Mr. Linwood A. Watson, Jr., Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20246

Dear Secretary Watson:

This letter concerns the Federal Energy Regulatory Commission's (FERC) responsibilities under the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act).[1] Specifically, the Pacific Fishery Management Council (Council) is concerned FERC's administration of licensing actions under the Federal Power Act be consistent with the conservation of essential fish habitat .

ESSENTIAL FISH HABITAT

The Sustainable Fisheries Act of 1996 amended the Magnuson-Stevens Act to establish new requirements for "Essential Fish Habitat" (EFH) descriptions in federal fishery management plans (FMPs) and to require federal agencies to consult with National Marine Fisheries Service (NMFS) on activities that may adversely effect EFH. The Magnuson-Stevens Act, includes the following definition for managed salmonid species:

"EFH for Pacific Coast salmon fishery means those waters and substrate necessary for salmon spawning, rearing, breeding, feeding, or growth to maturity, needed to support a long-term sustainable salmon fishery and salmon contributions to a healthy ecosystem."

We have enclosed Section 3.2.5 Potential Impacts and Conservation Measures for Nonfishing Activities that may affect Salmon Essential Fish Habitat of Appendix A Identification and Description of EFH, Adverse Impacts, and Recommended Conservation Measures For Salmon - Amendment 14 to the Pacific Coast Salmon Plan (August 1999), in order to clarify the range of issues and concerns related to habitat critical to coho and chinook salmon and Puget Sound pink salmon.

IMPACT OF FERC LICENSED HYDROELECTRIC PROJECTS ON EFH

Throughout the range of Pacific salmon, numerous hydropower dams are currently undergoing, or are soon scheduled for relicensing, by FERC. With the term for FERC hydropower licenses generally running from 30 to 50 years, hydropower dams in California, Oregon, Washington, and Idaho present unique challenges to anadromous fish. According to a 1994 study by the U.S. Department of Energy, upstream passage/protection facilities are present at 6.7% (out of a total of 450 plants) of FERC licensed hydroelectric projects and downstream passage/protection/mitigation facilities are present at 9.3% (42 plants) in California. While in Oregon and Washington upstream and downstream passage/protection facilities are present at 22.5% (out of a total of 306 plants). Many of these existing passage facilities perform poorly. Additionally, many hydropower facilities significantly decrease streamflow, impair water quality and destroy important fish habitat causing serious harm to anadromous fish.

1 (Magnuson-Stevens Act) (16 U.S.C. 1801 et seq.), and Reorganization Plan Number 4 of 1970.

For instance, in California's Central Valley (Sacramento and San Joaquin Watersheds) dams block as much as 95% of historic salmonid spawning habitat. As a result, anadromous salmon are extirpated from approximately 5,700 miles of their historic habitat in the Central Valley. In most cases the habitat remaining is of much lower quality than the habitat lost and is subject to further degradation by direct and indirect impacts of hydroelectric operations. According to a FERC review, a total of 149 FERC licensed and exempted projects are located in the Central Valley. Although most of the 149 projects are small (114 have capacities less than 5 megawatts), total reservoir storage is about 40% of all surface water storage in the Central Valley. Most storage is located at relatively few projects. Twenty nine projects account for 95% of the FERC-licensed storage in the valley.

In 1985 the Oak Ridge National Laboratory analyzed the direct and indirect adverse impacts to sensitive fish populations from hydroelectric project operations in the Central Valley. The results of this analysis are contained in a FERC report concluding that 27 FERC licensed hydroelectric projects adversely alter stream flows in areas where sensitive fish species (including chinook salmon) are located. In its report, FERC further concludes the continuing operations of 9 FERC licensed hydro projects (involving 22 storage reservoirs) appear to have significant direct and cumulative impacts.

Similarly, dams, including FERC facilities in the Columbia River basin, block 55% of the total area and 33% of the total stream miles (over 3,000 stream miles) that were once accessible to salmon. Even dams with juvenile passage facilities can have significant cumulative effects, with cumulative juvenile mortalities routinely exceeding 75%.

The 1986 amendment to the Federal Power Act, the Electric Power Consumers' Act (ECPA) requires FERC to take a balanced approach to dam licensing. The amendment requires FERC, when deciding whether to issue a license, to consider not only the power generation potential of a river, but also give equal consideration to energy conservation, protection of fish and wildlife, and general environmental quality. This "equal consideration" mandate requires FERC to consult with federal, state, and local resource agencies, including fish, wildlife, recreation and land management agencies, in order to assess more accurately the impact of a hydroelectric project on the surrounding environment.

CUMULATIVE IMPACT ASSESSMENT

It is critical FERC utilize analytical tools to accurately determine potential adverse effects (e.g., the 1996 NMFS "Matrix of Pathways and Indicators" for evaluating the effects of human activities on anadromous salmonid habitat), watershed assessment protocols, research programs, predictive watershed models for testing policies and assessing adverse impacts, etc. These can be particularly useful for assessing cumulative impacts. Cumulative impact analysis is intended to monitor the effect on EFH of the incremental impacts occurring within a watershed or marine ecosystem context that may result from the minor but collectively significant actions.

A valid cumulative impact assessment can not be conducted on a project by project basis, as is FERC's practice. A relicensing occurs at the expiration of current FERC license terms for a hydroelectric project. Expiration dates are based upon the date and duration of the current license. Accordingly, relicensings are not coordinated by watershed or impact area. Because relicensing schedules are not coordinated, the development of comprehensive cumulative impact assessments and system or basin wide alternative operating scenarios necessary to improve efficiency, facilitate relicensing, and minimize impacts on listed salmonids are precluded. The lack of coordinated relicensing also limits the efficacy and thus the opportunity for improving fish passage on rivers where longitudinally consecutive hydroelectric projects create multiple migration barriers. Accordingly, FERC should require licensees to amend their project licenses prior to relicensing such that license expiration dates are coordinated (bundled) by watershed or system depending upon the area of impact to aquatic habitat.

Cumulative impact analysis is a corollary of tiering from the programmatic since iterative actions of increasing focus can have various kinds of adverse effects (additive, synergistic, catalytic, threshold) over the life of the project and beyond. Utilization of such programmatic tools will enhance predictive capability of cumulative impact analyses and help inform the selection of appropriate mitigation.

CRITICAL ISSUES

The Council urges FERC to fully address the following issue areas as it moves forward with the deliberations concerning relicensing actions in California, Washington, Oregon, and Idaho:

(i) **Fish passage conditions at the project:** Hydropower projects affect both upstream migration of adult salmonids, and downstream migration of juveniles. Some projects may possess passage facilities that are improperly designed or operated resulting in substantial impacts to fish. Some projects may totally block salmonid migration, eliminating access and connectivity between populations and habitats. Applicants should analyze existing fish passage conditions and devise strategies to improve passage conditions where necessary to meet established quantitative and qualitative fisheries goals.

(ii) **Impacts to stream flow and fish habitat in and below the project area:** Hydropower projects that are truly "run of river" may impact stream flow conditions minimally, because they pass all flows through turbines (with powerhouse integral with the dam) or over spillways, thereby maintaining consistent flow conditions below the project (i.e., run-of-river operations). Nonetheless, in reality few if any projects are "run of river" where inflow matches outflow on a 24 hour basis. Such operations can degrade habitat above and below projects. In addition, projects may store stream flows behind the project and release the flows later for generation (i.e., peaking projects). Peaking operations can result in stranding of fish due to rapid flow fluctuations, can scour spawning and rearing areas below projects, and reduce the abundance and diversity of aquatic insect populations critical to fish productivity. Still other projects may divert stream flows from the river channel, thus dewatering aquatic habitat. Applicants should describe existing stream flow conditions in the affected area, and describe how project operations will be modified to improve access to and impacts on aquatic habitat.

(iii) **Impacts to water quality in the project area:** Project operations that affect stream flow may likewise affect water quality. For example, storing water behind diversionary structures may result in increased water temperatures, disruption of normal sediment transport regimes, and reduction of available dissolved oxygen in downstream areas. Reduction in stream flows may also reduce water available for diluting other man-made wastes emanating from point and non-point sources. Rapid release of water below projects can increase total dissolved gas levels causing gas bubble trauma. Each applicant should analyze existing water quality parameters in the affected area, including parameters monitored under state and federal Clean Water Act regulations. Studies should analyze how project operations need to be modified to prevent degradation of existing water quality, or improvement of water quality in water quality limited streams The project area must extend downstream far enough to cumulatively account for impacts. For example, flow damping effects on sediment delivery to downstream estuaries must be consider

(iv) **Assessments should:** 1) Provide a biologically based rationale demonstrating the proposed actions do not appreciably reduce the likelihood of survival and recovery of the species in the wild; and 2) provide that full mitigation and compensation for unavoidable loss is required.

(v) **Effective monitoring and evaluation programs:** The design and funding of monitoring programs must provide for collection of sufficient data to assess compliance, effectiveness, and parameter validation. Much of the already cumbersome licensing process will concern the specific details of impact mitigation and monitoring. Therefore, in order to provide meaningful mitigation of impacts, any proposal to protect, mitigate, or enhance aquatic resources should be programmatic and include basin-wide proposals for mitigation and monitoring. A series of independent and site specific proceedings (without regional or basin-wide coordination) would perpetuate the current duplicative and time consuming process. Consequently, this would prohibiting a timely response to regional energy and environmental needs.

(vi) **Provides for adaptive management:** A structured process of "learning by doing" needs to be included throughout the term of the license by evaluating monitoring data to determine any needed revisions of assumptions, management strategies, or objectives. Project proposals must describe the conditions under which revisions are to be made and the processes for accomplishing those revisions.

(vii) **Multiple dam effects:** Within any larger watershed, multiple dam structural configurations and operations, and future relicensing must be taken into account.

ALTERNATIVE LICENSING PROCESS

The Council is concerned over the recent collaborative licensing alternative instituted by FERC. With so many licensing proceedings ongoing, it is very difficult for the Council and other parties who are important stakeholders in the relicensing process to effectively engage in the alternative process, because of the large time and resource commitment required by the process. Thus, FERC should weigh carefully each licensing proceeding with respect to the alternative process and defer to the traditional three stage consultation process if there is evidence provided by stakeholders the alternative process is not conducive to a particular licensing process.

Further, the Council is concerned FERC often does not support reopening of licenses or shorter license terms to allow for adaptive management of license conditions and modified terms, conditions, and prescriptions of the fishery agencies to protect fishery resources which are public resources. Given the importance of these multiple licensing proceedings that will establish new or renewed licenses for decades in the future, the Council recommends FERC seek flexibility with respect to license reopeners and shorter license terms. In the standard thirty to fifty years of a FERC license, entire populations of fish can be fragmented or even extirpated.

If the Council can be of any further assistance in your deliberations or negotiations concerning the mitigation agreement concerning the project, please contact the Chair of the Habitat Steering Group.

Sincerely,

DRAFT

Dr. Hans Radtke
Chair

HR:kla