Willamette River (UWR) steelhead, Snake River spring/summer-run chinook salmon (*O. tshawytscha),* Snake River (SR) fall-run chinook salmon, SR sockeye salmon (*Oncorhynchus nerka*), SR steelhead (*O. mykiss)*, and Columbia River chum (*Oncorhynchus keta*). References and dates listing status and ESA section 4(d) take prohibitions are can be found in the Federal Register notices summarized in Table 1.

In June 2002, the cooperating partners on the project, Ducks Unlimited (DU) and Portland Metro, determined that the need to work on design of the water control structure would delay the project until the following year, and consultation was suspended while the design was completed.
In meetings with Metro and DU in April 2003, NOAA Fisheries advised the partners that the potential presence of listed salmonids during the period of proposed construction, and uncertainty about whether or not migrating juveniles might become trapped in the lakes post-drawdown, would necessitate the issuance of an incidental take statement. Formal consultation was initiated. At the same time, design features of the water control structure and the proposed schedule of drawdown were discussed. On May 15, 2003, the project design was finalized and approved by NOAA Fisheries Hydro Division personnel responsible for evaluating the fish passage features.

NOAA Fisheries prepared this Opinion to address impacts to all potentially affected, listed species that may be present in the project area during construction and during all subsequent seasons once the water control structure is operative. The objective of this Opinion is to determine whether the actions, including the proposed mitigation measures, are likely to jeopardize the continued existence of the above listed species.

Table 1. References for Additional Background on Listing Status, Biological Information, and Critical Habitat Elements for the Listed and Proposed Species Addressed in this Opinion.

Species	Listing Status	Critical Habitat	Protective Regulations	Biological Information, Historical Population Trends
Upper Willamette River chinook salmon	March 24, 1999; 64 FR 14308, Threatened	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Myers *et al.* 1998; Healey 1991
Upper Willamette River steelhead	March 25, 1999; 64 FR 14517, Threatened	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Columbia River chum salmon	March 25, 1999; 64 FR 14508, Threatened	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Johnson *et al.* 1997; Salo 1991
Lower Columbia River steelhead	March 19, 1998; 63 FR 13347, Threatened	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Middle Columbia River steelhead	March 25, 1999; 64 FR 14517, Threatened	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Upper Columbia River steelhead	August 18, 1997; 62 FR 43937, Endangered	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Snake River Basin steelhead	August 18, 1997; 62 FR 43937, Threatened	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Busby *et al.* 1995; 1996
Snake River sockeye salmon	November 20, 1991; 56 FR 58619, Endangered	December 28, 1993; 58 FR 68543	November 20, 1991; 56 FR 58619	Waples *et al.* 1991a; Burgner 1991
Lower Columbia River chinook salmon	March 24, 1999; 64 FR 14308, Threatened	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Myers *et al.* 1998; Healey 1991
Upper Columbia River spring-run chinook salmon	March 24, 1999; 64 FR 14308, Endangered	Remanded May 7, 2002	July 10, 2000; 65 FR 42422	Myers *et al.* 1998; Healey 1991
Snake River spring/summer-run chinook salmon	April 22, 1992; 57 FR 14653, Threatened	December 28, 1993; 58 FR 68543	April 22, 1992; 57 FR 14653	Matthews and Waples 1991; Healey 1991
Snake River fall chinook salmon	April 22, 1992; 57 FR 14653, Threatened	December 28, 1993; 58 FR 68543	April 22, 1992; 57 FR 14653	Waples *et al.* 1991b; Healey 1991

1.2 Proposed Action

The proposed project is the construction of a water control structure on Smith and Bybee Lakes, near the confluence of the Columbia River and the Willamette River. The lakes are on a peninsula of land in between the Columbia River and the Columbia Slough (see Figure 1).

The project applicant, USFWS, proposes to remove an existing dam and flap gate and replace it with a large, multi-celled water control structure with a fish ladder design that will allow fish passage, and that will permit seasonal flooding. The current structure does not allow for the free flow of water and has kept lake levels static. When the lakes functioned naturally, water flowed out during the summer months and a bottomland forest along the lake margins was healthy. Since the construction of the dam, approximately 120 acres of forest has been destroyed, reed canarygrass has proliferated, the lakes are now inaccessible to migrating anadromous fish, and waterfowl nesting success has been reduced.

Before1982, the North Slough arm of the Columbia Slough was connected to Smith and Bybee Lakes. When the Willamette and Columbia Rivers were in flood stage and during high tides, water would back up into this slough and into the lakes and the lakes would fill. During the summer, the water would drain back to the Columbia River through the slough. In 1982 a dam was constructed that cut off this connection. The result was that water is now retained in the lakes throughout the year, leading to the proliferation of reed canarygrass and the demise of large areas of forest when the trees native to this area drowned.

The proposed water control structure will restore the lakes to a more naturally-functioning wetland condition. The structure features reversed flap gates in three weir-bays, with a pool and weir fishway and several stoplogs. Juvenile salmon would enter through the flap gates from September through early May. Stop logs in the structure will be used to control lake levels for the benefit of wildlife species. During a typical year, the water control structure will allow juveniles into Smith and Bybee Lakes for rearing and would begin to flush them out when the lakes are drained beginning in June. The purpose of this operation is to collect water in the lakes, primarily from fall and winter precipitation throughout the spring, and allow the lakes to revert to drier conditions in the summer and early fall. The management of the lakes will keep water until June to suppress the reed canarygrass, then drain at the rate of about 6 inches per week. This will trigger any fish present to migrate out. After the water level is released below the stoplogs, the flap gate will be raised to completely open the structure to drainage. During low and high water years, contingency measures detailed in the management plan will be followed.
By reducing water levels to mimic the natural functioning of wetlands, native emergent vegetation will be restored and reed canarygrass controlled. During high flows, the structure will not impede floodwaters, and during floodwater recession, fish passage will be available through the structure.

Construction is expected to take 10 to 14 days during the in-water work window of July 1 to October 31. Water levels are expected to be very low and, depending on weather conditions,

much of the construction site will be exposed. All work will be completed during August in the dry to the extent possible.

A monitoring plan is part of the proposed project and will ensure that egress during the summer drawdown period is maintained. The structure is designed to allow any anadromous fish within the lakes to escape, and there will be a post-drawdown sampling program to ensure that the structure is functioning as intended.

2. ENDANGERED SPECIES ACT

2.1 Biological Opinion

2.1.1 Biological Information

The action area is defined by NOAA Fisheries' regulations (50 CFR 402) as "all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action." The action area is Smith and Bybee Lakes and adjacent property including riparian habitat, substrate, the wetland surrounding the proposed water control structure and 300' up and downstream of the structure along Columbia Slough. Essential habitat features for salmonids are: Substrate, water quality, water quantity, water temperature, water velocity, cover/shelter, food (juvenile only), riparian vegetation, space, and safe passage conditions (50 CFR 226). The proposed action may affect the essential habitat features of water quality, water quantity and safe passage conditions. References for further background on listing status and biological information can be found in Table 1.

Detailed information about the status of all the listed ESUs that may be present in the project area can be found in a recently released draft analysis of the status of listed anadromous fish in the Pacific Northwest. Titled "Preliminary conclusions regarding the updated status of listed ESUs of West Coast salmon and steelhead", the entire document is available at the NOAA Fisheries Northwest Science Center website at http://161.55.120.162/trt/brtrpt.htm
The report was completed by the West Coast Salmon Biological Review Team (BRT) and will be revised after input from the co-manager tribes and state fishery agencies. The majority of members of the BRT concluded that a number of listed ESUs are "likely to become endangered in the foreseeable future," including the Lower Columbia River chinook, Upper Willamette River chinook, Lower Columbia River steelhead and Upper Willamette River steelhead (NMFS 2003).

2.1.2 Evaluating Proposed Actions

The standards for determining jeopardy are set forth in section 7(a)(2) of the ESA as defined by 50 CFR 402 (the consultation regulations). NOAA Fisheries must determine whether the action is likely to jeopardize the listed species. This analysis involves the initial steps of defining the

biological requirements of the listed species, and evaluating the relevance of the environmental baseline to the species' current status.

Subsequently, NOAA Fisheries evaluates whether the action is likely to jeopardize the listed species by determining if the species can be expected to survive with an adequate potential for recovery. In making this determination, NOAA Fisheries must consider the estimated level of mortality attributable to: (1) Collective effects of the proposed or continuing action; (2) the environmental baseline; and (3) any cumulative effects. This evaluation must take into account measures for survival and recovery specific to the listed species' life stages that occur beyond the action area. If NOAA Fisheries finds that the action is likely to jeopardize a significant part of any of the ESUs that would be affected, NOAA Fisheries must identify reasonable and prudent alternatives for the action.

For the proposed action, NOAA Fisheries' jeopardy analysis considers direct or indirect mortality of fish attributable to the action. NOAA Fisheries' habitat analysis considers the extent to which the proposed action impairs the function of essential elements necessary for migration, spawning, and rearing of the listed species under the existing environmental baseline.

2.1.2.1 Biological Requirements

The first step in the methods NOAA Fisheries uses for applying the ESA section 7(a)(2) to listed salmon is to define the species' biological requirements that are most relevant to each consultation. NOAA Fisheries also considers the current status of the listed species, taking into account population size, trends, distribution and genetic diversity. To assess the current status of the listed species, NOAA Fisheries starts with the determinations made in its decision to list the species for ESA protection and also considers new data available that is relevant to the determination.

The relevant biological requirements are those necessary for salmonids to survive and recover to naturally-reproducing population levels, at which time protection under the ESA would become unnecessary. Adequate population levels must safeguard the genetic diversity of the listed stock, enhance its capacity to adapt to various environmental conditions, and allow it to become self-sustaining in the natural environment.

For this consultation, the biological requirements are improved habitat characteristics that function to support successful migration, rearing habitat and over-wintering refugia. Salmon survival in the wild depends upon the proper functioning of certain ecosystem processes, including habitat formation and maintenance. Restoring functional habitats depends largely on allowing natural processes to increase their ecological function, while at the same time removing adverse impacts of current practices. In conducting analyses of habitat-altering actions, NOAA Fisheries usually defines the biological requirements in terms of a concept called Properly Functioning Condition (PFC) and utilizes a "habitat approach" to its analysis.

2.1.2.2 Environmental Baseline

The Willamette River watershed is the largest entirely within Oregon. The Columbia River is joined by the Willamette River just northwest of Smith and Bybee Lakes. This area was a seasonal wetlands with considerable fluctuation in the levels of inundation throughout the year. Construction of dams upstream, however, has reduced the extremes in floodwater levels and has allowed much of this area to be diked and permanently converted to urban and industrial uses. Nevertheless, occasional high water in the Columbia Slough overtops the berms that surround Smith and Bybee Lakes and can wash in migrating juvenile salmonids. When this happens, the young salmon are trapped in the lakes by dikes.

The area known as Smith and Bybee Lakes consists of 1600 acres of interconnected wetlands that are owned and maintained by Portland Metro as a recreation area and wildlife habitat. Before the construction of berms and dikes, it was probably completely inundated during river floods. The highest elevation of the land surrounding the lakes, like Hayden Island to the northeast, is less than 30-ft above sea level and even these hillocks are artificially created. So the entire area was once part of a giant floodplain where the Willamette joins the Columbia River. Now, the lakes are watered only when floodwaters overtop the levees and/or rain fills them up. No creek or stream flows out of the hills of St. John's to flush out the lakes. The Port of Portland and Metro have studied this area for years (see Smith and Bybee Lakes Environmental Studies, Fishman Environmental Services, 1987) and a large advisory committee has helped to craft strategies for the public use and continued protection of the lakes. Information about Metro's management plan for the area can be found at the website: http://www.metro-region.org/article.cfm?articleid=153

This section of the Willamette River basin, Smith and Bybee Lakes, is listed on the Oregon Department of Environmental Quality's 303(d) list of water-quality limited waterbodies for algal weeds and pH (see http://www.deq.state.or.us/wq/WQLData/SubBasinList02.asp, ODEQ's website). Within the area of the project, aquatic habitat conditions are poor. Urbanization in this area has severely altered the proper functioning of both the Willamette and the Columbia Rivers and this reach, situated in the middle of the Portland metropolitan area just north of the community of St. Johns, is subject to the damage caused by stormwater runoff and the loss of riparian habitat. Although the Willamette River is sufficiently large to mediate the immediate effects of stormwater pollutants, the Columbia Slough is more prone to collecting contaminants in higher concentrations and does not allow for effective dissipation. Thus, although the slough is attractive to juvenile fish as a slow water refuge, much of the water flowing into the channel from surrounding impervious surfaces is contaminated.

The overall health of the Lower Willamette River has been adversely affected in terms of water and habitat quality and quantity. Many native species have been adversely affected due to the introduction of non-native species, loss of habitat, habitat degradation, and contaminated waters. Most streams and rivers in the basin have high temperatures and insufficient flows during summer months, which adversely impacts aquatic species such as salmon and steelhead. Low flows also reduce the ability of the river to dilute contaminants.

2.1.3 Analysis of Effects

2.1.3.1 Effects of the Proposed Action

To evaluate the effects of the proposed action on listed species and the habitats which they depend, NOAA Fisheries utilizes a matrix of pathways and indicators to assess the degree to which properly functioning conditions are present and whether the action will improve or degrade conditions at the site (see Making Endangered Species Act Determinations of Effect for Individual or Grouped Actions at the Watershed Scale, NMFS 1996). In the Columbia Slough, the water temperatures, sediment levels, chemical contaminant levels, substrate, amounts of large woody debris, pool quality, off channel habitat and refugia, channel conditions and dynamics (width to depth ratio, streambank conditions, and floodplain connectivity), flow hydrology, and drainage network, are all habitat parameters considered to be not properly functioning. In addition, fish distribution and habitat access characteristics are considered to be at risk because the existing dam and tidegate block passage out of the rearing and resting habitat in Smith and Bybee Lakes.

The water control structure that will be installed has a pool-chute style fishway design that will maintain fish passage while water is being retained in the wetlands. This will restore access to 1800 acres of off-channel refugia for juvenile chinook and other species that may migrate through the area. During high flows, juveniles may wash into this area of slower-moving water and can rear in the area until the spring, when the flows of water out of the lakes will trigger movement out of the area and back to the mainstem Willamette.

After completion of the project, the existing conditions for most of these habitat parameters are expected to be maintained at their current levels. Habitat access, off-channel habitat, refugia, and floodplain connectivity will be restored in the short term. In addition, the long-term benefits from restoration of the forested wetland will include improvements in the large woody debris input process as the forest grows back and in riparian vegetation as invasive plant species are suppressed and native species return. The overall long-term effects of the project are, thus, expected to be generally beneficial.

However, construction of the project will have some short-term negative effects on fish that may be present when fall rains wash over the freshly disturbed area of construction. This will create turbidity in the Columbia Slough until riparian vegetation becomes established. In addition, any fish that are in the immediate area will be disturbed by the construction activity. Finally, if the new water control structure does not successfully drain the lake at a rate that triggers juvenile out-migration, then salmonids may become trapped in a shrinking pool that becomes gradually warmer. These fish will be physiologically stressed and easy targets for avian predators and may die.

Suspended sediment and turbidity influences on fish reported in the literature range from beneficial to detrimental. Elevated total suspended solids (TSS) conditions have been reported to enhance cover conditions, reduce piscivorus fish/bird predation rates, and improve survival.

Elevated TSS conditions have also been reported to cause physiological stress, reduce growth, and adversely affect survival. Of key importance in considering the detrimental effects of TSS on fish are the frequency and the duration of the exposure, not just the TSS concentration. This proposed project will be constructed during the approved in-water work window, and by then the site is expected to be almost completely dry. Excessive turbidity is not expected due to the lack of water present during construction, but some turbidity is expected once the fall rains begin.

Lakes like Smith and Bybee provide habitat for salmonid predators. Monitoring the proposed project will identify listed species as well as predatory species that may be present in the project area. The proposed project will reduce the water levels in Smith and Bybee Lakes by allowing the water to flow out gradually over the summer. Drawdown would be complete by mid-August, with water levels low enough to allow the return of the forested habitat around the margins of the lake. The drought years of 2000-2001 allowed regeneration of Pacific willow, and this trend is expected to continue.

While this area may provide off-channel habitat available to juvenile salmonids in the area, it may also harbor predators and alter the flow regime. If predatory species are present and affecting the survival of listed species, the water management plan and/or the structure may need modification. Migration of juveniles may be delayed because of increased time needed to find an exit from the lake. However, this will be an improvement over the current situation, which traps juvenile fish and prevents any egress.

Current monitoring projects have shown that juveniles are present in the lakes and in the slough. Proposed monitoring will evaluate fish presence in the project area and the success of passage through the water control structure. Over the long term, provided adequate passage is provided, the project is expected to benefit juvenile salmonids by improving off-channel habitat. Water control is anticipated to help control reed canary grass and improve emergent native vegetation. Vegetation diversity will allow for an increased insect and refugia variety available to juvenile salmonids. Monitoring will be done by the Metro project manager, who will be making weekly field trips to observe whether the levels of predation and drainage are as expected. The continued monitoring of water levels and fish presence will track the success of the water control structure, and any indications that it is not functioning as designed will lead to adjustments of the management plan.

2.1.3.2 Cumulative Effects

Cumulative effects are defined in 50 CFR 402.02 as those effects of "future State or private activities, not involving federal activities, that are reasonably certain to occur within the action area of the federal action subject to consultation." Future Federal actions, including the ongoing operation of hydropower systems, hatcheries, fisheries, and land management activities (such as proposals to repair a breach in one of the dikes that separates Bybee Lake from the Columbia Slough) are being (or have been) reviewed through separate section 7 consultation processes. Therefore, these actions are not considered cumulative to the proposed action.

Aside from the implementation of Metro's management plan for the area, which is designed to maintain Smith and Bybee Lakes as wildlife habitat and which will have entirely beneficial effects on listed salmonids, NOAA Fisheries is not aware of any specific future non-federal activities within the action area that would cause greater impacts to listed species than presently occurs. NOAA Fisheries assumes that future private and state actions will continue at similar intensities as in recent years.

2.1.4 Conclusion

NOAA Fisheries has determined that, based on the available information, the proposed action is not likely to jeopardize the continued existence of listed species. NOAA Fisheries used the best available scientific and commercial data to analyze the effects of the proposed action on the biological requirements of the species relative to the environmental baseline, together with cumulative effects. NOAA Fisheries believes that the proposed action will improve fish passage both into and out of Smith and Bybee Lakes, and that habitat conditions will be improved by the water management regime that will be carried out by Metro. Lethal take is not expected, although non lethal take may occur due to turbidity. Additional harm may result due to stress caused by water drawn down over the summer when elevated temperatures cause fish to be more vulnerable to predation. In-water work will be performed during the in-water work window, when the project area is expected to have very low water present. Erosion control measures are part of the proposed project. The proposed monitoring plan will verify that passage is being maintained for listed species. If monitoring reveals that passage is not properly provided, consultation will be reinitiated and the management plan and possibly the design of the structure will be modified to ensure the provision of fish passage in and out of the lakes for listed species.

2.1.5 Reinitiation of Consultation

Consultation must be reinitiated if: (1) The amount or extent of taking specified in the incidental take statement is exceeded, or is expected to be exceeded; (2) new information reveals effects of the action may affect listed species in a way not previously considered; (3) the action is modified in a way that causes an effect on listed species that was not previously considered; or (4) a new species is listed or critical habitat is designated that may be affected by the action (50 CFR 402.16). Moreover, if monitoring at the project site reveals that listed species are being stranded or delayed in their migration, consultation must be reinitiated.

2.2 Incidental Take Statement

Section 9 and rules promulgated under section 4(d) of the ESA prohibit any taking (harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in any such conduct) of listed species without a specific permit or exemption. "Harm" is further defined to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, and sheltering. "Harass" is defined as actions that create the likelihood of injuring listed species by annoying it to such an extent as to significantly alter normal behavior patterns which include, but are not limited to,

breeding, feeding, and sheltering. "Incidental take" is take of listed animal species that results from, but is not the purpose of, the Federal agency or the applicant carrying out an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to, and not intended as part of, the agency action is not considered prohibited taking provided that such taking is in compliance with the terms and conditions of this incidental take statement An incidental take statement specifies the impact of any incidental taking of threatened species. It also provides reasonable and prudent measures that are necessary to minimize impacts and sets forth terms and conditions with which the action agency must comply to implement the reasonable and prudent measures.

2.2.1 Amount or Extent of the Take

NOAA Fisheries anticipates that the action covered by this Opinion is reasonably certain to result in the incidental take resulting from the disturbance and displacement of juvenile ESA-listed species from the construction area due to use of equipment. Even though NOAA Fisheries expects some low level of non-lethal incidental take to occur due to the action covered by this Opinion, the best scientific and commercial data available are not sufficient to enable NOAA Fisheries to estimate a specific amount of incidental take to the species itself. In instances such as these, NOAA Fisheries designates the expected amount of take as "unquantifiable." Handling of juvenile steelhead or chinook salmon during the work isolation process may result in incidental take of individuals if juvenile salmonids are present during the construction period. NOAA Fisheries anticipates non-lethal incidental take of up to 30 individuals, of which, lethal take of three salmonids could occur as a result of the fish rescue, salvage and relocation activities covered by this Opinion. Based on the information provided by the USFWS and other available information, NOAA Fisheries anticipates that, for the overall project, an unquantifiable amount of incidental take could occur as a result of the action covered by this Opinion. The extent of the take is limited to stranding, delayed migration, handling and disturbance resulting from construction activities as well as water level management in the wetland created by the water control structure in Smith and Bybee Lakes.

2.2.2 Reasonable and Prudent Measures

NOAA Fisheries believes that the following reasonable and prudent measures are necessary and appropriate to avoid or minimize take of listed salmonid species resulting from the action covered by this Opinion. The USFWS shall include measures that will:

1. Minimize incidental take from general construction by avoiding or minimizing adverse effects to riparian and aquatic systems.
2. Complete a comprehensive monitoring and reporting program to ensure that the water control structure functions as designed, and that juvenile salmonids are not getting trapped within the lakes at the end of the annual drawdown period.

2.2.3 Terms and Conditions

To be exempt from the prohibitions of section 9 of the ESA, USFWS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above for each category of activity.

1. To implement reasonable and prudent measure #1 (construction), the USFWS shall ensure that:

   a. Timing of in-water work. Work within the active channel will be completed between July 1 and October 31, unless otherwise approved in writing by NOAA Fisheries.

   b. Cessation of work. Project operations will cease under high flow conditions that may result in inundation of the project area, except for efforts to avoid or minimize resource damage.

   c. Fish passage. Passage will be provided for any adult or juvenile salmonid species present in the project area during construction, and after construction for the life of the project.

   d. Pollution and Erosion Control Plan. A pollution and erosion control plan will be prepared and carried out to prevent pollution related to construction operations. The plan must be available for inspection on request by USFWS or NOAA Fisheries.

      i. The pollution and erosion control plan must contain the pertinent elements listed below, and meet requirements of all applicable laws and regulations.

         (1) Practices to prevent erosion and sedimentation associated with access roads, stream crossings, construction sites, borrow pit operations, haul roads, equipment and material storage sites, fueling operations, and staging areas.

         (2) Practices to confine, remove and dispose of excess concrete, cement and other mortars, or bonding agents, including measures for washout facilities.

         (3) A description of any hazardous products or materials that will be used for the project, including procedures for inventory, storage, handling, and monitoring.

         (4) A spill containment and control plan with notification procedures, specific clean up and disposal instructions for different products, quick response containment and clean up measures that will be available on the site, proposed methods for disposal of spilled materials, and employee training for spill containment.

         (5) Practices to prevent construction debris from dropping into any stream or water body, and to remove any material that does drop with a minimum disturbance to the streambed and water quality.

ii. Inspection of erosion controls. During construction, all erosion controls must be inspected daily during the rainy season and weekly during the dry season to ensure they are working adequately.[1]

(1) If inspection shows that the erosion controls are ineffective, work crews must be mobilized immediately to make repairs, install replacements, or install additional controls as necessary.

(2) Sediment must be removed from erosion controls once it has reached 1/3 of the exposed height of the control.

e. Construction discharge water. All discharge water created by construction (*e.g.*, concrete washout, pumping for work area isolation, vehicle wash water) will be treated as follows.

i. Water quality. Facilities must be designed, built and maintained to collect and treat all construction discharge water using the best available technology applicable to site conditions. The treatment must remove debris, nutrients, sediment, petroleum hydrocarbons, metals and other pollutants likely to be present.

ii. Discharge velocity. If construction discharge water is released using an outfall or diffuser port, velocities must not exceed four feet per second.

f. Preconstruction activity. Before significant [2] alteration of the project area, the following actions must be completed:

i. Marking. Flag the boundaries of clearing limits associated with site access and construction to prevent ground disturbance of critical riparian vegetation, wetlands and other sensitive sites beyond the flagged boundary.

ii. Emergency erosion controls. Ensure that the following materials for emergency erosion control are onsite:

(1) A supply of sediment control materials (*e.g.*, silt fence, straw bales).

(2) An oil-absorbing, floating boom whenever surface water is present.

iii. Temporary erosion controls. All temporary erosion controls must be in-place and appropriately installed downslope of project activity within the riparian area until site restoration is complete.

g. Heavy Equipment. Use of heavy equipment will be restricted as follows.

i. Choice of equipment. When heavy equipment must be used, the equipment selected must have the least adverse effects on the environment (*e.g.*, minimally sized, rubber-tired).

ii. Vehicle staging. Vehicles must be fueled, operated, maintained and stored as follows:

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[1] "Working adequately" means no turbidity plumes are evident during any part of the year.

[2] "Significant" means an effect can be meaningfully measured, detected or evaluated.

(1) Vehicle staging, cleaning, maintenance, refueling, and fuel storage must take place in a vehicle staging area placed 150 feet or more from any stream, water body or wetland.

(2) All vehicles operated within 150 feet of any stream, water body or wetland must be inspected daily for fluid leaks before leaving the vehicle staging area. Any leaks detected must be repaired in the vehicle staging area before the vehicle resumes operation. Inspections must be documented in a record that is available for review on request by USFWS or NOAA Fisheries.

(3) All equipment operated instream must be cleaned before beginning operations below the bankfull elevation to remove all external oil, grease, dirt, and mud.

iii. Stationary power equipment. Stationary power equipment (*e.g.*, generators, cranes) operated within 150 feet of any stream, water body or wetland must be diapered to prevent leaks, unless otherwise approved in writing by NOAA Fisheries.

h. Site preparation. Native materials will be conserved for site restoration.

i. If possible, native materials must be left where they are found.

ii. Materials that are moved, damaged or destroyed must be replaced with a functional equivalent during site restoration.

iii. Any large wood [3], native vegetation, weed-free topsoil, and native channel material displaced by construction must be stockpiled for use during site restoration.

i. Earthwork. Earthwork (including drilling, excavation, dredging, filling and compacting) will be completed as quickly as possible.

i. Site stabilization. All disturbed areas must be stabilized, including obliteration of temporary roads, within 12 hours of any break-in work unless construction will resume work within seven days between June 1 and September 30, or within two days between October 1 and May 31.

ii. Source of materials. Boulders, rock, woody materials and other natural construction materials used for the project must be obtained outside the riparian area.

j. Site restoration. All streambanks, soils and vegetation disturbed by the project are cleaned up and restored as follows.

i. Restoration goal. The goal of site restoration is renewal of habitat access, water quality, production of habitat elements (such as large woody debris), channel conditions, flows, watershed conditions, and other ecosystem processes that form and maintain productive fish habitats.

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[3] For purposes of this Opinion only, "large wood" means a tree, log, or rootwad big enough to dissipate stream energy associated with high flows, capture bedload, stabilize streambanks, influence channel characteristics, and otherwise support aquatic habitat function, given the slope and bankfull width of the stream in which the wood occurs. See, Oregon Department of Forestry and Oregon Department of Fish and Wildlife, *A Guide to Placing Large Wood in Streams*, May 1995 (www.odf.state.or.us/FP/RefLibrary/LargeWoodPlacemntGuide5-95.doc).

ii. Streambank shaping. Damaged streambanks must be restored to a natural slope, pattern, and profile suitable for establishment of permanent woody vegetation.

iii. Revegetation. Areas requiring revegetation must be replanted before the first April 15 following construction with a diverse assemblage of species that are native to the project area or region, including grasses, forbs, shrubs, and trees.

iv. Pesticides. No pesticide application is allowed, although mechanical or other methods may be used to control weeds and unwanted vegetation.

v. Fertilizer. No surface application of fertilizer may occur within 50 feet of any stream channel.

vi. Fencing. Fencing must be installed as necessary to prevent access to revegetated sites by livestock or unauthorized persons.

k. Isolation of in-water work area. If adult or juvenile fish are reasonably certain to be present, the work area will be well isolated from the active flowing stream using inflatable bags, sandbags, sheet pilings, or similar materials. The work area will also be isolated if in-water work may occur within 300 feet upstream of spawning habitats.

l. Capture and release. Before and intermittently during pumping to isolate an in-water work area, an attempt must be made to capture and release fish from the isolated area using trapping, seining, electrofishing, or other methods as are prudent to minimize risk of injury.

i. A fishery biologist experienced with work area isolation and competent to ensure the safe handling of all ESA-listed fish must conduct or supervise the entire capture and release operation.

ii. If electrofishing equipment is used to capture fish, the capture team must comply with NOAA Fisheries' electrofishing guidelines.[4]

iii. The capture team must handle ESA-listed fish with extreme care, keeping fish in water to the maximum extent possible during seining and transfer procedures to prevent the added stress of out-of-water handling.

iv. Captured fish must be released as near as possible to capture sites.

v. ESA-listed fish may not be transferred to anyone except NOAA Fisheries personnel, unless otherwise approved in writing by NOAA Fisheries.

vi. Other Federal, state, and local permits necessary to conduct the capture and release activity must be obtained.

vii. NOAA Fisheries or its designated representative must be allowed to accompany the capture team during the capture and release activity, and must be allowed to inspect the team's capture and release records and facilities.

2. To implement reasonable and prudent measure #2 (monitoring), the USFWS shall:

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[4] National Marine Fisheries Service, *Backpack Electrofishing Guidelines* (December 1998) (http://www.nwr.noaa.gov/1salmon/salmesa/pubs/electrog.pdf).

a. Implementation monitoring. Ensure that the applicant submits a monitoring report to the USFWS within 120 days of project completion describing the permittee's success meeting his or her permit conditions. Each project level monitoring report will include the following information.

i. Project identification.

(1) Applicant name, permit number, and project name.

(2) Project location, including any compensatory mitigation site(s), by 5th field HUC and by latitude and longitude as determined from the appropriate USGS seven-minute quadrangle map

(3) USFWS contact person.

(4) Starting and ending dates for work completed

ii. Photo documentation. Photo of habitat conditions at the project and any compensation site(s), before, during, and after project completion.[5]

(1) Include general views and close-ups showing details of the project and project area, including pre and post construction.

(2) Label each photo with date, time, project name, photographer's name, and a comment about the subject.

iii. Other data. Additional project-specific data, as appropriate for individual projects.

(1) Work cessation. Dates work cessation was required due to high flows.

(2) A summary of pollution and erosion control inspections, including any erosion control failure, hazardous material spill, and correction effort.

(3) Site preparation.

(a) Total cleared area – riparian and upland.

(b) Total new impervious area.

(4) Site restoration.

(a) Finished grade slopes and elevations.

(b) Log and rock structure elevations, orientation, and anchoring (if any).

(c) Planting composition and density.

(d) A five-year plan to:

(i) Inspect and, if necessary, replace failed plantings to achieve 100% survival at the end of the first year, and 80% survival or 80% coverage after five years (including both plantings and natural recruitment).

(ii) Control invasive non-native vegetation.

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[5] Relevant habitat conditions may include characteristics of channels, eroding and stable streambanks in the project area, riparian vegetation, water quality, flows at base, bankfull and over-bankfull stages, and other visually discernable environmental conditions at the project area, and upstream and downstream of the project.

(iii) Protect plantings from wildlife damage and other harm.

(iv) Provide the USFWS annual progress reports.

b. Site specific monitoring.

i. Fish monitoring. After the water control structure is in place and after the lakes are drawn down to their lowest levels, fish will be monitored using net sampling at selected sites throughout the lakes to ensure that juvenile salmonids are leaving the lakes as intended. If predatory fish are found during monitoring, appropriate food web studies as developed by Metro will be undertaken as part of the monitoring program

ii. Handling ESA-listed fish. The following rules will apply during monitoring activities when ESA-listed fish are handled.

(1) ESA-listed fish must be handled with extreme care and kept in water to the maximum extent possible during sampling and processing procedures. Adequate circulation and replenishment of water in holding units is required. When using gear that capture a mix of species, ESA-listed fish must be processed first to minimize the duration of handling stress. The transfer of ESA-listed fish must be conducted using a sanctuary net that holds water during transfer, whenever necessary to prevent the added stress of an out-of-water transfer.

(2) Each ESA-listed fish handled out-of-water must be anesthetized when necessary to prevent injury or mortality. Anesthetized fish must be allowed to recover (*e.g.* in a recovery tank) before being released. Fish that are simply counted must remain in water but do not need to be anesthetized

(3) ESA-listed juvenile fish must not be handled if the water temperature exceeds 70 degrees Fahrenheit at the capture site. Under these conditions, ESA-listed fish may only be identified and counted.

iii. Reports will be sent to NOAA Fisheries annually, by September 30.

iv. If monitoring shows any stranding or delayed migration timing for any listed species, consultation will be reinitiated and the structure will be modified to provide passage.

c. Failure to provide timely monitoring causes incidental take statement to expire. If the USFWS fails to provide specified monitoring information, NOAA Fisheries will consider that a modification of the action that causes an effect on listed species not previously considered and causes the incidental take statement of this Opinion to expire.

d. Submit monitoring reports to:

NOAA Fisheries
Oregon Habitat Branch, Habitat Conservation Division
Attn: 2002/00163
525 NE Oregon Street, Suite 500
Portland, OR 97232-2778

e. If a dead, injured, or sick endangered or threatened species specimen is found, initial notification must be made to:

NOAA Fisheries Law Enforcement Office
Vancouver Field Office
600 Maritime, Suite 130
Vancouver, WA 98661
360.418.4246

Care will be taken in handling sick or injured specimens to ensure effective treatment and care or the handling of dead specimens to preserve biological material in the best possible state for later analysis of cause of death. In conjunction with the care of sick or injured endangered and threatened species or preservation of biological materials from a dead animal, the finder has the responsibility to carry out instructions provided by Law Enforcement to ensure that evidence intrinsic to the specimen is not unnecessarily disturbed.

3. MAGNUSON-STEVENS ACT

3.1 Background

The Magnuson-Stevens Fishery Conservation and Management Act (MSA), as amended by the Sustainable Fisheries Act of 1996 (Public Law 104-267), established procedures designed to identify, conserve, and enhance essential fish habitat (EFH) for those species regulated under a Federal fisheries management plan. Pursuant to the MSA:

- Federal agencies must consult with NOAA Fisheries on all actions, or proposed actions, authorized, funded, or undertaken by the agency, that may adversely affect EFH (§305(b)(2)).

- NOAA Fisheries must provide conservation recommendations for any Federal or state action that would adversely affect EFH (§305(b)(4)(A)).

- Federal agencies must provide a detailed response in writing to NOAA Fisheries within 30 days after receiving EFH conservation recommendations. The response must include a description of measures proposed by the agency for avoiding, mitigating, or offsetting the impact of the activity on EFH. In the case of a response that is inconsistent with

NOAA Fisheries EFH conservation recommendations, the Federal agency must explain its reasons for not following the recommendations (§305(b)(4)(B)).

EFH means those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity (MSA §3). For the purpose of interpreting this definition of EFH: "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish and may include aquatic areas historically used by fish where appropriate; "substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities; "necessary" means the habitat required to support a sustainable fishery and the managed species' contribution to a healthy ecosystem; "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (50 CFR 600.10). Adverse effect means any impact which reduces quality and/or quantity of EFH, and may include direct (*e.g.*, contamination or physical disruption), indirect (*e.g.*, loss of prey or reduction in species fecundity), site-specific or habitat-wide impacts, including individual, cumulative, or synergistic consequences of actions (50 CFR 600.810).

EFH consultation with NOAA Fisheries is required regarding any Federal agency action that may adversely affect EFH, including actions that occur outside EFH, such as certain upstream and upslope activities.

The objectives of this EFH consultation are to determine whether the proposed action would adversely affect designated EFH and to recommend conservation measures to avoid, minimize, or otherwise offset potential adverse effects to EFH.

3.2 Identification of EFH

Pursuant to the MSA, the Pacific Fisheries Management Council (PFMC) has designated EFH for Federally-managed fisheries within the waters of Washington, Oregon, and California. Designated EFH for groundfish and coastal pelagic species encompasses all waters from the mean high water line and upriver extent of saltwater intrusion in river mouths, along the coasts of Washington, Oregon and California, seaward to the boundary of the U.S. exclusive economic zone (370.4 km) (PFMC 1998a, 1998b). Freshwater EFH for Pacific salmon includes all those streams, lakes, ponds, wetlands, and other water bodies currently, or historically accessible to salmon in Washington, Oregon, Idaho, and California, except areas upstream of certain impassable man-made barriers (as identified by the PFMC 1999), and longstanding, naturally-impassable barriers (*i.e.*, natural waterfalls in existence for several hundred years) (PFMC 1999). In estuarine and marine areas, designated salmon EFH extends from the nearshore and tidal submerged environments within state territorial waters out to the full extent of the exclusive economic zone (370.4 km) offshore of Washington, Oregon, and California north of Point Conception to the Canadian border (PFMC 1999).

Detailed descriptions and identifications of EFH are contained in the fishery management plans for groundfish (PFMC 1998a), coastal pelagic species (PFMC 1998b), and Pacific salmon (PFMC 1999). Casillas *et al.* (1998) provides additional detail on the groundfish EFH habitat

complexes. Assessment of the potential adverse effects to these species' EFH from the proposed action is based, in part, on these descriptions and on information provided by the USFWS.

3.3 Proposed Actions

The proposed action and action area are detailed above in sections 1.2 and 2.1.1 of this Opinion. The action area includes habitats that have been designated as EFH for various life-history stages of coho and chinook salmon, and Starry flounder *(Platichthys stellatus)*

3.4 Effects of Proposed Action

As described in detail in section 2.1.3 of this document, the proposed action may result in short-term adverse effects to a variety of habitat parameters. These adverse effects are: decreased water quality (turbidity), reduced passage and stranding of individuals.

3.5 Conclusion

NOAA Fisheries concludes that the proposed action will adversely affect the EFH for starry flounder *(Platichthys stellatus)* and coho and chinook salmon.

3.6 EFH Conservation Recommendations

Pursuant to section 305(b)(4)(A) of the MSA, NOAA Fisheries is required to provide EFH conservation recommendations to Federal agencies regarding actions which may adversely affect EFH. While NOAA Fisheries understands that the conservation measures described in the BA will be implemented by the USFWS, it does not believe that these measures are sufficient to address the adverse impacts to EFH described above. However, the terms and conditions outlined in section 2.2.3 are generally applicable to designated EFH for the species in section 3.3, and address these adverse effects. Consequently, NOAA Fisheries incorporates them here as EFH conservation measures.

3.7 Statutory Response Requirement

Pursuant to the MSA (§305(b)(4)(B)) and 50 CFR 600.920(j), Federal agencies are required to provide a detailed written response to NOAA Fisheries' EFH conservation recommendations within 30 days of receipt of these recommendations. The response must include a description of measures proposed to avoid, mitigate, or offset the adverse impacts of the activity on EFH. In the case of a response that is inconsistent with the EFH conservation recommendations, the response must explain the reasons for not following the recommendations, including the scientific justification for any disagreements over the anticipated effects of the proposed action and the measures needed to avoid, minimize, mitigate, or offset such effects.

3.8 Supplemental Consultation

The USFWS must reinitiate EFH consultation with NOAA Fisheries if the proposed action is substantially revised in a manner that may adversely affect EFH, or if new information becomes available that affects the basis for NOAA Fisheries' EFH conservation recommendations (50 CFR 600.920(k)).

4. LITERATURE CITED

Casillas, E., L. Crockett, Y. deReynier, J. Glock, M. Helvey, B. Meyer, C. Schmitt, M. Yoklavich, A. Bailey, B. Chao, B. Johnson, and T. Pepperell,. 1988. Essential Fish Habitat West Coast Groundfish Appendix. National Marine Fisheries Service. Seattle, Washington. 778 p.

City of Portland, Bureau of Environmental Services. Website accessed March 2002 http://www.cleanrivers-pdx.org/clean_rivers/ws_Columbia.htm

Myers, J.M., R.G. Kope, G.J. Bryant, D. Teel, L.J. Lierheimer, T.C. Wainwright, W.S. Grant, F.W. Waknitz, K. Neely, S.T. Lindley, and R.S. Waples. 1998. Status review of chinook salmon from Washington, Idaho, Oregon, and California. U.S. Dept. Commer., NOAA Tech. Memo. NMFS-NWFSC-35, 443 p.

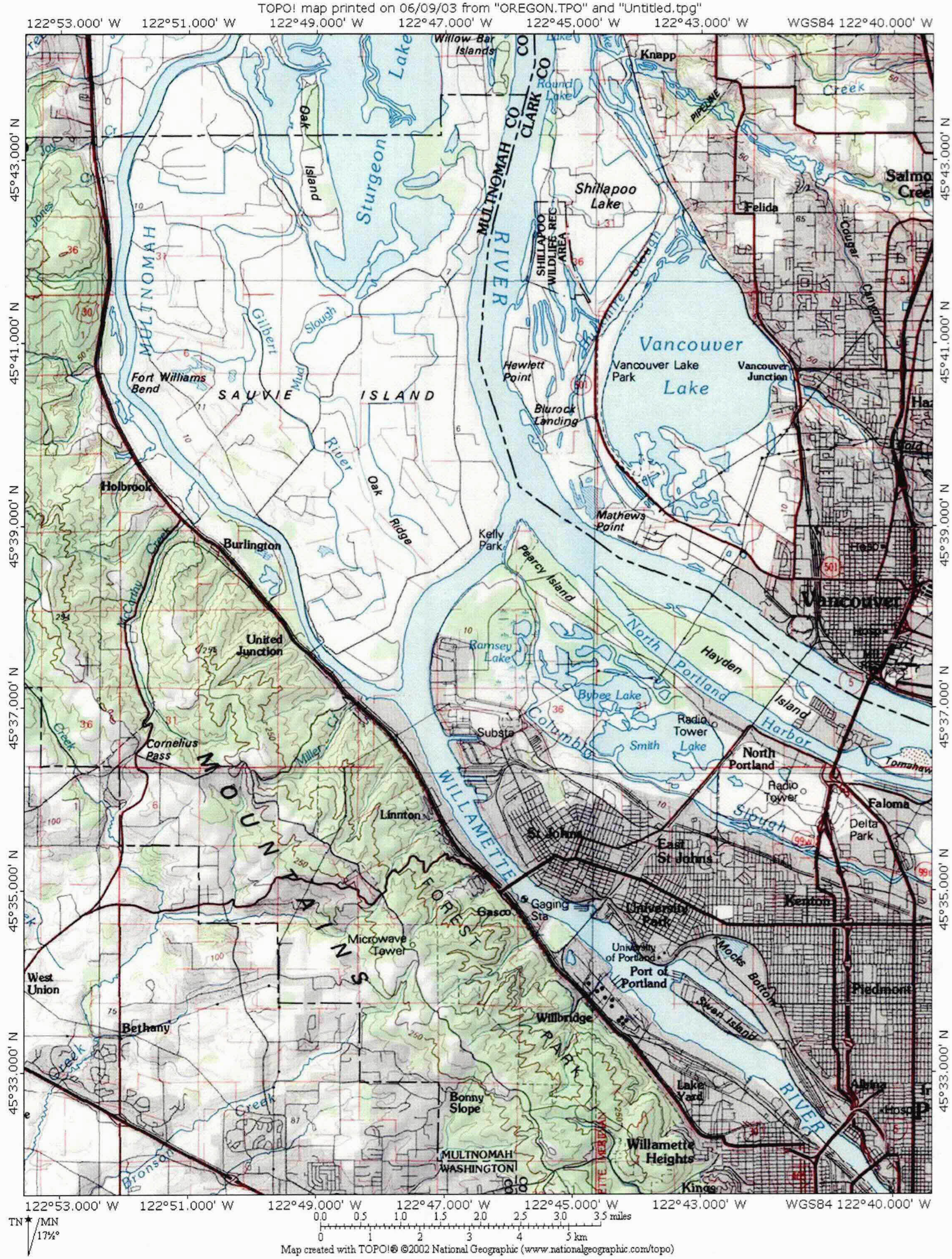
Oregon Department of Environmental Quality 2002-2003 list of 303(d) waterbodies, located at http://www.deq.state.or.us/wq/WQLData/SubBasinList02.asp

PFMC (Pacific Fishery Management Council). 1999. Amendment 14 to the Pacific Coast Salmon Plan. Appendix A: Description and Identification of Essential Fish Habitat, Adverse Impacts and Recommended Conservation Measures for Salmon. Portland, Oregon.

PFMC (Pacific Fishery Management Council), 1998a. Final Environmental Assessment/Regulatory Review for Amendment 11 to the Pacific Coast Groundfish Fishery Management Plan. October 1998.

PFMC (Pacific Fishery Management Council), 1998b. The Coastal Pelagic Species Fishery Management Plan: Amendment 8. Portland, Oregon.

TOPO! map printed on 06/09/03 from "OREGON.TPO" and "Untitled.tpg"



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UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Northwest Region
7600 Sand Point Way N.E., Bldg. 1
Seattle, WA 98115

Refer to:
2002/00163

August 4, 2003

Mr. Carey Smith
U.S. Fish and Wildlife Service
911 N.E. 11th Avenue
Portland, OR 97232-4181

Re: Endangered Species Act Section 7 Formal Consultation and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Consultation on the Smith and Bybee Lakes Habitat Restoration Project, Columbia River, Multnomah County, Oregon (USFWS MBSP/MBHP)

Dear Mr. Smith:

Enclosed is a biological opinion (Opinion) prepared by NOAA's National Marine Fisheries Service (NOAA Fisheries) pursuant to section 7 of the Endangered Species Act (ESA) on the effects of building a water control structure within Smith and Bybee Lakes, near the confluence of the Willamette and Columbia Rivers, in Multnomah County, Oregon. In this Opinion, NOAA Fisheries concludes that the proposed action is not likely to jeopardize the continued existence of the following ESA-listed anadromous salmon and steelhead: Upper Columbia River (UCR) chinook salmon (*Oncorhynchus tshawytscha)*, Lower Columbia River (LCR) chinook salmon, LCR steelhead (*O. mykiss)*, Middle Columbia River (MCR) steelhead, Upper Columbia River (UCR) steelhead, Upper Willamette River (UWR) steelhead, Snake River (SR) spring/summer-run chinook salmon (*O. tshawytscha*), SR fall-run chinook salmon, SR sockeye salmon (*O. nerka*), SR steelhead (*O. mykiss)*, and Columbia River (CR) chum (*O. keta*). As required by section 7 of the ESA, we have included reasonable and prudent measures with non-discretionary terms and conditions that are necessary to minimize the potential for incidental take associated with this action.

This document also serves as consultation on essential fish habitat pursuant to section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR Part 600.

If you have any questions regarding this consultation, please contact Pat Oman of my staff in the Oregon Habitat Branch at 503.231.2313.

Sincerely,

for Michael R Crouse

D. Robert Lohn
Regional Administrator

cc: Chuck Lobdell, Ducks Unlimited
Kirk Jarvie, DSL