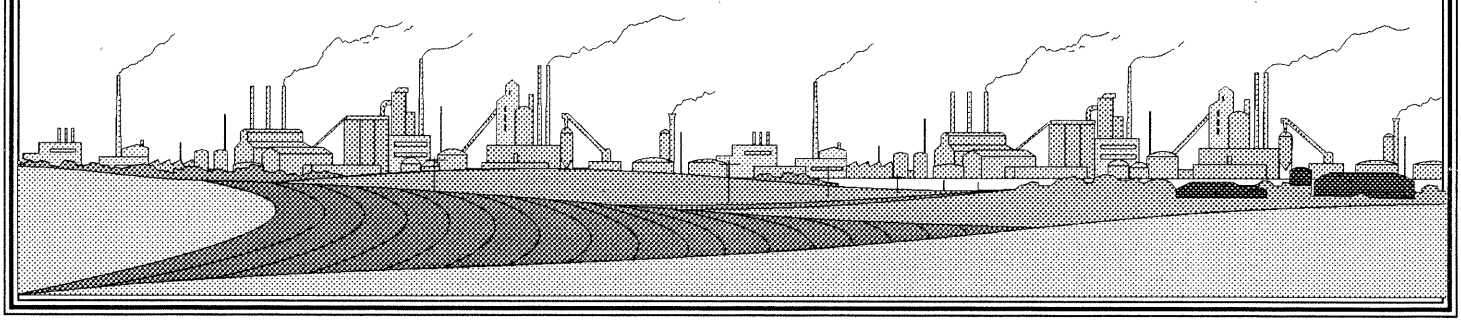
VITAL HABITAT CONCERNS

Pacific Fishery Management Council
Habitat Committee Steering Group

May 1995



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LIST OF ACRONYMS AND ABBREVIATIONS

BOR	U.S. Bureau of Reclamation
cfs	cubic feet per second
Council	Pacific Fishery Management Council
CRP	Conservation Reserve Program
CVPIA	Central Valley Project Improvement Act
EIR	Environmental Impact Review
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FERC	Federal Energy Regulatory Commission
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NPPC	Northwest Power Planning Council
TMDL	total maximum daily loads
USFWS	U.S. Fish and Wildlife Service
WDFW	Washington Department of Fish and Wildlife

PREFACE

The Pacific Fishery Management Council's Vital Habitat Concerns was first published in 1994. It is a watershed-based assessment of the most critical habitat issues affecting West Coast marine fish resources. This document emphasizes anadromous salmonid habitat because numerous stocks of salmon and steelhead are at record low levels. Loss of habitat has been identified as one of the main reasons for the decline of anadromous salmonids.

Many of the issues in 1994's Vital Habitat Concerns are again found in this 1995 edition. The intent is to use this document to track the progress made in addressing the concerns raised by the Council's Habitat Committee about the numerous habitat issues affecting West Coast fisheries resources.

The information in this assessment is organized by "**Upland,**" "**Nearshore,**" and "**Offshore**" zones. Within each zone, examples of problems that have chronically affected or could affect fish habitat are identified. Separate sections are included on California's Central Valley and the Columbia-Snake River System.

Each issue has an "**Action Needed**" section that is intended to give local, state, federal and tribal land use agency regulators and elected officials the Pacific Fishery Management Council's views on the corrective measures needed for each fish habitat issue. Council resolutions and letters on habitat issues can be found in Appendix C.

While the prime purpose of this document is to identify and track specific habitat issues, the Council also acknowledges the importance of coordination and cooperation among state and federal agencies, tribes, local constituents, non-governmental organizations and private landowners if those issues are to be resolved in a cost-effective manner.

This document is for the edification of men and women in the fishing industry, as well as the conservation community and the general public. An informed and educated fishing community must be an active voice in the arena of fish habitat protection, whether it be national issues, such as the Clean Water Act, or the relicensing of a local hydroelectric project.

EXECUTIVE SUMMARY

The Pacific Fishery Management Council's list of vital habitat concerns for 1995 is summarized below. The list is organized into "Upland," "Nearshore" and "Offshore" zones. The order of presentation does not imply any ranking of the various concerns. This is the second year that the Council's Habitat Committee Steering Group has prepared this list.

UPLAND ENVIRONMENT

1. CALIFORNIA'S CENTRAL VALLEY WATER PROJECT has drained hundreds of millions of acres of wetlands, lowering flows throughout the Trinity, Sacramento and San Joaquin river basins and contributing to the decimation of once large runs of salmon and smelt (e.g., "endangered" Sacramento River winter chinook and "threatened" delta smelt). **Implementation of the Central Valley Project Improvement Act must be continuously monitored** to assure that 800,000 acre-feet of water are used to benefit fish and wildlife, the salmon runs are truly doubled, and funds are expended on actual fish and wildlife habitat projects.

2. SAN FRANCISCO BAY AND SACRAMENTO-SAN JOAQUIN WATER QUALITY STANDARDS are vital to a vast array of aquatic resources, including chinook salmon. The Bay-Delta agreement on water quality standards has several potential shortfalls for protecting these resources and the **flexibility language in the standards, which allows for an operational response to existing conditions, should be used to protect fish resources when necessary**.

3. COLUMBIA-SNAKE RIVER HYDROPOWER OPERATIONS have played a key role in the decimation of salmon stocks. It is **vital to obtain meaningful improvements in survival of juvenile salmon migrating through reservoirs and past dams** by optimizing inriver conditions (versus barging or trucking), completing juvenile bypass systems at all mainstem projects as early as possible, providing 80 percent fish passage efficiency at each project through bypass and spill, and decreasing travel time through increased flows or reservoir drawdowns.

4. INSTREAM FLOW that is insufficient for fish to thrive is a significant habitat problem in many streams and estuaries. Rivers with chronic flow problems include:

San Joaquin River, CA	Umatilla River, OR
Klamath Basin, CA	Yakima River, WA
Trinity River, CA	Grande Ronde River Basin, OR and WA
Rogue River, OR	Snake River Basin Tributaries, OR and ID
Illinois River, OR	Upper Salmon River, ID

Flows for fish could be enhanced by quantifying and protecting flow needs; requiring all users to eliminate waste and utilize accurate, timely metering of surface water diversions; and facilitating transfers of existing water rights to instream flows by using trust water rights or other mechanisms (including state water law amendments).

5. THOUSANDS OF UNSCREENED OR INADEQUATELY SCREENED WATER DIVERSIONS (over 2,000 in California's Central Valley alone) are a significant problem for migrating juvenile salmon which **must be remedied under new or existing screening programs**.

6. INADEQUATE FISH PASSAGE AT ROAD CULVERTS is critical to natural salmon spawning and rearing in many areas, especially in Washington where over 2,400 culverts are estimated to form impassable barriers below salmon habitat. **State and federal agencies which build and maintain roads must** help assure that passage is maintained or developed at existing culverts and adequately planned for in the case of any new culverts.

7. WATER SPREADING, the unauthorized use of federally developed water project facilities or water supplies on lands not approved by the Bureau of Reclamation for such use, impairs water quality and quantity and results in negative impacts on salmon spawning, rearing and migration. **The Bureau of Reclamation should** take instream flows needs for fish into account in setting its policies, stop illegal water removals and enforce contracts with users to assure that only the allocated water is diverted.

8. UPLAND LAND USE PRACTICES AND POLLUTED RUNOFF (e.g., grazing, clear-cutting, road building, mining and urbanization) have changed the form and function of streamside and wetland areas by modifying water temperature, increasing sediment and silt loads, supplying chemical pollution and modifying ground water recharge. **Riparian and wetland areas must be protected** from these impacts, including the use of buffer areas which protect and enhance aquatic productivity with shading and large woody debris.

9. FISH PASSAGE DEVELOPMENT AT EXISTING HYDROELECTRIC PROJECTS could restore access to significant former habitat for many salmon stocks in the Columbia, Snake, Sacramento, Klamath-Trinity and other river basins. **Reconsideration of the passage potentials, or even dam removal** in some instances (e.g., Elwha Dam Project on the Elwha River, Washington, and Condit Dam on the White Salmon River, Washington) are especially relevant during relicensing of projects.

10. AGRICULTURAL PRACTICES that remove riparian vegetation, channelize streams, harden stream banks, drain wetlands and contribute chemical or organic pollutants take a heavy toll on salmon habitat. **Riparian areas must be protected** to help stabilize stream temperature and flow, filter out excess sediment, provide nutrients, shield against pollutants and provide physical fish habitat.

11. URBAN GROWTH AND LAND CONVERSION have a variety of negative effects on fish resources. **Local governments must** consider and provide for the needs of salmon and marine fish in land use planning and implementation, while **state and federal regulatory agencies need** to protect habitat to the full extent of their authority.

NEARSHORE ENVIRONMENT

1. CONTAMINANTS to non-freshwater coastal wetlands and estuaries from point sources (e.g., industrial discharges) and runoff, especially from combined stormwater and sanitary sewer drains, are very detrimental to numerous species of marine fish and shellfish. As a nationwide average, about 75 percent of commercially caught fish and shellfish are dependent on estuarine environments which **must be protected against contamination.**

OFFSHORE ENVIRONMENT

1. OIL AND GAS EXPLORATION AND TRANSPORTATION in marine waters pose a threat to fish and shellfish in Council-managed waters. The **primary threat is from oil and gas transport** which must be carefully regulated to avoid unnecessary accidents.

2. DREDGE SPOIL DISPOSAL in ocean dump sites threatens fish spawning, nursery and feeding areas, especially if the sediments are contaminated. **To protect fish resources**, dump sites should be in deep water areas, sediments should be tested to assure compatibility with at-sea disposal, all toxic sediments should be stored in approved onshore toxic waste disposal and treatment sites, and monitoring of at-sea disposal should ensure compliance with dumping regulations.

I. UPLAND ENVIRONMENT

A. CALIFORNIA'S CENTRAL VALLEY AND SAN FRANCISCO BAY-DELTA

1. California's Central Valley Water Project

California's Central Valley water project has drained hundreds of millions of acres of wetlands and lowered flows throughout the Trinity, Sacramento and San Joaquin river basins. Significant quantities of water (up to two-thirds) from these rivers have been diverted to agriculture. (Reduced inriver flow can result in longer downstream migration times for smolts, elevated stream temperatures and reduced dissolved oxygen, and alternation of the estuarine environment.) This has contributed to the decimation of the once large runs of salmon, as evidenced by the "endangered" status of the Sacramento River winter chinook and "threatened" status of the delta smelt. Also, ocean fishing seasons were severely restricted in 1992, 1993, and 1994 at a cost of millions of dollars in lost revenue to coastal, Bay Area, and Central Valley communities.

Nonetheless, changes to the water allocation system mandated by the 1992 Central Valley Project Improvement Act (CVPIA) have given reason for limited optimism. The CVPIA made fish and wildlife preservation an authorized purpose of the project, including the dedication of an additional 800,000 acre-feet of water for fish and wildlife recovery purposes. The implementation of the CVPIA is now the focus for salmonid restoration. The implementation of the CVPIA is being carried out, in part, by the U.S. Fish and Wildlife Service (USFWS) through its "Plan of Action for the Central Valley Anadromous Fish Restoration Program." The goal of this program is to ensure that "anadromous fish in Central Valley rivers and streams will be sustainable, on a long-term basis, at levels not less than twice the average levels attained during the period 1967-1991." A draft anadromous fish restoration program document is scheduled to be released in the spring of 1995, and finalized by October 1995.

However, federal legislation could overturn portions of the CVPIA. In the current Congress, H.R. 925, the "Private Property Protection Act of 1995," passed the House of Representatives on March 3, 1995. If this bill becomes law, water currently set aside for fish could be considered a "taking" and returned to contracted water users. Other legislation may be introduced in the current Congress that would rescind funding for the CVPIA mandated San Joaquin Fish Restoration Study.

ACTION NEEDED: Continuous monitoring of the implementation of the CVPIA is needed to assure that

- the 800,000 acre-feet is used for fish and wildlife from the headwaters to the ocean,
- there is no backing out of the goal of doubling anadromous fish populations (this goal should be seen as a minimum), and
- funds and water provided for fish and wildlife are expended in actual habitat projects.

2. San Francisco Bay and Sacramento–San Joaquin Water Quality Standards

The Sacramento–San Joaquin Estuary is an ecologically important habitat for a vast array of aquatic resources including chinook salmon. The decline of Central Valley salmon stocks is closely linked to water project development, particularly since the 1960's. Losses of juvenile chinook salmon have resulted from decreases in freshwater outflow to San Francisco Bay, caused by increased export, resulting in reverse flows and entrainment of fish at the state and federal pumping plants.

In an attempt to improve the health of the bay, The "Principles For Agreement on Bay–Delta Standards" was released on December 15, 1994, by the Bureau of Reclamation (BOR), USFWS, National Marine Fisheries Service (NMFS), Environmental Protection Agency (EPA), and State of California. The final agreement on state standards consists of

- salinity criteria for Suisun Bay, which is the fish nursery grounds of the estuary,
- year–round water export restrictions,
- additional flows on the San Joaquin River,
- descriptive criteria for maintaining the Suisun Marsh tidal wetland, and
- non–flow–related factors (category III).

The State of California's Water Resources Control Board is scheduled to submit its own Bay–Delta water quality standards in late March 1995 for EPA approval. The EPA will review the state generated standards, and if they determine the standards to be consistent with Clean Water Act requirements, will withdraw the federal standards.

ACTION NEEDED: The flexibility language in the Bay–Delta agreement, which allows for and an operational response to existing conditions, should be used to protect fish resources when necessary.

Specifically, the Bay–Delta agreement has the following potential shortfalls:

- lack of protection for migrating Sacramento juvenile spring run and San Joaquin fall run chinook salmon,
- inconsistency with state and federal (CVPIA) laws calling for the doubling of anadromous fish populations,
- inadequate inflows to protect the estuarine water quality,
- insufficient measures to restore shallow marshy areas and floodplains, and
- "fast track" non–flow–related factors.

B. COLUMBIA-SNAKE RIVER HYDROPOWER, IRRIGATION, NAVIGATION AND FLOOD CONTROL OPERATION

Historically, 10 to 16 million salmon and steelhead ascended the Columbia River and its tributaries. These runs have dwindled substantially, with numerous wild stocks being listed as either "threatened," "endangered," or at a "high risk" of extinction (Nehlsen et al. 1991). While many factors, including overharvest and poor hatchery practices are to blame for this population crash, habitat degradation has played a key role. In the Columbia River Basin, the hydroelectric system operation has been implicated in killing up to 95 percent of downstream migrating Snake River chinook smolts as well as more than doubling the time it takes for them to travel from the Salmon River to the lower Columbia River.

The Idaho salmon recovery debate is focused on the timing, amount, rate and velocity of flow the U.S. Army Corps of Engineers and BOR allow through the system, and whether barging and trucking of juvenile salmon should be continued. There is no definitive scientific evidence that says provide flow "x" at a specific time of year and survival will increase by "y." However, the majority of state, federal and tribal fish biologists conclude that barging and trucking have not increased salmon survival and that unless there is an increase in flow rates for fish passage needs (and concomitant structural changes in the John Day and lower Snake River dams), recovery of upstream Columbia Basin salmon stocks will be in doubt. An October 1993 report to the Northwest Power Planning Council (NPPC) made the common sense conclusion that there is a "general relationship" between increasing salmon survival and increasing flows in the Columbia River Basin (Cada et al. 1993).

The listing of Snake River sockeye salmon as an "endangered" species, followed by the listing of spring/summer and fall chinook salmon as "threatened" (recently proposed for reclassification as "endangered") under the Endangered Species Act (ESA), resulted in the following actions by NMFS and NPPC:

Snake River Recovery Team: NMFS appointed the Snake River Salmon Recovery Team to develop recovery plan recommendations, which were released in the spring of 1994.

Biological Opinion: In March 1995, NMFS issued its biological opinion on the operation of Columbia River hydropower system. The opinion was submitted to Judge Malcolm Marsh who, in a 1994 lawsuit brought by Oregon and Idaho, ruled that the 1993 Federal Columbia River Power System biological opinion did not do enough to protect endangered and threatened Idaho salmon.

The 1995 biological opinion calls for interim actions such as increases in controlled spill at the dams, improving the barge transportation system, leaving more fish in the water to migrate in high flow years, drawing down the John Day Pool in 1996, and purchasing small amounts of irrigation water to increase flows. The opinion also calls for evaluation of and selection from a set of longer-term options by the year 2000. These options include the development and implementation of surface collectors, drawdowns in the Snake River, increased water in both the Columbia and Snake rivers, and improved transportation. However, it has come under criticism from environmental, tribal, and fishing interests for not doing enough to improve inriver migration conditions for listed salmon stocks. Industrial river users don't like the biological opinion and claim that it will cripple the region economically.

NMFS Draft Recovery Plan: NMFS released its draft recovery plan on March 20, 1995. A final recovery plan is expected in August 1995.

The Northwest Power Planning Council: On December 14, 1995, NPPC adopted its amendments to the Columbia Basin Fish and Wildlife Program. The amendment package includes measures to protect fish spawning and rearing habitat, and improve inriver migration conditions through reservoir drawdowns, increased flows, and spill in the Columbia and Snake rivers. Fishing, environmental, and tribal groups favor the NPPC amendments over the NMFS's biological opinion, because the NPPC amendments firmly commit to reducing juvenile salmon barging and improving inriver migration conditions quickly.

ACTION NEEDED: In November 1993, August 1994 and April 1995, the Pacific Fishery Management Council passed resolutions regarding recovery of Snake River salmon listed under the ESA that include the following recommendations (see Appendix C):

- Optimize survival of inriver migrants as opposed to transportation [barging and trucking] of juvenile migrants.
- Recommend that juvenile bypass systems at all mainstem facilities be completed at the earliest possible date.
- Endorse the need to provide 80 percent fish passage efficiency at each project by utilizing spill as required to augment bypass system performance.
- Augment streamflows and/or use reservoir drawdowns to increase water velocity and reduce juvenile migrant passage time.
- Ensure that measures are implemented which will address the needs of both listed and non-listed stocks in the basin.
- Adopt a Snake River salmon recovery plan whose recovery measures are (a) proportional to the documented factors in this decline and (b) include significant incremental annual improvements in hydrosystem passage to substantially increase inriver survival of naturally migrating salmon.
- Employ controlled spill, if and when requested by the Northwest fish agencies, as the primary means of juvenile salmon passage at the mainstem federal Columbia Basin dams.

C. INSTREAM FLOW

Insufficient instream flow is a significant fish habit problem. Salmonids require clean, cool water for spawning and rearing. Sufficient instream flows are also necessary for anadromous salmonids to reach their spawning grounds. Much of western water law is based on the "Doctrine of Prior Appropriation," which gives the water priority to the person with the oldest claim. Competing water users sometimes do not leave enough water for fish and other instream flow needs. Too often, the amount of minimum instream flow needed by fish is not documented or enforced. In many instances, states have continued issuing water permits beyond the stream's ability to provide that water.

In addition, freshwater flows are important to the function of floodplains and coastal estuaries. Estuaries are among the most productive natural systems and are important to salmon and numerous other commercially important species of fish and shellfish. Inadequate freshwater

inflows damage estuarine dependent resources. Floodplains are important to watershed health because they provide nutrients, large woody debris, and coho salmon winter habitat. Without floodplain restoration and maintenance, the quality and amount of fish habitat may decline substantially.

Rivers with chronic instream flow problems include the following:

Klamath Basin, CA: Since 1990, the ocean salmon fishing season in northern California and southern Oregon has been curtailed substantially in an effort to reach the minimum acceptable escapement of 35,000 fall chinook into the Klamath River. Ironically, these returning chinook have been subjected to suboptimal flow conditions which hindered their spawning success. In January 1994, BOR announced that because of precipitation at only 60 percent of normal, water releases from Klamath Lake would be reduced to below target levels. These reduced flows resulted in the dewatering of fall chinook redds. The member tribes (Hoopa, Karuk, Klamath and Yurok tribes) of the Klamath River Intertribal Fish and Water Commission presented BOR on March 13, 1995, a proposed plan for the operation of the Klamath Project. Included in that plan were specific recommendations for lake levels, instream flows, and agriculture and refuge water deliveries. The plan calls for greater flows during April, May, June and July (1,400, 1,700, 1,350 and 1,050 cfs, respectively). The Klamath Basin tribes, as well as the California Department of Fish and Game, believe that these flows are necessary for the protection of Klamath River salmon and steelhead.

Rogue River, OR: Returning spring chinook adults were killed by the thousands in 1992 because of record low flows and high temperatures on the Rogue River.

Illinois River, OR: The Illinois River is a tributary of the Rogue River. Illinois River summer steelhead are in record low numbers. Blamed for the steelhead's demise are poor land use practices including logging, road building, and dewatering for agricultural purposes. The result has been siltation, reduced flows and elevated water temperatures which at times reach more than 80° Fahrenheit during low water years.

San Joaquin River, CA: Irrigation diversions have reduced flows to levels that have driven adult fall chinook salmon to historically low levels, from 70,000 in 1985 to less than 1,000 adults in recent years.

Umatilla River, OR: Insufficient flows have plagued the Umatilla for decades (see "F. Water Spreading," below). In March 1995, the Confederated Tribes of the Umatilla Indian Reservation sent a letter to President Clinton and Oregon Governor John Kitzhauber asking them to declare "a state of emergency to prevent the extinction of additional salmon runs."

Trinity River, CA: The Trinity River suffers from insufficient flows to support salmon and steelhead. The diversion of significant quantities of Trinity River Basin water to the Sacramento River, along with blockage of access to the upper 100 miles of anadromous fish habitat, are the main causes behind the decline in Trinity River salmon and steelhead. After construction of the Trinity River Dam in the early 1960s, river flows were significantly reduced. BOR has at times diverted as much as 90 percent of the Trinity River into the Sacramento River (Central Valley). Currently, fishery flow allocations are 340,000 acre-feet annually. It is widely believed that this

allocation, which was mandated by a 1991 Secretary of the Interior decision and the CVPIA of 1992, may be insufficient. It is widely believed that without sufficient flows, salmonid restoration will be unsuccessful. Early in 1995, the U.S. Fish and Wildlife Service, Hoopa Valley Tribe and Trinity County released a scoping report of the "Mainstem Trinity River Fishery Restoration Environmental Impact Statement/Environmental Impact Review (EIS/EIR)." The EIS/EIR will assist the Secretary of the Interior in making a decision concerning permanent instream flow requirements and mainstream fishery restoration efforts.

Yakima River, WA: The Yakima River's water supplies are severely overtaxed by the competing demands of irrigation and instream flows for fish production, including spring and fall chinook and summer steelhead. With two exceptions, there are no binding minimum instream flows for fish. The 1994 Yakima River Basin Water Enhancement Project legislation authorizes $100 million to improve irrigation efficiency on BOR's Yakima Project. The bill provides for the purchase of land and lease of water rights for instream flows for fish, and increases water storage. Improved target flows will be implemented during the 1995 irrigation season, depending on water supply, at Sunnyside and Prosser dams.

Snake River Basin Tributaries, ID and OR: Several critical habitat areas for Snake River spring/summer chinook salmon, which are listed as "endangered " under the ESA, are impacted by irrigation diversions. Many upper **Salmon River** tributaries in the Salmon National Forest that historically produced anadromous fish are currently either dewatered, dammed for irrigation, or adult passage is restricted because of low flows (Keifenheim 1992). In the **Grande Ronde River Basin**, low streamflows, exacerbated by irrigation use, severely restrict the area in some mainstem and tributary stream reaches that are suitable for rearing juvenile salmonids.

ACTION NEEDED: Ensure sufficient streamflows for fish resources. The following steps could assist in providing more flows for fish (adapted, in part, from WaterWatch 1993):

- Require all users to eliminate waste.
- Define waste as the amount of water diverted in excess of the amount required to meet beneficial uses specified in the user's permit.
- Protect and quantify instream flows for fish resources.
- Facilitate transfers of existing water rights to instream flows, utilizing trust water rights or other mechanisms (including amending state water law), which result in increased streamflows.
- Require all water rights holders to install and maintain fish screening and bypass devices.
- Take all necessary actions to eliminate fish entrainment and mortality in surface water diversions.
- Explore the feasibility of exchanging surface water rights for ground water rights where such exchanges result in increased streamflow.
- Require accurate, timely metering of surface water diversions.

OTHER ACTIONS:

The Klamath Basin Fisheries Task Force Long-term Plan (1991) has called for an instream flow study. The purpose of the study is to scientifically estimate the amount of salmon spawning and rearing habitat expected at different flows. This information could be used by policy makers and the courts to determine salmon water needs. This study needs to move forward.

The Council passed a resolution on October 25, 1994 (see Appendix C), which requested BOR ensure that FERC-required minimum flow releases be maintained below Iron Gate Dam on the Klamath River.

D. SCREENING OF WATER DIVERSIONS

There are thousands of unscreened or inadequately screened irrigation diversions in the west. In California's Central Valley alone, NMFS reports that there are over 2,000 unscreened diversions. In Oregon's John Day River Basin, which is managed for wild chinook and steelhead, most fish screens were constructed in the mid 1950s and 1960s, with 19 diversions currently being unscreened; however, most of the old facilities were poorly designed and do not provide adequate protection for juvenile anadromous fishes (Moulton 1993).

The Columbia Basin Fish and Wildlife Authority's Fish Screen Oversight Committee's first priority in the Columbia River Basin continues to be to protect species that are listed pursuant to the Endangered Species Act (ESA): Snake River sockeye and chinook salmon. Fish screen work to protect these species is scheduled to proceed as follows:

- Washington ESA subbasins (Asotin, Tucannon, and Grande Ronde): screening work is complete.
- Oregon ESA subbasins (Imnaha and Grande Ronde): may be fully completed by 1996.
- Salmon River Subbasin, Idaho: diversions that affect listed species may be completed by the year 2000.

ACTION NEEDED: Programs to screen diversions must continue. In March of 1995, the Pacific Fishery Management Council passed a resolution which supported the creation of a "Fish Screening Special Practice" for use within the Sacramento-San Joaquin River System (see Appendix C).

E. FISH PASSAGE

If fish cannot reach spawning and rearing habitat areas, they cannot achieve their potential. This results in depressed and even healthy fish stocks declining to levels that cannot support fisheries, and possibly worse, to extinction.

Washington Department of Fish and Wildlife (WDFW) surveys estimate about 2,400 fish passage barriers at road culverts in Washington. This number is expected to grow as existing culverts age and degrade to the point where they too become impassable to fish. These fish passage barriers deny anadromous and resident fish access to important spawning and rearing habitats.

A sampling of habitat surveys above impassable culverts shows an average blockage of about 1.2 miles of otherwise suitable habitat. This translates into nearly 3,000 miles of inaccessible fish habitat, statewide, that otherwise could be supporting healthy trout and salmon populations.

State law requires all owners of facilities, such as culverts, to provide unimpeded fish passage. Because county roads comprise about 40 percent of the total road miles in the state, WDFW's initial emphasis is to correct county barrier problems. To assist counties in complying with this law, WDFW provides expertise to design and build passable fishways under contracts ranging from 50 to 100 percent reimbursement. These contracts are not open-ended, but are viewed as a "jump-start" to show counties how to address fish passage problems and to budget for future fish barrier restoration. The goal is for these authorities to independently correct fish barriers after working with WDFW on several projects.

ACTION NEEDED: Maintain existing agreement with Washington State Department of Transportation to correct passage problems. Expand agreements to include federal highways and county roadways.

F. WATER SPREADING

Water spreading is defined as the unauthorized use of federally developed water project facilities or water supplies on lands not approved by BOR for such use. As far back as 1983, BOR reported that water in the western United States was being illegally spread over hundreds of thousands of acres, providing unintended financial benefits of millions of dollars to water users. These water users do not pay the full costs of supplying the water used to irrigate ineligible lands. Water spreading can impair the water quality as well as the quantity and timing of irrigation return flows, harming the spawning, rearing, and migratory habitat of salmon.

In Oregon's Umatilla River, water spreading has come under particular attention because of its impact on dwindling salmon stocks. A water spreading policy was supposed to have been finalized by the fall of 1994, but was shelved. BOR is still seeking to eliminate the unauthorized use of water. Regulations will reportedly be released in the spring of 1995 that will resolve any use of BOR project water not in compliance with federal law or BOR water contracts.

ACTION NEEDED: BOR should take into account the instream flow needs of salmonids in developing its water spreading policy. Contracts with irrigators need to be enforced for the actual acre-feet of water allocated. Illegal removals of water must be halted.

G. UPLAND LAND USE PRACTICES AND POLLUTED RUNOFF

Salmon evolved in watersheds typified by cool, uncontaminated waters and large, downed instream conifers (large woody debris). Wetlands, including the riparian areas of watersheds, are a vital watershed habitat. The sponge-like nature of wetlands assists in their capacity to continually recharge streams and rivers in the low water periods of summer and protect watersheds from catastrophic flood events by slowly releasing water. Wetlands provide the vegetative regulatory mechanism for the exchange of nutrients and materials, including food supplies, from upland forests to streams. They also facilitate thermal regulation for adequate supplies of cold water.

Over the past 150 years, land use activities such as grazing of sheep and cattle, clear-cut timber harvesting, mineral mining and construction of homes and businesses (urban growth and land conversion) have changed the form and function of the watershed's riparian and wetland areas. These practices, often undertaken without fish habitat in mind, have significantly altered the quantity and quality of water delivered to the stream and the amount of cover that is available for fish and other stream-associated wildlife. Much has been written about the importance of watershed and ecosystem management. However, the nuts and bolts of fish habitat (ecosystem) protection will continue to be state and federal laws such as the Clean Water Act, state and federal forest practices, grazing regulations, and local land use planning decisions.

1. Timber Harvest and Road Building

Past timber harvest practices, such as splash damming, severely damaged fish habitat by removing spawning gravels and woody debris. More recently, attention has been placed on two areas: riparian zone management and road building. Numerous scientific studies have closely linked the importance of large woody debris and streamside vegetation to salmonid survival. Streamside trees and vegetation provide shade to keep stream temperatures cool. Large woody debris provides nutrients, shade and habitat complexity. Once these areas are disturbed (e.g., removal of large streamside trees), more solar energy reaches the stream, causing elevated stream temperatures deleterious to salmonid survival. Side channels and stream-associated wetlands provide calm water refuges for coho salmon during high winter flows. Research indicates that most of the sediment that enters the stream from silvicultural practices can be traced to erosion from poorly designed roads and culvert failures (Yee and Reolofs 1980).

Several initiatives regarding federal forest protection are currently underway or are being implemented. Below are summaries of the Clinton Forest Plan, PACFISH, and the Eastside Strategy. Riparian management regulations for PACFISH and the Clinton Forest Plan can be found in Table 1 below. A table outlining state and private riparian management regulations for Alaska, Washington, Oregon, Idaho and California can be found in the Appendix B.

The Clinton Forest Plan: On December 21, 1994, Judge William Dwyer ruled that the Clinton Forest Plan was legal. Riparian protection measures in the plan include 300-foot-wide buffers along fish bearing streams on federal lands in California, Oregon and Washington.

PACFISH: To address declining fish stocks in the Northwest, the U.S. Forest Service and Bureau of Land Management have developed a management strategy known as PACFISH (or the "Interim Strategies for Managing Anadromous Fish-producing Watersheds in Eastern Oregon and Washington, Idaho and Portions of California") that addresses the habitat needs of all Pacific anadromous "at risk" stocks in national forests. PACFISH restricts logging, road building and cattle grazing activity in areas outside the range of the spotted owl on U.S. Bureau of Land Management and Forest Service lands in Idaho, Oregon, Washington, and California. PACFISH calls for buffers of 300 feet on fish bearing streams and lakes, and 150 feet on permanently flowing non-fish bearing streams. On February 8, NMFS issued its Biological Opinion on PACFISH. On February 24, 1995, the USFWS and BLM released the record of decision on PACFISH.

Eastside Strategy: The Eastside Ecosystem Management Project, known as the Eastside Strategy, is a result of a 1993 presidential directive to develop a scientifically sound ecosystem-based strategy for management of Eastside forests. In July 1994, the Eastside Strategy became the Interior Columbia Basin Ecosystem Management project. There are now the Eastside and the Upper Columbia Basin Ecosystem Management projects. Two EIS's will be completed, one for federal lands in Eastern Oregon and Washington, and one for lands in the rest of the Columbia River Basin in Idaho, Montana, Wyoming, Utah, and Nevada.

TABLE 1. Riparian management widths (in feet) of Clinton Forest Plan and PACFISH.

	Fish Bearing	Non-fish Bearing	Intermittent
Clinton Forest Plan	300	150	100
PACFISH			
Key Watersheds	300	150	100
Non-Key Watersheds	300	150	50

ACTION NEEDED: Protection of the riparian area and the floodplain for water recharge, temperature control and physical structure for fish habitat is vital. Timber harvest management practices on private, state and federal lands must include leaving sufficient streamside buffers to provide shade and future large woody debris.

The Council passed a resolution on April 8, 1994 (see Appendix C), which requests that all federal, state, Tribal and local governments, in cooperation with private landowners, assure protection and restoration of salmon and salmon habitat by assigning the highest priority to developing parameters for, and carrying out, watershed assessments and watershed plans.

2. Mining

Watersheds in the west are still being impacted by past and present mining practices. Research in California's Salmon River (Klamath National Forest) found that hydraulic mining of the main river valleys that took place from about 1870-1950 produced approximately 15.8 million cubic yards of sediment, the effects of which are still impacting salmon habitat today.

Cyanide heap-leach gold mining has the potential to adversely impact anadromous fish habitat if runoff from sites is not properly contained. Mine exploration and development, along with associated wetland fills and road construction, may increase downstream sedimentation. Impacts to aquatic life may also result from chemical contamination by accidental spills and leaks from heap-leach pads, leachate from acid-forming tailings, and catastrophic failure of waste material storage areas. Hydraulic suction gold dredging may cause sedimentation, disturbance of adult salmon and steelhead, and entrainment of eggs and sac fry.

ACTION NEEDED: The 104th Congress will once again attempt to overhaul the more than century old mining law. This law regulates private access to unreserved federal lands, mostly in the west, to prospect for and produce gold, silver, copper, zinc and other

"hard-rock" minerals. Conservation interests have been arguing for years that the current law does not explicitly require mining lands to be restored after production is finished. Measures must be taken to ensure the protection of anadromous resting, spawning and rearing habitat.

3. Grazing

Poor grazing practices have substantially degraded many streams, rivers and wetlands in the Western United States. When livestock are allowed to enter stream riparian areas for extended periods, overhanging vegetation is grazed down and trampled causing increased sedimentation and elevated stream temperatures. As the stream widens and shallows, the water table drops away from the surface. When this occurs, riparian zone vegetation is replaced by plants more accustomed to dry climates, resulting in a loss of diversity. After numerous failed efforts in the past three years, in February 1995, the Bureau of Land Management announced its new grazing regulations package. Included in the new regulations are Resource Advisory Councils to help design the standards and guidelines to achieve rangeland health standards, and penalties for violations of laws protecting water quality and stream courses.

ACTION NEEDED: Proper watershed management must include provisions for protection of the riparian and floodplain zones from overgrazing. Current federal efforts to reform poor grazing practices and restore rangeland health must be implemented. State land managers should develop and implement grazing standards and guidelines that equal or exceed federal grazing standards.

4. Fish Passage Development at Existing Hydroelectric Projects

Numerous dams, including the Grand Coulee and Chief Joseph (Columbia River), Hells Canyon (Snake River), Keswick (Sacramento River), Pelton and Round Butte (Deschutes River), and Trinity and Lewiston (Trinity River) dams, have blocked or impeded access to thousands of miles of spawning and rearing grounds to anadromous salmonids. The Federal Energy Regulatory Commission (FERC) will consider relicensing the Hells Canyon and Pelton projects in the coming years, for which preconsultation discussions have already begun. Restoration of historical production areas must be considered. Many other projects are up for FERC relicensing, including all the Snake River-Idaho Power projects. Relicensing of several hydroelectric projects by FERC is currently underway. Environmental Impact Statements for the Condit Dam (White Salmon River, WA), Leaburg-Waterville Project (McKenzie River, OR), Elwha and Glines Canyon dams (Elwha River, WA), and the Cushman Project (Skokomish River, WA) are being or have been prepared.

ACTION NEEDED: Where suitable, hydroelectric projects should provide safe upstream and downstream passage for anadromous fish resources. Consideration should be given to removing projects that cost more to maintain than they provide in benefit or would provide in benefit to anadromous fish resources.

Below are three hydroelectric projects that the Council has commented on (see Appendix C):

Elwha River, WA: The Elwha River was once considered the most productive anadromous fish river on Washington's Olympic Peninsula. That changed in 1911 when the Elwha Dam was built. This facility did not include fish passage and blocked most of the drainage's spawning habitat. Because of the loss of 93 percent of its historical habitat, populations of Elwha River salmon have been severely reduced.

In 1992, Congress passed the Elwha River Ecosystem and Fisheries Restoration Act. The purpose of the act is to undertake the "full restoration" of the ecosystem and anadromous fish runs that historically inhabited the Elwha River. In 1994, federal legislation that would have expedited dam removal did not pass out of Congress. A draft EIS for Elwha River restoration was released in the fall of 1994.

> **ACTION NEEDED:** The Council wrote a letter in December 1994 in support of full restoration of anadromous fisheries in the Elwha River.

Cushman Project, Skokomish River, WA: The Skokomish River Basin was once the biggest producer of salmon in the Hood Canal Basin of Puget Sound. These stocks have been reduced to critically low numbers and some stocks have been lost forever. In 1930, the City of Tacoma completed two dams that blocked fish passage to 84 percent of the North Fork Skokomish watershed (the Cushman Project). Since 1988, the project has released flows of only 30 cfs, or about 4 percent of the river's natural average annual flow.

The Cushman Project is up for relicensing through FERC. A draft EIS is expected in the summer of 1995. The City of Tacoma proposes only a slight reduction (9 percent) of its out-of-basin diversion, from 96 percent to 87 percent of the average annual flow. The Skokomish Indian Tribe as well as state (WDFW) and federal (EPA, NMFS) resource agencies want a cessation of out-of-basin diversions (subject to flood control constraints).

> **ACTION NEEDED:** In a letter of June 2, 1994, the Council called on FERC to investigate the streamflows necessary to restore riverine and estuarine ecological functions, including salmon production, prior to the completion of the draft EIS.

Condit Dam, White Salmon River, WA: Condit Dam on the White Salmon River (river mile 3.3), a south-central Washington tributary of the Columbia River, has completely blocked migrating salmon and steelhead from habitat above the dam for the past 80 years. However, the likelihood of fishery restoration is excellent because the White Salmon River has only one mainstem Columbia River dam between it and the ocean, and the aquatic habitat above the project is in good condition.

In April 1994, FERC announced that the Condit project license was ready for environmental analysis. In May, NMFS and USFWS submitted their terms, conditions, and prescriptions pursuant to the FERC's licensing process. They prescribed a fish ladder and tailrace barrier for adult upstream migration, and juvenile fish passage facilities and spillway modifications to protect downstream juvenile migrants. However the dam license holder, PacifiCorp, has taken the position that more studies are needed before restoration for anadromous fish runs can be considered. A draft EIS is scheduled for release in the Spring of 1995.

ACTION NEEDED: The Council passed a resolution on October 25, 1994 urging FERC to reject PacifiCorp's continued delay of implementing anadromous fish passage and restoration of the White Salmon River. Also, the resolution urges that any new license be conditioned upon the restoration measures proposed by the agencies and tribes or that FERC immediately decommission the project, including removal of the dam structure and full restoration of habitat affected by the dam.

5. Agricultural Practices

Besides impacting fish habitat through excessive water withdrawals, poor agricultural practices can alter riparian areas and instream habitat through removal of riparian vegetation, stream channelization and bank hardening, drainage of wetlands, and chemical or organic contamination. These activities have lead to increased stream sedimentation, increased water temperature, loss of stream length and pool volume, and loss of large woody debris as habitat, and for channel stabilization.

First passed in 1985, the Farm Bill was an important step in putting environmental guidelines and funding incentives into agricultural practices through its **Swampbuster** and **Wetlands Reserve Program** (wetlands protection), **Sodbuster** (discourages cultivation of "new" highly erodible soils), **Conservation Compliance** (similar to sodbuster, but for existing highly erodible soils), and **Conservation Reserve Program** (CRP). It is estimated that the CRP has resulted in the savings of nearly 700 million tons of soil and reductions of nitrogen runoff by 123 million tons each year: runoff that could end up in streams, reducing their fish producing capacity.

ACTION NEEDED: CRP should continue, but improvements to it are needed. According to a 1993 Agricultural Stabilization and Conservation Service report, less than one percent of all contracted acres are in "filter strips," "waterways," and other areas directly affecting surface water resources. (More recently, CRP acreage in filter strips is thought to have increased.) Protected riparian areas are vital to watershed health and help stabilize stream temperature and flow, filter out excess sediment, provide nutrients, and provide for physical fish habitat. Future CRP funds need to be directed at riparian area protection. The Wetland Reserve Program is also a critical part of the reauthorization of the Farm Bill.

6. Urban Growth and Land Conversion

Population growth and the subsequent conversion of forest and agricultural lands to urban, suburban and rural residential uses have a variety of negative effects on fish resources. For salmonids in freshwater these effects include the following:

- direct loss of stream and riparian habitat to road and building site construction and maintenance,
- loss or partial obstruction of upstream and/or downstream migration by culverts and bridges,
- increased winter streamflows and reduced summer streamflows caused by increased impervious surfaces and stormwater runoff,
- reduced streamflows resulting from water diversion,

- elevated stream temperatures, chemical contamination, and stream and streambed sedimentation,
- increased disturbance, harassment and poaching of spawning salmon adults by humans,
- increased disturbance and/or mortalities of adults by pets and livestock, and
- increased risk of catastrophic fish kills as a result of spills of toxic substances.

For salmonids in marine water and for marine fish, particularly within urban areas, shoreline vegetation clearance, bulkheading, filling and dredging, and point and non-point pollution have resulted in the loss of the following essential fish habitat resources:

- shallow water migration routes and spawning areas,
- marine and shoreline vegetation and intertidal wetlands, and
- water quality.

ACTION NEEDED: Urban growth and land conversion is primarily a local land use issue, and secondarily a state and federal regulatory issue. It is up to local government (cities and counties) to consider and provide for the needs of salmon and marine fish in land use planning and implementation. State and federal regulatory agencies need to protect habitat to the full extent of their authority. To help identify important habitat areas, state and federal agencies should provide technical support to local governments responsible for land use decisions.

II. NEARSHORE ENVIRONMENT

A. COASTAL WETLANDS

For numerous species of marine fish and shellfish, coastal wetlands (non-freshwater) are absolutely essential. Salt marshes, mangrove swamps, tidal flats and associated fresh water wetlands provide critical habitats for spawning, feeding and migration. As a nationwide average, about 75 percent of commercially caught fish and shellfish are composed of estuarine-dependent species, 52 percent in the Northwest (Chambers 1992). The commercial catches of these wetland-dependent fish and shellfish contribute about $5.5 billion to the national economy annually (Chambers 1992). Recreational landings of estuarine-dependent fish are estimated to have a total economic impact of $8.2 billion annually (Prosser et al. 1988). According to the National Oceanic and Atmospheric Administration (NOAA) and USFWS, there are over 27 million acres of coastal wetlands in the lower 48 states. Estimates are that we have lost about half of our historical coastal wetlands (Johnston et al. 1992).

B. CONTAMINANTS

1. Point Source Pollution

The nation's estuaries and coastal waters are the ultimate repository for pollutants from urban and agricultural sources. Industrial discharges account for 90 percent of the inputs of cadmium, mercury and chlorinated hydrocarbons into marine waters, while municipal sewage treatment facilities contribute half the biological oxygen demand, total nitrogen, oil and grease (U.S. Congress 1987). Studies by NOAA (1988) indicate that on the West Coast, very high

contaminant levels are found in San Francisco Bay, Santa Monica Bay, Long Beach Harbor, San Diego Bay, and in the Eagle and Duwamish harbors of Puget Sound.

In the Columbia River Basin, pulp and paper mills contribute dioxin and furans. Radioactive chemicals have been released from the Hanford nuclear facility. Point and non-point sources contribute water pollutants such as organic pollution (sewage enrichment, nitrogen, and phosphorus), dioxin and furans, heavy metals (arsenic, mercury, copper, cadmium, chromium, lead), pesticides (herbicides, insecticides, and fungicides), wood preservatives and hazardous materials including PCB's, trichlorethylene, benzenes, and phenols (Wild Systems 1994).

2. Polluted Runoff

According to the EPA, the harm from polluted runoff (non-point source pollutants) may even exceed that from point source discharges. Polluted runoff includes chemicals and/or sediments from agricultural, grazing, mining, and timber harvesting activities, as well as the lead, chromium, zinc, copper and oil from urban streets.

A recently released report concludes that current pesticide practices do not protect Northwest streams from contamination (NCAP 1994).

State water quality agencies have only just begun to respond to polluted runoff problems. Under the Clean Water Act, if water quality limits beneficial uses in a watershed, an enforceable management plan must be developed which sets total maximum daily loads (TMDL). The Oregon Department of Environmental Quality is currently conducting public review of its 303 (d)(1) list of water quality limited bodies, which will be submitted in May 1995 (and thereafter every two years) to the U.S. Environmental Protection Agency.

Oregon's draft 303 (d)(1) list includes many anadromous fish streams where the beneficial uses are not protected or only partially supported for aquatic life. Water quality standards for fecal coliform, pH, and/or dissolved oxygen are sometimes exceeded in the Deschutes, Wallowa, Grande Ronde, John Day, Klamath, Sandy, Willamette, Siuslaw, Yaquina, Clatskanie, Kilchis, Wilson, Umpqua, Rogue, and Coquille rivers. TMDL determinations are complete in the Coquille River, Bear Creek (Rogue) and several Willamette River Tributaries. TMDL determinations are in progress on the Grande Ronde, Klamath, and several Willamette tributary watersheds (ORDEQ 1994).

3. Combined Sewer Overflows and Stormwater Runoff

Combined sewers are pipes that carry sanitary wastes along with storm water runoff. During storm events the sewer becomes filled to capacity. The untreated excess wastewater, including raw sewage, enters the aquatic environment. For example, Oregon's Willamette River receives 6 billion gallons of waste overflows annually (80 percent of it is stormwater runoff).

Stormwater runoff in itself can also be a source of toxic pollutants. Rainfall on streets can carry heavy metals (cadmium, lead), petroleum products and trash into storm drains and then into rivers and estuaries.

ACTION NEEDED:

- Through watershed planning, all landowners need to be informed of ways they can help reduce polluted runoff from their properties.
- Inputs of sewage, heavy metals and petroleum products from combined sewer overflows and storm drains must be reduced through proper treatment.
- Remaining coastal wetlands must be protected.
- Wetlands must be restored where possible.
- Toxic discharges from point sources must be minimized by reducing and/or phasing out the use of toxins.
- A strong Clean Water Act, up for reauthorization in 1995, will be a key to the protection of coastal wetlands and coastal water quality.

III. OFFSHORE ENVIRONMENT

A. OIL AND GAS EXPLORATION AND TRANSPORTATION

While offshore oil exploration and drilling receive considerable attention, only 2 percent of the input of petroleum into the world's oceans result from offshore production activities (45 percent result from tanker operations, spills at terminals, bilge and fuel oil flushing, and ship accidents; 36.5 percent from municipal and industrial wastes and runoff; 7.7 percent from natural seeps; and 9.2 percent from atmospheric deposition (National Research Council 1985; Boesch and Rabelais 1987).

ACTION NEEDED: The Olympic Coast National Marine Sanctuary was designated in 1994. Concerns have been raised because of a lack of a shipping industry oil spill contingency plan for this area, including an emergency towing system (dedicated rescue tug). Actions need to be taken to ensure that the highly productive waters between Gray's Harbor and Port Angeles, Washington, are protected from vessels that have lost power or steerage. One solution is to station a dedicated rescue tug in the mouth of Strait of Juan De Fuca. (In October 1994, the Pacific States Marine Fisheries Commission passed a resolution which calls for an emergency towing vessel to be eventually stationed in the Mouth of San Juan De Fuca, thereby promoting environmentally responsible use of the waters off the Olympic Coast and the Strait of Juan de Fuca.)

B. DREDGE SPOIL DISPOSAL

Dredged sediments are the last materials legally allowed to be disposed of in U.S. ocean waters. All other substances were banned in 1988. Concerns have been raised in the fishing community when ocean disposal of contaminated sediments threatens fish spawning, nursery and feeding areas. In December 1994, the Interagency Working Group on the Dredging Process released a new dredging policy. The policy has been criticized for not acknowledging, or making meaningful recommendations for managing, the threat posed by contaminated sediments.

ACTION NEEDED: Dredge spoils, both uncontaminated and contaminated by toxins, need to be disposed of in a manner that does not impact fish resources. This includes (1) designating deepwater dredge spoil disposal sites off the continental shelf, (2) testing the dredge spoils for their suitability to be dredged and for at-sea disposal, (3) disposing of dredged toxic materials at designated onshore toxic waste disposal and treatment sites, (4) monitoring at-sea disposal to assure compliance with dumping regulations within designated sites and that no adverse impacts result to marine life in the area of at-sea disposal sites, and (5) designating and utilizing upland or wetlands restoration on sunken agricultural land disposal sites for the purposes of reusing dredged materials and reducing at-sea disposal.

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APPENDIX A

EXCERPTS FROM STANDARDS AND GUIDELINES FOR RIPARIAN RESERVE MANAGEMENT REQUIREMENTS AND RIPARIAN HABITAT CONSERVATION AREAS

1. Excerpts From Standards And Guidelines for Riparian Reserve Management Requirements, Clinton Forest Plan, Record of Decision (1994):

Timber Management: Prohibit timber harvest, including fuelwood cutting, in Riparian Reserves, except: Where catastrophic events such as fire, flooding, volcanic, wind, or insect damage result in degraded riparian conditions, allow salvage and fuelwood cutting if required to attain Aquatic Conservation Strategy objectives. Salvage trees only when watershed analysis determines that present and future coarse woody debris needs are met and other Aquatic Conservation Strategy objectives are not adversely affected.

Grazing Management: Adjust grazing practices to eliminate impacts that retard or prevent attainment of Aquatic Conservation Strategy objectives. If adjusting practices is not effective, eliminate grazing. Locate new livestock handling and/or management facilities outside Riparian Reserves. For existing livestock handling facilities inside the Riparian Reserve, ensure that Aquatic Conservation Strategy objectives are met. Where these objectives cannot be met, require relocation or removal of such facilities.

Minerals Management: Require a reclamation plan, approved Plan of Operations, and reclamation bond. Locate structures, support facilities, and roads outside Riparian Reserves. Reclaim waste facilities after operations to ensure chemical and physical stability and to meet ACS objectives. Include inspection and monitoring requirements in mineral plans

General Riparian Management: Fell trees in Riparian Reserves when they pose a safety risk. Keep felled trees on site when needed to meet coarse woody debris objectives.

2. Excerpts From Standards And Guidelines for Riparian Habitat Conservation Areas, PACFISH, Decision Notice/Decision Record (1995):

Timber Management: Prohibit timber harvest, including fuelwood cutting, in Riparian Habitat Conservation Areas except where catastrophic events such as fire, flooding, volcanic, wind, or insect damage result in degraded riparian conditions, allow salvage and fuelwood cutting in Riparian Habitat Conservation areas only where present and future woody debris needs are met, where cutting would not retard or prevent attainment of other Riparian Management Objectives, and where adverse effects on listed anadromous fish can be avoided. For watersheds with listed salmon or designated critical habitat, complete Watershed Analysis prior to cutting in RHCAs.

Grazing: Modify grazing practices (e.g., accessibility to riparian areas to livestock, length of grazing season, stocking levels, timing of grazing, etc.) that retard or prevent attainment of Riparian Management Objectives or are likely to adversely affect listed anadromous fish. Suspend grazing if adjusting practices is not effective in meeting Riparian Management Objectives and avoiding adverse effects on listed anadromous fish. Locate new livestock handling and/or management facilities outside Riparian Habitat Conservation Areas, assure that facilities do not prevent attainment of Riparian Management Objectives or adversely affect listed anadromous fish. Relocate or close facilities where these objectives cannot be met.

Minerals Management: Avoid adverse impacts to listed species and designated critical habitat from mineral operations. If the Notice of Intent indicates a mineral operation would be located in a Riparian Habitat Conservation Area, or could affect attainment of a Riparian Management Objectives, or adversely affect listed anadromous fish, require a reclamation plan, approved Plan of Operations (or other such governing document), and reclamation bond. Locate structures, support facilities, and roads outside Riparian Habitat Conservation Areas and Reserves. Reclaim and monitor waste facilities to assure ensure chemical and physical stability and revegetation to avoid effects to listed anadromous fish, and attain the Riparian Management Objective. Develop inspection, monitoring and reporting requirements in mineral activities.

General Riparian Management: Trees may be felled in Riparian Reserves when they pose a safety risk. Keep felled trees on site when needed to meet coarse woody debris objectives.

APPENDIX B

FOREST PRACTICE RIPARIAN MANAGEMENT REGULATIONS FOR STATE AND PRIVATE LANDS IN CALIFORNIA, OREGON, WASHINGTON, IDAHO AND ALASKA

FOREST PRACTICE RIPARIAN MANAGEMENT REGULATIONS FOR STATE AND PRIVATE LANDS IN CALIFORNIA, OREGON, WASHINGTON, IDAHO AND ALASKA

CALIFORNIA – CONTACT AGENCY: Department of Forestry (916/653–5121).

STREAM SHADE	TREE RETENTION			
		Stream Class		
		Class I	Class II	Class III
		Fish always or seasonally present; fish spawning or migration habitat.	Fish always or seasonally present within 1,000 ft. downstream.	Non–fish bearing, capable of sediment transport.
Class I Streams: Retain 50% overstory and understory canopy covering ground; retain 25% of overstory conifers. *Class II Streams*: Retain 50% of total canopy covering ground; retain 25% of overstory conifers. *Class III Streams*: Leave 50% of total understory vegetation.	**Bank side slope angle**	**RMA width (ft.)**		
	< 30%	75	50	Shall be determined on a site–specific basis
	30% to 50%	100	75	
	> 50%	150	100	

OREGON – CONTACT AGENCY: Department of Forestry (503/945–7470).

STREAM SHADE	TREE RETENTION				
		Stream Type/Width/Flow			
	Coast Range Only	Type F Large fish bearing > 25 ft. width > 10 cfs avg. annual flow	Type F Medium fish bearing 8 to 25 ft. width 2 to 10 cfs avg. annual flow	Type F Small fish bearing < 8 ft. width < 2 cfs avg. annual flow	Type N Small non–fish bearing < 8 ft. width < 2 cfs avg. annual flow
For all fish bearing and large and medium non–fish bearing streams: retain all understory vegetation within 10 ft. of high water level and all trees within 20 ft. of high water level.	**Requirements**	**Square ft. of conifer basal area per 1,000 ft. of stream (each side)[1/]**			
	Tree Retention[2/] Max.	230	120	40	–
	(Coast Range) Min.	170	90	20	–
	RMA Width (ft.)	100	70	50	10

WASHINGTON – CONTACT AGENCY: Department of Natural Resource (360/902–1000).

STREAM SHADE	TREE RETENTION				
		Stream Type/Width			
	Western Washington Only	Type 1 & 2 Water > 75 ft. State shorelines or substantial fish numbers[3/]	Type 1 & 2 Water < 75 ft. State shorelines or substantial fish numbers[3/]	Type 3 Water < 5 ft. Significant fish numbers[3/]	Type 4 Water > 2 ft. Non–fish bearing, may be perennial or intermittant
Applies only if there is harvest planned within RMZ; once stream temperature and elevation are determined, a graph (nomograph) is used to derive minimum canopy cover. Additional requirements if >25% of each canopy removed and temperature model indicates stream temperature increase >2.8 degrees Celsius.	**Substrate Type**	**Trees per 1,000 ft. (each side)[4/]**			
	Gravel/Cobble	50	100	25	when necessary to protect resources[5/]
	Boulder Bedrock	25	50	25	
	RMA Width (ft.)	100	75	25	25

IDAHO – CONTACT AGENCY: Department of Lands (208/769–1525).

STREAM SHADE	TREE RETENTION				
		Stream Width/Class			
		Class I			Class II[6/]
		> 20 ft.	10 to 20 ft.	< 10 ft.	
Class I Streams (important fish bearing): Leave 75% of current stream shade.	Tree Diameter (DBH)	**Minimum Number of Standing Trees per 1,000 ft. (each side)**			
Class II Streams (headwaters, few if any fish): Provide soil stabilization and waste filtering by leaving undisturbed soils to a minimum of 5 ft. width.	0 to 7.9"	200	200	200	–
	8 to 11.9"	42	42	42	–
	12 to 19.9"	21	21	–	–
	> 20"	4	–	–	–
	RMA Width (ft.)	75	75	75	5

ALASKA – CONTACT AGENCY: Department of Natural Resources (907/762–2117).

STREAM SHADE	TREE RETENTION				
		Stream Class			
	Private Lands (Region I Coastal Forest)[8/]	Type A Fish bearing > 5 ft. width Gradient < 8% banks of vegetation	Type A Fish bearing < 5 ft. width Gradient < 8% banks of vegetation	Type B Fish bearing Gradient < 8% bank contained by geomorphology	Type C Non–fish bearing Gradient > 8% tributary to anadromous waters
		Channel not incised		Channel incised	
No specific stream shade requirements. Note: For "State Forest Lands" managed by the Department and "Other" public lands south of the Alaska Range[7/] 0 to 100 ft.: Harvest of timber may not be undertaken immediately adjacent to an anadromous or high value resident water fish. 100 to 300 ft.: Timber harvest . . . must be consistent with the maintenance of important fish and wildlife habitat.	**RMA Width (ft.)**	66	66	100	smaller of 50 ft. or before slope break
	Requirements for Region I RMA Coastal Forest Private Land	0 to 66 ft. no timber harvest (variations granted)	0 to 25 ft. no timber harvest 25 to 66 ft. up to 25% of qualifying trees can be harvested	Timber harvest conducted in compliance with slope stability standards	Timber harvest conducted in compliance with slope stability standards

1/ The basal area of a tree 13.6 in. in diameter is one square ft.

2/ Operators may place conifer logs or downed trees in Type F streams and receive basal area credit toward meeting tree retention requirements.

3/ "Substantial" and "significant" (for spawning, rearing or migration) are not defined.

4/ Ratio of conifer to deciduous for RMZ leave trees: for Type 1 and 2 water, representative of stand; for type 3 water less than 5" stream width, 1 to 1 with 6–in. minimum size or next largest available.

5/ When determined necessary, at least 25 trees greater than 6 in. dbh, within 25 ft. of stream.

6/ Idaho is currently considering changing Class II RMA width to 30 ft., and a minimum of 140 trees in the 0– to 7.9–in. diameter class per 1,000 ft. of Class II streams.

7/ North of the Alaska Range, 0 to 100 ft.: Timber harvest allowed if division (for State Forest Lands) or Commissioner of Natural Resources (for "Other" public lands) determines that adequate protection remains for fish habitat.

8/ For Region II (south of Alaska Range – Interior Spruce/Hardwood) and Region III (north and west of the Alaska Range – Interior Spruce/Hardwood): Timber harvest on private forest land within 100 ft. from the shore or bank of an anadromous or high value resident fish water body must be located and designed to protect fish habitat and surface water quality from significant adverse effects.

APPENDIX C

COUNCIL HABITAT RESOLUTIONS AND CORRESPONDENCE

RESOLUTION FOR RECOVERY OF SNAKE RIVER SALMON LISTED UNDER THE ENDANGERED SPECIES ACT

Whereas 3 stocks of Snake River salmon are listed as endangered or threatened under the ESA; and,

WHEREAS, FEDERAL COLUMBIA RIVER POWER SYSTEM (FCRPS) is the dominant cause of human-caused mortalities to these stocks, while the harvest sector is a minor factor; and

WHEREAS, MANY OTHER Columbia River basin salmon stocks are also dramatically affected by current operations of the FCRPS; and,

WHEREAS, THE COUNCIL believes that continued curtailment of harvest will not bring back productive Columbia River basin fisheries unless the critical underlying habitat problem is resolved; and,

WHEREAS, THE SNAKE RIVER SALMON RECOVERY TEAM has issued draft recovery recommendations which propose further restrictions on harvest but little change in migration conditions through the federal hydrosystem.

NOW, THEREFORE, BE IT RESOLVED THAT

The Council urges adoption of a final Snake River salmon recovery plan whose recovery measures (a) are proportional to the documented factors in this decline, and (b) include significant incremental annual improvements in hydrosystem passage to substantially increase inriver survival of naturally migrating salmon.

PFMC
11/16/93

RESOLUTION

WHEREAS, THE PACIFIC FISHERY MANAGEMENT COUNCIL recognizes the need for proper protection of fishery resources and conservation measures to achieve optimum yield for the United States, and;

WHEREAS, "CONSERVATION MANAGEMENT" refers to regulations, conditions, methods and other measures which are required to rebuild, restore, or maintain any fishery resource and its environment, and;

WHEREAS, methodologies to manage whole watersheds and watershed habitats on a coastwide basis are needed to protect salmon, and;

WHEREAS, THE PRESIDENT'S FOREST PLAN involves federal forest lands, but does not include state and private lands, and;

WHEREAS, COOPERATION among federal agencies, states, tribes, local governments, and private landowners, is paramount to salmon recovery, and;

WHEREAS, the federal, state, tribal, and local governments, and private landowners in a cooperative, cost-effective, process, need to:

- Identify current, potential, and historic conditions of the habitat,
- Identify physical and biological processes which are impairing habitat quality and production potential, and
- Develop habitat management prescriptions for restoring the habitat and for protecting habitat conditions which are currently at their potential, and;

WHEREAS, THE PACIFIC FISHERY MANAGEMENT COUNCIL supports actions by **all** levels of government which will assure timely development of watershed plans, create consistency in conservation management, and assure the ability to share resources and information between and among land-use managers,

THEREFORE BE IT RESOLVED THAT

The Pacific Fishery Management Council respectfully requests, indeed, pleads with **all** federal, state, tribal, and local governments, in cooperation with private landowners, to assure protection and restoration of salmon and salmon habitat by assigning the highest of priorities to developing parameters for, and carrying out, watershed assessments and watershed plans.

PFMC
04/08/94

RESOLUTION IN SUPPORT OF SPILL TO PASS JUVENILE SALMONIDS AT COLUMBIA AND SNAKE RIVER DAMS

Whereas, Pacific Northwest fishery agencies and tribes have concluded that controlled spill is in many cases the safest way to pass migrating juvenile salmon through Columbia Basin dams; and

Whereas, this conclusion is based on substantial research and monitoring of both spill and alternative passage methods over the past decade; and

Whereas, spill is used as the principal method of passing juvenile salmon through the mid-Columbia dams; and

Whereas, a spill program is designed to improve inriver survival by leaving a larger percentage of juvenile salmon migrating inriver; and

Whereas, the Columbia Basin fishery agencies and tribes have developed a detailed spill plan for each mainstem Snake and Columbia river dam, incorporating flexibility to immediately change spill levels and timing as needed; and

Whereas, monitoring is in place to evaluate nitrogen supersaturation and to adjust spill when concentrations occur at harmful levels; and

Whereas, the recent loss of substantial numbers of juvenile salmon in McNary Dam's bypass facilities could have been reduced if the fish had been spilled;

Now, therefore, The Pacific Fishery Management Council urges that spill be employed, if and when requested by northwest fishery agencies and tribes, as a primary means of juvenile salmon passage at mainstem federal Columbia Basin dams.

The Council further urges that thorough, daily dam-by-dam monitoring by northwest fishery agencies and tribes be used to evaluate the immediate and near-term effects of spill regimes and serve as the basis of adjustments, up to and including ceasing spill, as determined by northwest fishery agencies and tribes.

PFMC
08/02/94

RESOLUTION IN SUPPORT OF
PROVIDING ADEQUATE FLOW RELEASES AT IRON GATE DAM
TO ENSURE PROTECTION OF KLAMATH RIVER ANADROMOUS FISHERIES

Whereas, Klamath River anadromous fisheries support significant tribal, commercial and sport fisheries vital to Pacific Northwest culture and economy; and

Whereas, Klamath River salmon and steelhead populations are at some of the lowest levels in history; and

Whereas poor land use practices in watershed critical to the survival of anadromous fish, excessive water diversions and other factors have all contributed to this severe decline; and

Whereas, a number of resource agencies, commercial and recreational fishery interest groups, and tribes all support the maintenance of sufficient flows below Iron Gate Dam to restore salmon and steelhead populations; and

Whereas, only through responsible management of water resources can Klamath River Basin fisheries be restored to optimum levels as called for in the Klamath River Basin Restoration Act of 1986; and

Whereas, prudent water use in the Klamath basin must include measures to maintain lake levels to protect endangered Klamath Lake suckers; and

Whereas on a yearly basis, a measure of predictability needs to be inserted into Klamath Project water management addressing fishery needs and agricultural interests; and

Whereas, until such time as flow studies confirm flows necessary for the protection and restoration of Klamath River Basin fishery stocks, the Federal Energy Regulatory Commission (FERC) required minimum flow releases should be maintained at Iron Gate Dam on the Klamath River;

Now, therefore, the Pacific Fishery Management Council requests that the Bureau of Reclamation ensure that FERC–required minimum flow releases be maintained below Iron Gate Dam on the Klamath River as a measure of protection for already depleted fishery stocks.

The Council further urges that flow studies be initiated as soon as possible to determine the amount of water needed to restore the Klamath River basin fishery stocks.

PFMC
10/25/94

RESOLUTION IN SUPPORT OF ANADROMOUS FISH RESTORATION
IN THE WHITE SALMON RIVER, WASHINGTON

Whereas, the White Salmon River once supported substantial anadromous fish populations, as well as provided chinook salmon broodstock for Spring Creek National Hatchery and elsewhere; and

Whereas, Condit Hydroelectric Project (Federal Energy Regulatory Commission [FERC] #2342), which was constructed in 1912, still blocks upstream fish migration at river mile 3.3 and has seriously depleted the White Salmon River's anadromous fish populations; and

Whereas, since 1982, the Northwest Power Planning Council's Columbia River Basin Fish and Wildlife Program has, without success, directed the project operator, PacifiCorp, to construct fish passage facilities at the dam; and

Whereas, the FERC license for the project expired in December 1993; and

Whereas, pursuant to the FERC licensing process, Pacific Northwest fishery agencies and tribes recently (May 1994) submitted terms, conditions and prescriptions for fish passage facilities and other mitigation measures or dam removal and habitat restoration; and

Whereas, the White Salmon River is located low in the Columbia River Basin, habitat is exceptional and the likelihood of fishery restoration is excellent; and

Whereas, recently the U.S. District Court and the Ninth U.S. Circuit Court of Appeals have reiterated the agency/tribal contention that more aggressive actions are needed to restore anadromous fish stocks; and

Whereas, PacifiCorp remains opposed to proposed agency-tribal terms, conditions, and prescriptions, and proposed to FERC that more studies be conducted;

Now therefore, the Pacific Fishery Management Council urges that FERC reject PacifiCorp's continued delay of implementing anadromous fish passage and restoration of the White Salmon River Basin.

The Council further urges that any new license be conditioned upon the restoration measures proposed by the agencies and tribes or that FERC immediately decommission the project, including removal of the dam structure and full restoration of habitat affected by the dam.

PFMC
10/25/94

RESOLUTION IN SUPPORT OF SALMON HABITAT EDUCATION

Whereas, many of the Pacific states' salmon and steelhead trout fishery populations have suffered long-term declines; and

Whereas, these declines are a direct result of habitat destruction resulting from land-disturbing activities associated with human population such as logging, road building, agriculture, residential development and water development; and

Whereas, the fish and wildlife resources of these states are a valuable resource, important for their commercial, recreational, aesthetic and educational values; and

Whereas, one of the most effective ways to reach large numbers of people is through public education; and

Whereas, fish habitat and life cycle awareness programs such as Salmon-in-the-Classroom have proven to be an effective means of educating children about life cycles of salmon, steelhead and trout, and their habitat needs; and

Whereas, these programs have reached over 20,000 children and their parents in over 360 school classrooms in the 1993-1994 school year in California alone; and

Whereas the funding for these programs is increasingly in jeopardy because of limited funds for fishery restoration activities; and

Whereas, the long-term survival of healthy salmon and steelhead populations in the face of human population expansion depends on recognition of aesthetic and economic values of fish and careful protection of their habitat.

Therefore, be it resolved by the Pacific Fishery Management Council that all Pacific states should continue, expand, develop or reinstate Salmon-in-the-Classroom, Adopt-a-Stream, Adopt-a-Watershed, or similar programs within their fish and wildlife agencies and school systems.

PFMC
10/25/94

RESOLUTION IN SUPPORT OF
CALIFORNIA CONSOLIDATED FARM SERVICES AGENCY
EFFORTS TO PROVIDE FINANCIAL ASSISTANCE FOR FISH SCREENING

Whereas, each year millions of small salmonids are lost to pump and gravity water diversions along the Sacramento and San Joaquin rivers and delta, and of particular concern is the loss of young of the year Sacramento River winter chinook (federally listed as endangered); and

Whereas, current estimates suggest as many as 800 diversions along the Sacramento and San Joaquin rivers and 1,700 diversions within the delta are currently unscreened and therefore have the potential to take fish during normal operation; and

Whereas, properly designed, installed and maintained fish screens can be a very effective way to reduce the loss of small fish to these water diversions; and

Whereas, properly designed, installed and maintained fish screens are expensive and represent a significant investment cost to agricultural producers which has, in part, prevented the widespread installation of fish screens on small diversions and siphons within the Sacramento–San Joaquin river system; and

Whereas, the U.S. Department of Agriculture Consolidated Farm Services Agency (USDA–CFSA) in California has proposed the creation of a "Fish Screening Special Practice" as part of its "Agricultural Conservation Program" which, if authorized for use by CFSA, would provide financial assistance (on a cost share basis) to individual agricultural producers and groups to help cover the initial cost of fish screen installation; and

Whereas, this financial assistance would significantly reduce producer costs for fish screening and should result in increased use of this important practice;

Now therefore, the Pacific Fishery Management Council endorses this financial assistance and requests that USDA–CFSA officials in Washington, D.C., authorize the creation of this "Fish Screening Special Practice" for use within the Sacramento–San Joaquin river system.

PFMC
3/10/95

COLUMBIA/SNAKE RIVER SALMON RESOLUTION

Whereas, one year ago the Pacific Fishery Management Council (Council) requested the Northwest Power Planning Council (NPPC) and the National Marine Fisheries Service to "take prompt, aggressive action to improve mainstem passage conditions" through the lower Snake and Columbia river federal dams; and

Whereas, the Council requested that the framework for that aggressive action reflect proposals from the northwest fishery agencies and the Columbia Basin Indian tribes; and

Whereas, the fishery agencies and tribes propose to (a) improve inriver migration conditions quickly, (b) significantly reduce juvenile salmon barging, (c) improve migration survival through a combination of lower Snake River reservoir drawdowns and augmented flow, (d) use controlled spill as the primary means of juvenile passage at dams, and (e) give regional fishery agencies and tribes greater control over federal hydrosystem operations for fish; and

Whereas, the Council has separately endorsed this package of measures in a previous resolution; and

Whereas, in December 1994 NPPC adopted a "Strategy for Salmon" which, if implemented, will make major progress toward achieving the package of measures recommended above; and

Whereas, the federal government has now issued a 1994–1998 biological opinion for Operation of the federal hydrosystem, and a draft Snake River Salmon Recovery Plan, and is now taking public comment on the draft recovery plan; and

Whereas, neither the biological opinion nor the draft recovery plan fully implement the package of measures favored by regional fishery agencies and tribes, endorsed by the Pacific Fishery Management Council, and generally endorsed by NPPC;

Now therefore, be it resolved that the Pacific Fishery Management Council reiterates its support for aggressive action to improve mainstem passage conditions in the lower Snake and Columbia rivers.

Further, the Council thanks NPPC for adopting a plan which begins to take that aggressive action and urges NMFS to revise its 1994–1998 biological opinion and its draft Snake River Salmon Recovery Plan to more closely track the measures listed above, which are contained in the comments of the agencies and tribes to the NPPC "Strategy for Salmon."

With the record low adult Snake River salmon returns in 1994 and even lower returns projected for 1995, the Council believes the 1995 outmigration of juvenile Snake River salmon is crucial to recovery of the stock. The Council urges NMFS and the federal hydroelectric agencies to do everything possible to improve inriver migration conditions in 1995, including immediate implementation of a spill program to obtain 80 percent fish passage efficiency, so that as many fish as possible can migrate through the hydrosystem in the river.

PFMC
04/05/95

RESOLUTION IN SUPPORT OF INCREASING FLOWS
FROM THE POTTER VALLEY PROJECT TO THE EEL RIVER

Whereas, the Eel River historically has supported highly valued salmon and steelhead fisheries providing both recreational and economic opportunities for California; and

Whereas, the Eel River is designated a Wild and Scenic River by state and federal legislation based on the recognition of the critical need to protect the fisheries from further hydrologic modification along the river; and

Whereas, the California Department of Fish and Game (CDFG) in keeping with the spirit of the Wild and Scenic River designation of the Eel River, and the commitment of the State of California to restore the salmon and steelhead populations by all means possible; and

Whereas, significant flows required for the well being of the salmon populations of the Eel River mainstem have been diverted to the Russian River, and the National Marine Fisheries Service, CDFG and the Federal Energy Regulatory Commission (FERC) have all recognized this problem; and

Whereas, the Pacific Fishery Management Council recognizes the need to address this long standing inequity in flow distribution and supports the fair sharing of water with wildlife;

Now therefore, be it resolved that the Pacific Fishery Management Council supports the equal sharing of waters by requesting a minimum 50/50 split of flows at the point of diversion for the Eel River and the Potter Valley Project (FERC Number 77).

PFMC
04/05/95

PACIFIC FISHERY MANAGEMENT COUNCIL

2000 SW First Avenue, Suite 420
Portland, Oregon 97201

CHAIRMAN
Frank R. Warrens

EXECUTIVE DIRECTOR
Lawrence D. Six

Telephone: (503) 326-6352

December 8, 1993

The Honorable Bruce Babbitt
Secretary of the Department of Interior
1849 C Street, NW
Washington, D.C. 20240

Dear Mr. Secretary:

The Pacific Fishery Management Council (Council) is deeply concerned with the need to restore the natural production of Klamath River fall chinook. Coastal communities from central Oregon to San Francisco have lost millions of dollars over the past several years due to fishery reductions to protect this stock. Commercial Indian fisheries in the Klamath River, which provided nearly $1 million dollars in gross revenues to tribal fishers in 1988, are now greatly diminished. However, the Council cannot assure restoration of the Klamath stock and abundant fisheries solely through harvest reductions.

In April of this year, the departments of Interior and Commerce completed and implemented an agreement whereby the spawning escapement for Klamath River fall chinook was augmented by 3,000 fish over that provided for in the fishery management plan of the Council. This increase was justified, in part, to take advantage of the increased water supply that was expected to be available in the Klamath–Trinity River Basin due to elevated levels of precipitation during the previous winter and early spring. Since the flows in the Trinity and Klamath rivers are largely controlled by U.S. Bureau of Reclamation (BOR) projects, the actual availability of improved spawning and rearing flows to Klamath River fall chinook depends on the operation of these projects.

At present, the Council has not been informed of any planned actions by the BOR to assure beneficial flow conditions for migration, spawning and rearing of Klamath River fall chinook. Such actions appear to be an important part of the federal government's responsibility for protecting the natural anadromous fish populations and the reserved fishing rights of the Klamath River Indian tribes.

As you probably know, Public law 94-265 directs federal agencies to provide a detailed written response to Council comments within 45 days. The Council wishes to take advantage of this provision to request a summary of the specific water management actions which have been and will be taken to assure that optimum natural production results from the 1993 brood year of Klamath River fall chinook.

Thank you very much for your cooperation in this matter.

Sincerely,

Frank R. Warrens
Chairman

JCC:sjk
c: Habitat Steering Group

United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, D.C. 20240

TAKE PRIDE IN AMERICA

APR 8 - 1994

Mr. Frank R. Warrens
Chairman, Pacific Fishery Management
Council
2000 SW First Avenue, Suite 420
Portland, Oregon 97201

Dear Mr. Warrens:

Secretary Babbitt asked me to respond to your letter of December 8, 1993. I apologize for the delay. Secretary Babbitt shares your concerns regarding the economic hardships currently being experienced by both the Indian and commercial fisheries.

As you may know, precipitation has been abnormally low so far this year in the Klamath Basin. In your letter, you asked for a summary of the specific water management actions already taken and those planned to optimize natural production from the 1993 brood year of Klamath River fall chinook. To meet the reservoir elevation required by the Biological Opinion (issued under the Endangered Species Act) on the long-term operation of the Klamath Project and protection of the short nose and lost river suckers, the Bureau of Reclamation's Klamath Basin Area Office has made the following decisions:

1) At this time, it does not appear that surplus ("C") water will be available to Klamath Project water users. A final determination will be made after the April 1 forecast, in consultation with the fisheries resource agencies. Michael Ryan, Reclamation's Project Manager for the Klamath Project Office, will discuss the water supply conditions and operating strategies at the Klamath River Task Force Meeting in Brookings, Oregon on April 19.

2) River flows will vary below Iron Gate Dam until conditions warrant a change. A minimum flow of 250 cubic feet per second will be maintained below Keno Regulating Dam.

3) Flows below Iron Gate Dam will be increased to assist in the out-migration and spawning of Chinook salmon. This action will be coordinated with fisheries resource agencies, upstream and downstream users, and Pacific Power.

It will take continued efforts on the part of everyone involved to restore anadromous fish populations within this basin. As updates on project water conditions become available, Reclamation will provide them to the Pacific Fishery Management Council and other interested groups.

If you or anyone else on the Council have any questions, please feel free to contact Reclamation's Klamath River Basin Coordinator, Chip Bruss, at (916) 978-4956.

Sincerely,

Elizabeth Ann Rieke

Elizabeth Ann Rieke
Assistant Secretary
for Water and Science

PACIFIC FISHERY MANAGEMENT COUNCIL

CHAIRMAN
Frank R. Warrens

2000 SW First Avenue, Suite 420
Portland, Oregon 97201

Telephone: (503) 326-6352

EXECUTIVE DIRECTOR
Lawrence D. Six

April 15, 1994

R. Ted Bottiger, Chairman
Northwest Power Planning Council
851 Sixth Avenue, Suite 1100
Portland, Oregon 97204-1337

Dear Chairman Bottiger:

On April 8, 1994, the Pacific Fishery Management Council adopted the most restrictive ocean salmon fishing season in its 18-year history. Recent weather and ocean habitat anomalies have exacerbated declines in many stocks, some of which have already suffered from the impacts of long-standing habitat degradation, especially at Columbia and Snake river dams. Against that background, the very limited 1994 ocean salmon season protects important salmon stocks which contribute heavily to Pacific Council fisheries, especially natural coho stocks, and will also provide marginal but important protection for critically depressed Columbia River salmon stocks within purview of the Northwest Power Planning Council.

Since passage of the Magnuson Fishery Conservation and Management Act of 1976, the Pacific Council has imposed increasingly severe restrictions on fisheries which impact Columbia River stocks. The purpose of this letter is to urge the Power Council to take aggressive, complementary action in its pending rule making on mainstem Columbia and Snake river fish passage.

Draconian 1994 restrictions on ocean fisheries will have serious adverse impacts on fishers and dependent coastal economies. The attendant human suffering will be for nought unless the Power Council moves quickly to adequately address fish passage losses at mainstem Columbia and Snake river dams. These losses have long been acknowledged as the major source of man-caused mortality on salmon originating in the upper 95 percent of the Columbia Basin above Bonneville Dam. Ocean fishery impacts pale by comparison.

In passing the Pacific Northwest Electric Power Planning and Conservation Act of 1980, Congress declared an "emergency" and gave the Council 90 days to develop a plan to restore salmon stocks critically depleted by construction and operation of the Federal Columbia River Power System. The Act required provision of "...flows of sufficient quality and quantity between (hydroelectric) facilities to improve production, migration, and survival of such fish as necessary to meet sound biological objectives."

After 14 years, the Power Council has not yet taken action to provide these flows as mandated by the Act. Snake River coho are extinct; sockeye are listed as endangered under the Endangered Species Act (ESA) and all Snake River chinook stocks are listed as threatened. ESA petitions have been filed on upper Columbia River stocks.

The failure of the Power Council and others to thus far achieve adequate fish passage prescribed by the Northwest Power Act has jeopardized the resource, created social and economic disruption among tribal and non-tribal commercial, recreational and subsistence fisheries, and driven the public, states and tribes to the federal courts for relief.

On March 28, 1994, Federal District Court Judge Malcolm F. Marsh ruled that National Marine Fisheries Service (NMFS) action under the ESA (which imposes stronger mainstem passage measures than have thus far been required in the Power Council's program):

> "...is seriously, 'significantly,' flawed because it is too heavily geared towards a status quo that has allowed all forms of river activity to proceed in a deficit situation -- that is, relatively small steps, minor improvements and adjustments-- when the situation literally cries out for major overhaul. Instead of looking for what can be done to protect the species from jeopardy, NMFS and the action agencies have narrowly focussed their attention on what the establishment is capable of handling with minimal disruption."

Now, 14 years after Congress declared an emergency, the Power Council has entered rulemaking which proposes "to adopt a hypothesis regarding the flow/velocity-survival relationship as a first step..." in resolving "uncertainties." This hypothesis is to be tested as each incremental move away from the status quo is implemented.

The Pacific Council shares Judge Marsh's view that the situation calls for more than what the Power Council proposes. It calls for "major overhaul."

Therefore, we call upon the Power Council to use as the framework of its rulemaking the Detailed Fishery Operating Plan (DFOP), prepared by the Columbia Basin Fish and Wildlife Authority acting in its capacity as the representative agency for Columbia River Indian Tribes and other state and federal fish and wildlife agencies. The DFOP documents the most updated, collective and comprehensive 5-year recommendations for operating the hydrosystem consistent with the goals and objectives of the Power Planning Act of 1980.

Chairman Bottiger, the Pacific Council has taken difficult and responsible actions to fulfill its obligations under the law to protect critically depleted Columbia River salmon stocks. We acknowledge the difficult and complex problems you face. Nevertheless, it is time for the Power Council to do the same.

We appreciate your recent offer of help in obtaining disaster relief for fishers and coastal communities. However, the Pacific Council believes that the most valuable long-term assistance the Power Council can provide is achievement of fish passage survival levels which will restore the Columbia River chinook stocks. The DFOP provides the framework to achieve this goal. We urge the Power Council to fully implement the measures recommended in the DFOP in your current rulemaking on mainstem passage issues by utilizing the full force and effect of the Power Council's authority.

Sincerely,

Frank Warrens
Chairman

JCC:sjk
c: Council Members

PACIFIC FISHERY MANAGEMENT COUNCIL

CHAIRMAN
Frank R. Warrens

2000 SW First Avenue, Suite 420
Portland, Oregon 97201

Telephone: (503) 326-6352

EXECUTIVE DIRECTOR
Lawrence D. Six

April 15, 1994

Mr. Rolland A. Schmitten
Assistant Administrator for Fisheries
National Marine Fisheries Service - NOAA
1335 East-West Highway
Silver Spring, MD 20910

Dear Rollie:

As you know, on April 8, 1994, the Pacific Fishery Management Council adopted the most restrictive ocean salmon fishing season in its 18-year history.

These restrictions will offer marginal but important protection to Columbia River salmon listed under the Endangered Species Act (ESA). This additional protection will come at high cost to fishers and dependent coastal economies. The attendant human suffering will be for nought unless National Marine Fisheries Service (NMFS) moves aggressively to address fish passage losses at mainstem Columbia and Snake river dams. These losses long have been acknowledged as the major source of man-caused mortality of Columbia River salmon. The impact of the ocean fisheries pales by comparison.

On March 28, 1994, Federal District Court Judge Malcolm F. Marsh ruled that NMFS action under the ESA:

> "...is seriously, 'significantly,' flawed because it is too heavily geared towards a status quo that has allowed all forms of river activity to proceed in a deficit situation -- that is, relatively small steps, minor improvements and adjustments-- when the situation literally cries out for major overhaul. Instead of looking for what can be done to protect the species from jeopardy, NMFS and the action agencies have narrowly focussed their attention on what the establishment is capable of handling with minimal disruption."

The Council agrees. We urge NMFS to take prompt, aggressive action to improve mainstem passage conditions. To that end, we strongly recommend NMFS use the Columbia Basin Fish and Wildlife Authority's Detailed Fishery Operating Plan (DFOP), prepared jointly by the Columbia Basin Indian Tribes and state and federal fish and wildlife agencies, as the framework for action. The DFOP documents the most updated, collective and comprehensive 5-year recommendations for operating the hydrosystem consistent with the goals and objectives of the Power Planning Act of 1980.

Rollie, the Pacific Fishery Management Council has taken difficult and responsible actions to fulfill its obligations under the law to protect critically depleted Columbia River salmon stocks. We acknowledge the difficult and complex problems you face. Nevertheless, it is time for NMFS to do the same. We urge you to embody the DFOP in the current Biological Opinion for Snake River salmon stocks.

Sincerely,

Frank Warrens
Chairman

JCC:sjk
c: J. Gary Smith
Council Members

UNITED STAT DEPARTMENT OF COMMERCE
National Ocean and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
1335 East-West Highway
Silver Spring, MD 20910
THE DIRECTOR

MAY 05 1994

Mr. Frank Warrens
Chairman
Pacific Fishery Management Council
2000 SW First Avenue
Portland, Oregon 97201

Dear Mr. Warrens:

Thank you for your letter regarding fish passage and the recent decision by Judge Marsh on the 1993 biological opinion on operation of the Federal Columbia River Power System (FCRPS).

I appreciate the enormous sacrifice that California, Oregon, and Washington fishers have taken to reduce harvest impacts on depressed salmon stocks, including listed Snake River salmon, and agreement that passage conditions in the Columbia and Snake Rivers must be improved significantly if stocks are to recover. The Detailed Fish Operating Plan (DFOP) is one such proposal to improve fish passage.

As you may know, the recent decision by Judge Marsh has precipitated our reevaluation of the biological opinion on the 1994-1998 FCRPS operations, including the assumptions and analyses used to arrive at both the "no jeopardy conclusion" and the reasonable and prudent measures outlined in the opinion. As we proceed with this reevaluation of the consultation, and with our recovery planning process, we will continue to evaluate the options and recommendations contained in DFOP.

Sincerely,

Nancy Foster for

Rolland A. Schmitten

THE ASSISTANT ADMINISTRATOR
FOR FISHERIES

PACIFIC FISHERY MANAGEMENT COUNCIL

2000 SW First Avenue, Suite 420
Portland, Oregon 97201

Telephone: (503) 326-6352

CHAIRMAN
Frank R. Warrens

EXECUTIVE DIRECTOR
Lawrence D. Six

May 4, 1994

Charles Clarke, Regional Administrator
Region 10, Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101

Dear Mr. Clarke:

Attached is a resolution which was passed by the Pacific Fishery Management Council at its recent April meeting in Burlingame, California. At that meeting, the Council had to establish the most restrictive ocean salmon management measures of its 18-year history, completely banning all retention of coho salmon coastwide and closing all non-Indian commercial and recreational salmon seasons from Canada south to northern Oregon.

While recent events in the ocean environment were pivotal in causing the need for such drastic action in 1994, numerous salmon stocks have long been weakened by degradation of their freshwater habitat. This weakened state makes them more susceptible to long-term damage from natural variations in the ocean environment and fishing activities.

In this situation, it is especially important that federal, state, local and private entities work together to accomplish restoration and protection of the freshwater habitat on a watershed basis. Such cooperative efforts are the subject of the Council's resolution.

Sincerely,

Lawrence D. Six
Executive Director

JCC:elw
Attachment
c: Terry Williams

PACIFIC FISHERY MANAGEMENT COUNCIL

2000 SW First Avenue, Suite 420
Portland, Oregon 97201

CHAIRMAN
Frank R. Warrens

EXECUTIVE DIRECTOR
Lawrence D. Six

Telephone: (503) 326-6352

June 2, 1994

Elizabeth Moler, Chair
Federal Energy Regulation Commission
825 North Capitol Street, NE
Washington, D.C. 20426

RE: FERC consideration of application to license the Cushman Project, Project No. 460

Dear Chair Moler:

On April 8, the Pacific Fishery Management Council adopted the most restrictive ocean salmon fishing season in its 18-year history. This action, which will have adverse impacts on fishers and dependent coastal communities, was necessary to provide protection to salmon stocks critically depleted by weather and ocean habitat anomalies that have compounded long-standing impacts of habitat degradation, including the effects of hydroelectric projects under purview of the Federal Energy Regulatory Commission.

The Commission has before it an application to license the Cushman Hydroelectric Project on the North Fork Skokomish River (Project No. 460). The Cushman Project was built without fish passage facilities, inundating and blocking important salmon habitat. Until 1988 the project diverted the entire river out of its watershed to a remote power plant. These actions seriously degraded what once were the most productive riverine and estuarine salmon habitats in the Hood Canal Basin of Puget Sound. In its application, the City of Tacoma proposes to reduce its out-of-basin water diversion by only 9 percent, a reduction from the current level of 96 percent to a level of 87 percent of the river's average annual flow.

State, tribal, and federal resource agencies (Joint Resource Parties[1]) unanimously agree that the applicant's proposal is inadequate and would result in further degradation of salmon habitat. In the Council's view, this would be inconsistent with the fish conservation intent of the Magnuson Fishery Conservation and Management Act of 1976, and would be inconsistent with the habitat protection and restoration policies articulated in the Eighth Amendment to the Fishery Management Plan for Commercial and Recreational Salmon Fisheries off the Coasts of Washington, Oregon and California Commencing in 1978.

The Joint Resource Parties involved in the Cushman Project are unanimous in calling for investigation of streamflows necessary to restore riverine and estuarine ecological functions, including salmon production. The Council shares the Joint Resource Parties' position.

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[1] The Joint Resource Parties are: National Marine Fisheries Service, U.S. Department of the Interior (Fish and Wildlife Service, Bureau of Indian Affairs, National Park Service), Washington Department of Fish and Wildlife, Skokomish Indian Tribes, Point No Point Treaty Council.

We urge the Commission to thoroughly evaluate comprehensive studies of instream flows and sediment production/transport prior to completion of the draft Environmental Impact Statement on the Cushman Project.

Sincerely,

Frank R. Warrens
Chairman

JCC:elw
c: Habitat Steering Group
Northern Habitat Panel

PACIFIC FISHERY MANAGEMENT COUNCIL

2130 SW Fifth Avenue, Suite 224
Portland, Oregon 97201

Telephone: (503) 326-6352

CHAIRMAN
Frank R. Warrens

EXECUTIVE DIRECTOR
Lawrence D. Six

November 3, 1994

Ms. Lois D. Cashell, Secretary
Federal Energy Regulatory Commission
Mail Code DCPA, HL-21
825 North Capitol Street, NE
Washington, DC 20426

Dear Ms. Cashell:

At its October meeting, the Pacific Fishery Management Council adopted two resolutions which pertain to projects licensed by the Federal Energy Regulatory Commission (FERC): Condit Dam on the White Salmon River and Iron Gate Dam on the Klamath River. The resolutions are attached for your information and response.[1/]

The resolution regarding Condit Dam (FERC Project #2342) requests FERC to reject any further delay by PacifiCorp (licensee) in implementing anadromous fish passage and restoration in the White Salmon River basin. The Condit Dam has completely blocked anadromous fish passage to significant natural production areas for over 80 years. Issuance of any new license should be conditioned upon the restoration measures proposed by the fishery agencies and tribes. Short of this action, immediate decommissioning of the project would be in order, to include removal of the dam structure and full restoration of habitat affected by the dam.

The Council's second resolution, directed to the Bureau of Reclamation, requests that FERC-required minimum flow releases not be violated below Iron Gate Dam. Additional study is necessary to determine the actual amount of water needed to restore and maintain Klamath River anadromous fish stocks to assure successful long-term stock productivity. Klamath River fall chinook provide an important contribution to commercial, recreational and tribal fisheries and at currently depressed levels have been one of the primary stocks constraining ocean salmon fisheries in the past several years.

Thank you for your cooperation in resolving these fish habitat issues.

Sincerely,

Lawrence D. Six
Executive Director

JCC:elw
Attachments
c: Habitat Committee

1/ The Magnuson Fishery Conservation and Management Act (16 U.S.C. 1852 [i]) requires federal agencies receiving comments or recommendations from the Council to provide a detailed written response within 45 days.

FEDERAL ENERGY REGULATORY COMMISSION

WASHINGTON, D. C. 20426

OHL/DPCA

DEC 2 1 1994

Mr. Lawrence D. Six
Executive Director
Pacific Fishery Management Council
2130 SW Fifth Avenue, Suite 224
Portland, OR 97201

Dear Mr. Six:

This letter responds to your letter, dated November 3, 1994, transmitting two resolutions adopted by the Pacific Fishery Management Council (Council) pertaining to Commission-licensed projects. Specifically, the resolutions concern fish passage at the Condit Project (FERC No. 2342), located on the White Salmon River in Washington, and minimum flow releases at the Klamath Project (FERC No. 2082), located on the Klamath River in Oregon and California.

The resolution pertaining to the Condit Project urges the Commission to require fish passage facilities and other restoration measures at the project, or immediately decommission the project. As you know, the Condit Project is currently in relicensing. By letters dated April 29, 1994 and August 22, 1994, the U.S. Fish and Wildlife Service and the National Marine Fisheries Service, respectively, made valid fishway prescriptions pursuant to section 18 of the Federal Power Act. Because these prescriptions are mandatory, a requirement for a fishway will be included in any new license issued for the project. The need for implementation of the additional restorative measures is currently being reviewed, and the Council's position will be taken into consideration.

The Klamath Project resolution requests that the Bureau of Reclamation (Bureau) ensure that Commission-required minimum flow releases at Iron Gate are maintained, and that flow studies be initiated as soon as possible to determine the amount of water needed to restore the Klamath River Basin fish stocks. The Commission is well aware of the flow-dependent resources of the Klamath River and has established the existing minimum flow release requirements for their protection. Unfortunately, we do not have the statutory authority to direct the Bureau's allocation and release of water from Upper Klamath Lake. Nonetheless, in 1993 and 1994 we held meetings with the licensee, the Bureau, the resource agencies, tribal representatives, and other interests to ensure that the licensee takes all appropriate measures available to it to protect and enhance Klamath River fishery resources and to facilitate communication among all parties.

With respect to the Council's request for flow studies, it is our understanding that the Bureau and other interested parties are currently planning to conduct such studies to gain a better understanding of the flow needs of those resources. While we feel that the existing minimum flow requirements adequately protect and enhance the Klamath River fishery resources, we would not be reluctant to modify the requirements should those studies, or studies conducted pursuant to any relicensing of the project (the existing license expires in 2004), show that such changes would be needed and in the public interest.

We appreciate your interest in Commission activities. If you should have any questions concerning the above, please contact Dr. John Mudre at (202) 219-1208.

Sincerely,

Fred E. Springer
Director, Office of
Hydropower Licensing

PACIFIC FISHERY MANAGEMENT COUNCIL

CHAIRMAN
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2130 SW Fifth Avenue, Suite 224
Portland, Oregon 97201

Telephone: (503) 326-6352

EXECUTIVE DIRECTOR
Lawrence D. Six

November 16, 1994

Mr. Roger Patterson, Regional Director
Mid-Pacific Region
U.S. Bureau of Reclamation
2800 Cottage Way
Sacramento, CA 95825

Dear Mr. Patterson:

At its October meeting, the Pacific Fishery Management Council adopted a resolution concerning U.S. Bureau of Reclamation operations at Iron Gate Dam on the Klamath River. The resolution is attached for your information and response.

The Council recognizes that there are multiple needs to be served by flows in the Klamath River Basin and that a measure of predictability in planned flow releases would benefit both fishery and agricultural interests. In planning flow releases, the Council requests the Bureau ensure that minimum flows required by the Federal Energy Regulatory Commission (FERC) not be violated below Iron Gate Dam. FERC minimum flows are an important base to protect the production potential of Klamath River salmon until additional studies provide improved insights on the flows needed to achieve and maintain full production.

Klamath River fall chinook provide an important contribution to commercial, recreational and tribal fisheries. At currently depressed levels, the Klamath River fall chinook stock has been one of the primary stocks constraining ocean salmon fisheries in the past several years. We look forward to your cooperation in providing the basic flows needed below Iron Gate Dam to assure the timely and beneficial recovery of this stock.

Thank you for your consideration and assistance.

Sincerely,

Lawrence D. Six
Executive Director

JCC:sjk
Attachment
c: Habitat Committee

PACIFIC FISHERY MANAGEMENT COUNCIL

CHAIRMAN
Frank R. Warrens

2130 SW Fifth Avenue, Suite 224
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Telephone: (503) 326-6352

EXECUTIVE DIRECTOR
Lawrence D. Six

December 15, 1994

Ms. Sarah Bransom
National Park Service
Western Team
PO Box 25287
Denver, CO 80225-0287

SUBJECT: Draft Environmental Impact Statement, Elwha River Ecosystem Restoration

Dear Ms. Bransom:

The Pacific Fishery Management Council was created by the Magnuson Fishery Conservation and Management Act (MFCMA) 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 to the MFCMA in 1986 and 1990 added emphasis to the Council's role in fishery habitat protection, restoration and enhancement.

In view of the fishery habitat concerns specified in the MFCMA, the Council's Habitat Steering Group has reviewed the Department of the Interior's (DOI) Draft Environmental Impact Statement (DEIS) for the Elwha River ecosystem restoration. Based on that review, the Council's comments on the DEIS follow.

The Council notes that considerable effort went into the preparation of the Elwha River ecosystem restoration DEIS, including incorporation of information from the Federal Energy Regulatory Commission's DEIS for Elwha (Number 2683) and Glines Canyon (Number 588) dams, and the "Elwha Report" (Report to Congress). The level of analysis provided by DOI and the cooperating agencies is exceptional.

The Council strongly agrees with the conclusions reached by the DOI in the DEIS for full restoration of anadromous fisheries in the Elwha River system. Of the five alternatives examined, only the removal of both Elwha and Glines Canyon dams, associated reservoirs, and appurtenant facilities can achieve the goal of fully restoring anadromous salmonids to the basin. The Council notes that the Elwha River was historically one of the most productive producers of anadromous salmonids on the Olympic Peninsula, supporting runs of ten different stocks. Construction of two dams without fish passage facilities has restricted fish access to only the lower 4.9 miles of the Elwha River. Since construction of the dams, loss of gravel recruitment, woody debris and alterations in temperature regimes below the dams have degraded the existing habitat conditions to the point that the Elwha River supports only small runs of primarily hatchery supplemented coho, summer/fall chinook salmon and steelhead. Other historically abundant species such as sockeye, pink, chum, spring chinook salmon and summer steelhead are now either extirpated from the basin or potential candidates for listing under the Endangered

Species Act. The Council notes that habitat conditions above the two dams are rated as excellent and the two reservoirs inundate additional important habitat. The majority of the Elwha River drainage (80 percent) is located within the boundaries of Olympic National Park and is in a pristine condition. Once accessible, these habitats will be colonized rapidly. Restoration plans for fish stocks call for a change from current hatchery supplementation to primarily wild stock management.

The outlook for salmon stocks throughout the Pacific Northwest currently is bleak. Recreational and commercial fisheries have been curtailed dramatically in many areas, resulting in huge economic losses. Many stocks are being considered for listing under the Endangered Species Act. Restoration of these stocks will not be easy. We have lost many formerly productive habitats to the effects of urbanization, logging, hydroelectric developments, mining and agricultural activities. Rebuilding and protecting in perpetuity the productive capacity of such habitats will be a long and costly process. The restoration of the Elwha River represents a unique opportunity to restore wild salmon stocks on a scale unparalleled on the West Coast. When compared to the costs of restoring other river systems that have been altered by land management practices, the restoration of the Elwha River will prove to be highly cost effective. Additionally, because of the ownership patterns within the drainage, this investment will not be threatened by future development activities.

In closing, the Council supports the conclusions reached in the DEIS. Restoration of the Elwha River clearly represents one of the best opportunities to dramatically increase wild salmon production in the Pacific Northwest.

Sincerely,

John Cox

for Lawrence D. Six
Executive Director

MM:sjk
c: Habitat Committee
Council members