United States Department of the Interior

FISH AND WILDLIFE SERVICE
Sacramento Fish and Wildlife Office
2800 Cottage Way, Room W-2605
Sacramento, California 95825-1846

In Reply Refer To:

AUG 24 2012

Turlock Irrigation District and
Modesto Irrigation District
Robert Nees
Director of Water Resources and TID/MID
333 East Canal Drive
Post Office Box 949
Turlock California 95380

Subject: U.S. Fish and Wildlife Service Comments on Workshop No. 2 for *Study W&AR-5 Salmonid Populations Information Integration and Synthesis, W&AR-6 Chinook Salmon Population Model, and W&AR-10 O. mykiss Population Studies* and on *W&AR 20 – Oncorhynchus mykiss Scale Collection and Age Determination Study Plan* for the Don Pedro Hydroelectric Project, Federal Energy Regulatory Commission Project 2299, on the Tuolumne River, Tuolumne and Stanislaus Counties, California

Dear Mr. Nees:

On December 22, 2011, the Director of Energy Projects for the Federal Energy Regulatory Commission (Commission or FERC) issued a Study Plan Determination for the Turlock Irrigation District and the Modesto Irrigation District's (Districts or Applicants) application for New License for the Don Pedro Hydroelectric Project 2299 (Project). The Determination required, among other things, that the Districts develop and file with FERC a Workshop Consultation Process for Studies W&AR 2, 3, 5, 6, 10, and 16 for the Don Pedro Hydroelectric Project. The Determination also required the Districts to consult with the U.S. Fish and Wildlife Service (Service), the National Marine Fisheries Service (NMFS), California Department of Fish and Game (CDFG), and the California State Water Resources Control Board (SWRCB) regarding at least parts of the aforementioned studies, providing them 30 days to review the draft Study plan modifications, workshop materials and notes, and incorporate or address any resource agency comments into the final plan filed with FERC. Moreover, the Determination required that, if the Districts do not adopt a recommendation from a consulted entity, then the Districts must include their reasons for not adopting the recommendation in their filing with the Commission of the final study plan.

The Districts hosted a workshop on June 26, 2012 and presented information and materials for *Study W&AR-5 – Salmonid Populations Information Integration and Synthesis, W&AR-6 Chinook Salmon Population Model, and W&AR-10 O. mykiss Population Studies*. The draft meeting notes, conceptual model narratives for salmonids, and preliminary ranking of key issues affecting salmonid life stages were provided to the Relicensing Participants on July 25, 2012 with a request that all comments be provided no later than August 24, 2012.

The following constitute the Service's comments on the proposed modifications to the above Study Plans. The Service submits these comments and recommendations under the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. § 1531 *et seq.*), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. § 661 *et seq.*), and the Federal Power Act (FPA) (16 U.S.C. § 791a, *et seq.*).

Comments on Draft Meeting Notes

Page 4, item D: The Service provided suggestions regarding factors that may be impacting the age structure of the Chinook salmon and steelhead populations (e.g., year-class strength, ocean growth rate) and provided a manuscript (Wells et al. 2007). Specifically, the Service suggested that year-class strength has the largest effect on age structure of the Tuolumne River salmonid populations because recruitment is much higher in wet years than during normal and dry years based on the numbers of subsequent adult returns. For example, we might expect that 30,000 adult Chinook salmon return from juveniles that out-migrated during wet year flood flow releases and there would be 7,500 age-2 adult returns, followed by 16,500 age-3 fish in the following year, and 6,000 age-4 fish the year after. If the year following the wet year with flood flow releases is a dry year, we would only expect 3,000 adults to return from the juveniles produced during that year and the returns by age would be low too. Another factor that is likely to influence the age structure of the Chinook salmon population is the rate of growth of individuals in the ocean. Wells et al. (2007) found that the faster Chinook salmon grow in the ocean, the more likely they are to return at age-two. Further, San Joaquin River basin salmon appear to return at age-two at about double the rate as Sacramento River basin salmon, suggesting that San Joaquin salmon exhibit some differences in behavior in the ocean

Page 4, item F: The Service provided a report showing an increase in adult migration in the Mokelumne River following increased flow releases (Del Real and Saldate 2011). This report provides information suggesting that river flow combined with management actions (e.g., pulse flows; Delta Cross Channel closure) were followed by peaks in daily passage of adult Chinook salmon and contributed to high adult returns. These results also support observations of increases in daily upstream adult Chinook salmon passage at the Tuolumne River Weir in relation to daily average flows. The efficacy of releasing pulses of water in the fall to attract adult Chinook salmon could be further evaluated (USFWS 1995; USFWS 2001). However, sufficient data exist to support continuation of managing water operations in a way that includes substantial (i.e., >500 cfs), short-term (i.e., <5 day) increases in river discharge.

Page 4, item G: The Service clarifies that CDFG is initiating an adult tracking study of up-migrant Chinook salmon in the San Joaquin River near Mossdale. The objectives of this study

are to: 1) track movement patterns through the Sacramento-San Joaquin Delta and in the San Joaquin River basin in response to environmental variability; 2) record external water temperature that tagged fish experience while migrating through the study area; and 3) track egg viability of the adults that migrate into the Merced River Hatchery as a function of water temperatures experienced. This study also addresses the Anadromous Fish Restoration Program Final Restoration Plan Evaluation 4 for the Tuolumne River (USFWS 2001), to evaluate fall pulse flows for attraction and passage benefits to Chinook salmon and steelhead.

Page 5, item B: The Service provided a reference to a manuscript discussing egg predation by salmonids and other species (Johnson et al. 2009). This reference was provided because the introduction of this paper includes many references to other studies that reported predation on Pacific salmon eggs. Several studies have documented the consumption of salmon eggs by sculpins and salmonids including coho salmon, steelhead, brook trout, and brown trout (Greeley 1932; Idyll 1942; Reed 1967; Stauffer 1971; Johnson and Ringler 1981; Johnson 1981; Foote and Brown 1998). Due to anthropogenic changes in the Tuolumne River (e.g., impaired flows, mining operations), suitable spawning habitat area may be limited in some years which may result in redd superimposition and increased egg predation by a variety of native and nonnative species.

Page 5, item D: The Service provided a manuscript (Nobriga et al. 2004) and provided contact details for further information regarding entrainment rates of various screen types.

Page 10, item E: The Service provided a report showing an increase in adult Chinook salmon migration following increased flow releases (Del Real and Saldate 2011). The Anadromous Fish Restoration Program Final Restoration Plan Evaluation 4 for the Tuolumne River (USFWS 2001) identifies the need to evaluate fall pulse flows for attraction and passage benefits for both Chinook salmon and steelhead. Information on steelhead adult fish migration from the Yuba River, American River, Stanislaus River, and/or the Tuolumne River fish counting weir should be used to make this evaluation.

Page 11, Egg Incubation item B: McCullough et al. (2001) discusses the role temperature plays on the physiology of various salmonid species and within the stages of their life history. Water temperature in the Tuolumne River may exceed EPA's temperature criteria during critical salmonid life stages, including egg incubation. In lieu of studies that evaluate temperature impacts on incubating eggs, CDFG thermograph data from the spawning reach of the Tuolumne River should be evaluated in comparison to EPA's temperature criteria. Following that evaluation, the importance of temperature impacting recruitment at various life stages can be incorporated into the model.

Comments on Conceptual Model Narratives for Salmonids

The Service had an opportunity to comment on and work with other relicensing participants to refine the draft conceptual models for Chinook salmon and steelhead. We concur with the current model and have no further comment at this time.

Comments on Preliminary Ranking of Key Issues Affecting Salmonid Life Stages

The Service had an opportunity to comment on and work with other relicensing participants to rank key issues or limiting factors affecting Chinook salmon and steelhead. We concur with the current rankings and have no further comment at this time.

Comments on Study Plan Determination Modifications

On July 25, 2012, the Commission issued its Review of New and Modified Studies for the Don Pedro Hydroelectric Project. As part of this determination, the Commission approved W&AR 20 (*Oncorhynchus mykiss* Scale Collection and Age Determination Study Plan).

The Service previously submitted detailed justification for more robust scale collections to accurately describe the age structure and growth characteristics of *O. mykiss* in the lower Tuolumne River. The Commission makes the following statement in its discussion of this study: "...Districts propose to age scale samples from a wide range of fish sizes, and relate that information to a much larger data base of length distribution data through regression analysis, sampling scales from 400 *O. mykiss*, as the FWS recommends, is not necessary for the purposes of this study."

The Service disagrees with the Commission's view that 75 samples are sufficient. The fact that the Districts propose to relate growth information to a much larger dataset of lengths does not negate the need for a larger sample size, but rather makes a larger sampling essential. It is highly likely that problems will arise with the current recommended sampling framework. For example, within the suggested sampling framework the 15 fish from the 150-250 mm size-group could all be between 240-250 mm, then the ages (and thus growth rates) assigned to the larger data base of length distribution data will be biased because the smaller fish in the size group will not be represented and are likely age-two (e.g., 150-160 mm fish). To illustrate this point, if 10 of those fish are age-three, and 5 are age-four, then 67% of 150-250 mm fish from the lengths-only dataset will be assigned an age of three and the remaining 33% will be assigned an age of four, and none will be assigned an age of two even though the size category likely contains age-two individuals. Thus, to avoid this bias, the common scientific practice is to sample at least 5 fish per centimeter-length-group for management purposes and at least 10 fish per centimeter-length-group for research projects (Quist et al. 2009). This simple and realistic example illustrates the need for a reasonable and defensible sampling methodology; the Service is available to discuss this guideline and illustrate further examples.

Conclusion

The Service has attended both *W&AR-5 – Salmonid Populations Information Integration and Synthesis* workshops and has worked closely with other resource agencies and the Applicant to provide the best available information that will help inform the development of Project license conditions as required by CFR 18 § 5.11 (b)-(e). The Service has worked with the Applicants in seeking solutions to Study Plan deficiencies and we appreciate the collaborative discussions in which all participants have engaged.

If you have any questions regarding this response, please contact Deborah Giglio at (916) 414-6600.

Sincerely,

Daniel Welsh
Assistant Field Supervisor

Enclosures

cc:
FERC #2299 Service List, Don Pedro River Hydroelectric Project

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BEFORE THE
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

CERTIFICATE OF SERVICE

I hereby certify that U.S. Fish and Wildlife Service Comments on Workshop No. 2 for *Study W&AR-5 Salmonid Populations Information Integration and Synthesis, W&AR-6 Chinook Salmon Population Model, and W&AR-10 O. mykiss Population Studies* and on *W&AR 20 – Oncorhynchus mykiss Scale Collection and Age Determination Study Plan* for the Don Pedro Hydroelectric Project, Federal Energy Regulatory Commission Project 2299, on the Tuolumne River; Tuolumne and Stanislaus Counties, California has this day been electronically filed with the Federal Energy Regulatory Commission and electronically served on Parties indicating a willingness to receive electronic service and served, via deposit in U.S. mail, first-class postage paid, upon each other person designated on the service list for Project #2299 compiled by the Commission Secretary.

Dated at Sacramento, California, this 24th of August, 2012.

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