



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
West Coast Region
650 Capitol Mall, Suite 5-100
Sacramento, California 95814-4700

FEB 24 2017

Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Re: Technical Assistance and Recommendations regarding the Oroville Dam Spillway Activities under the Endangered Species Act, Magnuson-Stevens Fishery Conservation and Management Act, and Fish and Wildlife Coordination Act for Oroville Facilities Hydroelectric Project, Butte County California (**FERC Project No. 2100**)

Dear Secretary Bose:

I am writing to you because of concerns that the National Oceanic and Atmospheric Administration's National Marine Fisheries Service (NMFS) has regarding the activities occurring under the Federal Energy Regulatory Commission's (FERC) authority on the Feather River at the Oroville Facilities Hydroelectric Project.

With the damage to Oroville Dam's Spillway (Spillway) on February 7, 2017, and the subsequent erosion from the Spillway damage and from the use of the emergency spillway, a significant amount of material has been deposited into the Feather River in the Oroville Diversion Pool. Some estimates are that over one million cubic yards of material have been deposited into the Feather River. It is our understanding that the California Department of Water Resources (DWR) is planning on dredging this material out of the Feather River starting Monday, February 27, 2017. In order to dredge the material out of the Feather River, DWR is proposing to cease all releases of water from Oroville Dam. It is currently our understanding that due to high water levels in the Diversion Pool, the powerhouse and river valves are not operational at this time. This leaves the only source of water for the Feather River immediately downstream of Oroville Dam as the water being released through the damaged Spillway. Recent release through the Spillway have been 60,000 cubic feet per second (cfs). The proposal for dredging is to reduce the release to zero, on Monday, February 27, 2017.

NMFS is concerned about potential effects of such operation to the anadromous fish resources in the Feather River, downstream of Oroville Dam. Anadromous fish in the Feather River listed under the Federal Endangered Species Act include the Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) Evolutionarily Significant Unit (ESU), California Central Valley steelhead (*O. mykiss*) Distinct Population Segment (DPS), and the Southern DPS of North



American green sturgeon (*Acipenser medirostris*). In freshwater, critical habitat for these species is designated downstream from the Oroville Fish Barrier Dam to San Francisco Bay. In addition, fall-run Chinook salmon and white sturgeon live in the Feather River downstream of the Fish Barrier Dam. Fall-run Chinook salmon are very important to the California commercial and recreational fisheries, and the Chinook produced in the Feather River provide a large percentage of the harvest. In freshwater, essential fish habitat (EFH) for Chinook salmon is designated downstream from the Oroville Fish Barrier Dam to San Francisco Bay.

NMFS is concerned that the rapid reduction in flows that are proposed for Monday, February 27, 2017, will have adverse effects on the anadromous fish species identified above. Significant decreases in river water elevation reduce the amount of habitat available to fish, and rapid reduction in the river water elevation can result in mortalities due to fish being stranded, and stranding of fish in pools. With the dredging, water quality is also expected to be affected. Turbidity will increase, and other water quality parameters such as oxygen levels, and pH may be affected. Fish in the Feather River Hatchery may also be adversely affected by changes in water quality and quantity.

NMFS does not want to delay the critical work being done to address the issues at the Oroville Facilities Hydroelectric Project; however, we are concerned about the effects of the proposed dredging activities on anadromous fish, including those listed under the Federal Endangered Species Act. We are writing to provide technical assistance regarding anadromous fish species and the Federal Endangered Species Act. Below are recommendations that we believe would minimize the effects on anadromous fish species, critical habitat, and EFH in the Feather River downstream of the Oroville Fish Barrier Dam during and after dredging operations.

Recommendations

1. Reductions in flows should occur during hours of darkness in the Feather River to protect juvenile salmonids, especially Chinook salmon (see: Hunter, M. A. 1992. Hydropower Flow Fluctuations and Salmonids: A Review of the Biological Effects, Mechanical Causes, and Options for Mitigation. 119, Washington Department of Fisheries.)
2. Reductions in flows (down ramping rate) should occur as slowly as possible, to allow fish to follow the receding water elevation.
3. Minimum flows should be maintained at all times. Flows should not drop below the minimum instream flows. If flows are expected to drop below the minimum instream flows, DWR should release water from the spillway to ensure minimum instream flows are met.
4. Consider initially dredging a channel through the debris that will allow water to flow to maintain minimum flows or more. Provide flow through the river valves and/or the powerhouse. Repairs at the powerhouse and river valves should be prioritized to provide water to the Feather River immediately.
5. Address water supply issues (quantity and quality) at the Feather River Fish Hatchery and Thermalito Annex. Ensure adequate water is available to these facilities and that the turbidity, oxygen, and pH stay below levels that will stress fish.
6. Monitor/survey for stranding in the Feather River and implement fish rescues as possible.

- a. Aerial photography of the Feather River prior to flow reductions and after flow reductions will assist in prioritizing locations to survey.
 - b. Put boats, equipment, and people on the river to survey for fish stranded in pools.
 - c. Prioritize areas to survey based on areas of higher risk. Use aerial surveys to identify areas of high risk.
 - d. For large pools, and for pools with unknown stranding, sample for presence using eDNA for Chinook salmon, steelhead, and sturgeon.
 - e. Plan on more than 5 days for monitoring and potential rescues. Monitoring and rescue operations should occur throughout the period of reduced flows and the dredging activities.
 - f. Collect samples and information about stranded, rescued fish, and dead fish.
 - i. Take pictures and video of locations and fish sampled. Check the date stamp on the cameras. With the video frequently verbally record the time, date, and location.
 - ii. In the case of surveys, the numbers and species of fish should be estimated and recorded.
 - iii. In the case of fish rescues the numbers and species of fish should be identified and pictures taken. Where possible and it will not significantly impact the implementation of the fish rescue, tissue samples and scales should be collected. The date, time, location, presence or absence of adipose fins, and who collected the samples needs to be recorded on the bags. Number the bags and locations. If ethanol is available, use it to preserve samples, otherwise freeze.
 - iv. In the event of dead fish, pictures should be taken, the carcasses should be placed in a plastic sealing bag, and record the date, time, location, presence or absence of adipose fins, and who collected the sample recorded on the bag. Number the bags and locations. Freeze large fish as soon as possible.
7. Monitor water quality, turbidity, DO, pH, and adjust dredging operations if these parameters reach levels that may adversely affect fish at the fish barrier dam or in the hatchery.
 8. Water should be released from the Thermalito Afterbay to augment flows in the Feather River, while maintaining water deliveries to the Thermalito Annex.
 9. If possible, install turbidity curtains or booms to reduce potential turbidity levels, to the maximum extent possible.
 10. Coordinate with the Corps, Yuba County Water Agency, PG&E, and the Nevada Irrigation District to augment flows from storage in the Yuba watershed. Also coordinate with the South Sutter Water District regarding the availability of water from the Bear River for flow augmentation.
 11. Deploy as many people as possible to survey and respond to fish stranding, and coordinate with CDFW.
 12. Submit a report of the activities and results to NMFS within 30 days.

Federal Endangered Species Act Section 7 Emergency Consultation

The Endangered Species Act has provisions for emergency consultations, and NMFS recommends that FERC follow these provisions if necessary:

§ 402.05 Emergencies.

(a) Where emergency circumstances mandate the need to consult in an expedited manner, consultation may be conducted informally through alternative procedures that the Director determines to be consistent with the requirements of sections 7(a)–(d) of the Act. This provision applies to situations involving acts of God, disasters, casualties, national defense or security emergencies, etc.

(b) Formal consultation shall be initiated as soon as practicable after the emergency is under control. The Federal agency shall submit information on the nature of the emergency action(s), the justification for the expedited consultation, and the impacts to endangered or threatened species and their habitats. The Service will evaluate such information and issue a biological opinion including the information and recommendations given during the emergency consultation.

NMFS recommends that FERC assess the effects of the recent and ongoing emergency actions related to the Oroville Facilities and initiate emergency section 7 consultation with NMFS as soon as the emergency is under control. In the context of this consultation, NMFS is interested in discussing options for mitigating for the significant impacts these events and actions have had on Federal Endangered Species Act listed fish, their critical habitat and the EFH of Pacific Salmon.

Please contact Gary Sprague, NMFS, Central Valley Office, 650 Capitol Mall, Suite 5-100, Sacramento, California, (916) 930-3615, Gary.Sprague@NOAA.gov, if you have any questions concerning the above recommendations or consultation under the Federal Endangered Species Act.

Sincerely,



Maria Rea
Assistant Regional Administrator

Cc: California Central Valley Office
Division Crhon File: 151422-WCR2017-SA00309

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