# REPORT ON HABITAT COMMITTEE WEBINAR ON OROVILLE DAM RELICENSING AND RELATED MATTERS

On August 23, 2017, the Habitat Committee (HC) conducted a webinar regarding the relicensing of the Oroville Dam and facilities on the Feather River, and associated actions that could affect fall Chinook salmon. The Feather River salmon population is the single largest contributor to the Sacramento River fall Chinook harvest in the fishery. The webinar was in response to Council direction to seek additional information from the Federal Energy Regulatory Commission (FERC) and California Department of Water Resources (DWR) on Oroville dam relicensing to inform a potential letter to FERC. Jason Kindopp (DWR) and Gary Sprague of National Marine Fisheries Service (NMFS) were invited to speak. Mr. Kindopp monitors salmonid and sturgeon for the DWR Feather River Program, while Mr. Sprague was the lead writer for the Oroville Dam Relicensing biological opinion (BiOp). FERC did not respond to invitations to attend.

The webinar was attended by members of the HC, Salmon Technical Team, Salmon Advisory Subpanel, Council members, California Department of Fish and Wildlife (CDFW) staff, and members of the public.

The webinar was structured around five questions that related to the timeframe for relicensing Oroville Dam, the plans for installing a weir to separate spring and fall Chinook, temperature control measures, habitat restoration, and anticipated actions within the next five years. A synopsis of the discussion follows. Full notes from the meeting are available from Council staff.

Based on the information presented, the HC developed recommendations for a potential letter to FERC and DWR (as previously directed by the Council). Recommendations are listed under each topic.

**Relicensing - Timing and Process**

All required consultations, assessments, and the state water quality certification for dam relicensing are in place, and FERC could reissue the license at any time. However, local officials and the public have expressed concerns regarding safety issues resulting from the spillway failure, and have called on FERC to delay issuing the license. DWR noted that relicensing is technically a separate process that should not be impeded by the spillway repair process.

The 2006 Oroville Dam Settlement Agreement (SA) includes eight "Articles" that include a separation weir, a monitoring weir, proposed side channels, temperature improvements, gravel supplementation, and floodplain restoration. Mr. Kindopp explained that actions in the SA and those required in the NMFS Biological Opinion (BiOp) cannot begin until FERC issues the license.

***HC Recommendation #1: Encourage FERC to issue the license immediately, or allow DWR to expedite implementation of the Settlement Agreement Articles for temperature changes and habitat alterations to the low-flow channel prior to license renewal.***

The SA established the Ecological Committee (EC) to gather input from interested parties on the eight Articles included in the SA. The EC is comprised of Federal, state, and local agencies, tribes,

water boards, nongovernmental organizations, and water contractors. Mr. Kindopp explained that the EC will have tremendous input on how the Articles are implemented prior to State Water Resources Control Board (SWRCB) approval, and that anyone with interest can petition to be on the EC.

***HC Recommendation #2: Petition DWR for Council participation on the Ecological Committee, as the Feather River fall run is the most important contributor to the Sacramento River fall Chinook harvest.***

**Competition for spawning habitat and segregation weir**

Much of the discussion during the meeting centered on temperatures in the low- and high-flow channels below Oroville dam (Figures 1, 2).

The low flow channel is defined as the upper 8 miles of the river from the Fish Barrier Dam down to the Thermalito Afterbay Outlet. The high flow channel extends from the Thermalito Outlet 50 miles downriver to the confluence with the Sacramento River. The FERC Oroville Project boundary extends approximately 5.5 miles downstream from the Thermalito Outlet.

Most of the SA actions will occur in the low flow channel. The upper part of this channel is the primary spawning habitat of spring Chinook salmon listed under the Endangered Species Act; it is also used by spawning fall Chinook. The segregation weir is intended to separate these runs to prevent fall Chinook from superimposing their redds on the redds of spring Chinook, and to prevent interbreeding. The weir would block fall Chinook from spawning in habitat they've used for 50 years, and block access of fall Chinook returning to the Feather River Hatchery. DWR is still considering options for allowing passage or transporting fish, as well as creating spawning habitat below the weir in the low-flow channel. The exact placement and timing of the segregation weir will be an important topic for the EC.

**Temperature Requirements**

Water temperature above and below the project area is of particular concern for both spring and fall Chinook.

<u>Low Flow Channel</u>

Mr. Kindopp described several strategies for augmenting habitat needs throughout the low-flow channel, including establishing temperature and flow criteria. New temperature requirements in the channel would be reduced from the current average daily mean of 65°F to 63° during the late spring and summer months (May 15-August 31) at Robinson Riffle. New fall temperature requirements would also go into effect at Robinson Riffle. September 9-30 mean daily temperatures could not exceed 58°, and October 1-May 15 could not exceed 56°. New temperature requirements would also apply to the CDFW Fish Hatchery, with temperature reductions to 56° (or lower) through September and 55° from October through December (as hourly maximums).

DWR is considering various methods to meet all new temperature requirements, whether mean daily or maximums. This includes evaluating that the ability to meet biologically significant *maximum* daily temperatures, rather than only focusing on *average daily mean* temperatures. The SWRCB Water Quality Certification requires DWR to immediately meet the temperature

requirements in the low flow channel at Robinson Riffle (as described in the SA and the Water Quality Certification). If DWR cannot meet the new requirements with existing facilities they must submit a plan to the Water Board within one year that will demonstrate compliance with the requirement.

Temperature modification in the low flow channel could occur quickly following license issuance using the tools currently available to DWR (shutter pulls, flow increases and river valves). Long-term facility modifications to reduce temperatures will take time to implement but DWR is actively planning to meet those objectives.

***Recommendation #3: Encourage DWR to expedite the temperature changes to the low flow channel immediately, in compliance with the California State Water Quality Control Board request.***

***Recommendation #4: Encourage DWR to prioritize developing methods to ensure that daily maximum temperatures are not exceeded.***

<u>High Flow Channel</u>

The outlet of the Thermalito Afterbay Outlet marks the beginning of the high-flow channel. Water held in the Afterbay supports agriculture and other uses, but storage results in higher temperature water releases into the high flow channel, primarily in the summer and early fall. Temperature requirements in the high flow channel are loosely defined, with temperatures that DWR should attempt to meet, but they are included in the SA and Water Quality certification to be implemented within 10 years. The Water Quality certification further requires DWR to operate the project to protect the cold beneficial use of the high flow channel, measured at the FERC project boundary, to the extent reasonably achievable. Within one year of license issuance DWR must also submit a plan to the Water Board (for Deputy Director approval) with proposed interim temperature requirements including measures to reduce temperature until a long-term solution can be developed.

Prior to the ocean salmon collapse event of 2005-6, approximately 30-40% of fall Chinook spawned in the high-flow channel, but since 2007 most fall-run Chinook (over 90%) have been spawning in the low-flow channel, for reasons that are not clear. However, most fall Chinook still rear in the high-flow channel. (The hatchery is at the upper end of the low-flow channel, so fall Chinook have always entered the channel and have likely spawned there over the years).

Mr. Kindopp emphasized the need to ensure adequate spawning habitat in the low-flow channel (below the segregation weir).

As noted above, the high-flow channel project boundary will also be subject to new temperature requirements as measured at the downstream project boundary, so there will be two different temperature requirements at the upper and lower portions of the Oroville Facility project area.

While temperature changes to the low-flow channel could occur quickly, changes to the high-flow channel are more complex and will take more time, and were not identified as priority in the SA. Changes to the low-flow channel, in combination with gravel infusion, are expected to benefit the high flow channel and the rest of the Feather River.

***Recommendation #5: Continue to advocate for near-future solutions that directly (rather than indirectly) reduce water temp in the high flow channel***

***Recommendation #6: Assess reasons for reduced spawning in the high flow channel***

**Five-Year Restoration Plan and Implementation**

Within three years, DWR is required to merge the eight individual Articles into a single comprehensive plan. The eight Articles each have their own timeframe, but generally must be implemented within five years with two notable exceptions: high-flow channel temperature requirements are on a 10 year timeframe, and DWR intends to have a monitoring weir in place within one year.

**Council Role**

Mr. Kindopp noted that it would be helpful to have the Council's support in asking FERC to quickly issue the license. Although a few gravel augmentation and recreation projects have occurred under previous agreements between FERC and DWR, no new habitat improvement projects identified in the SA can begin until the license is reissued.

**Public Comment**

Public comment focused on the necessity of quickly implementing habitat restoration projects. A commenter noted that since DWR had successfully petitioned FERC to implement restoration actions related to recreation before the license was approved, it might be possible to do the same for habitat actions. Additional comments were made on the impact of temperature on Chinook spawning status, and that salmonid production and the economic contribution of the Feather River were significantly altered 50 years ago when the Oroville facility was built. Industry is concerned that waiting for the license renewal could take too long, and hoped that the Council would encourage action on relicensing and habitat restoration.

PFMC
09/06/17


REDDING
Antelope Lake
Lake Oroville
Lake Davis
SACRAMENTO
North Bay Aqueduct
South Bay Aqueduct
FRESNO
San Luis Reservoir
California Aqueduct
BAKERSFIELD
Coastal Branch Aqueduct
Pyramid Lake
Silverwood Lake
Castaic Lake
LOS ANGELES
Lake Perris
To Paradise
Table Mtn. Blvd.
LIME SADDLE
To Quincy
Oroville - Quincy Rd.
To Chico
Cherokee Rd.
70
191
149
99
FOREMAN CREEK
Lake Oroville
Visitors Center
POTTER RAVINE
CRAIG SADDLE
THERMALITO FOREBAY
OROVILLE DAM
Nelson Ave.
Dam Rd.
Grand Ave.
Oro-Quincy
162
LOAFER CREEK
Olive Hwy.
THERMALITO AFTERBAY
Fish Hatchery
Feather River
To Marysville
LEGEND
Recreational Areas

Figure 1.

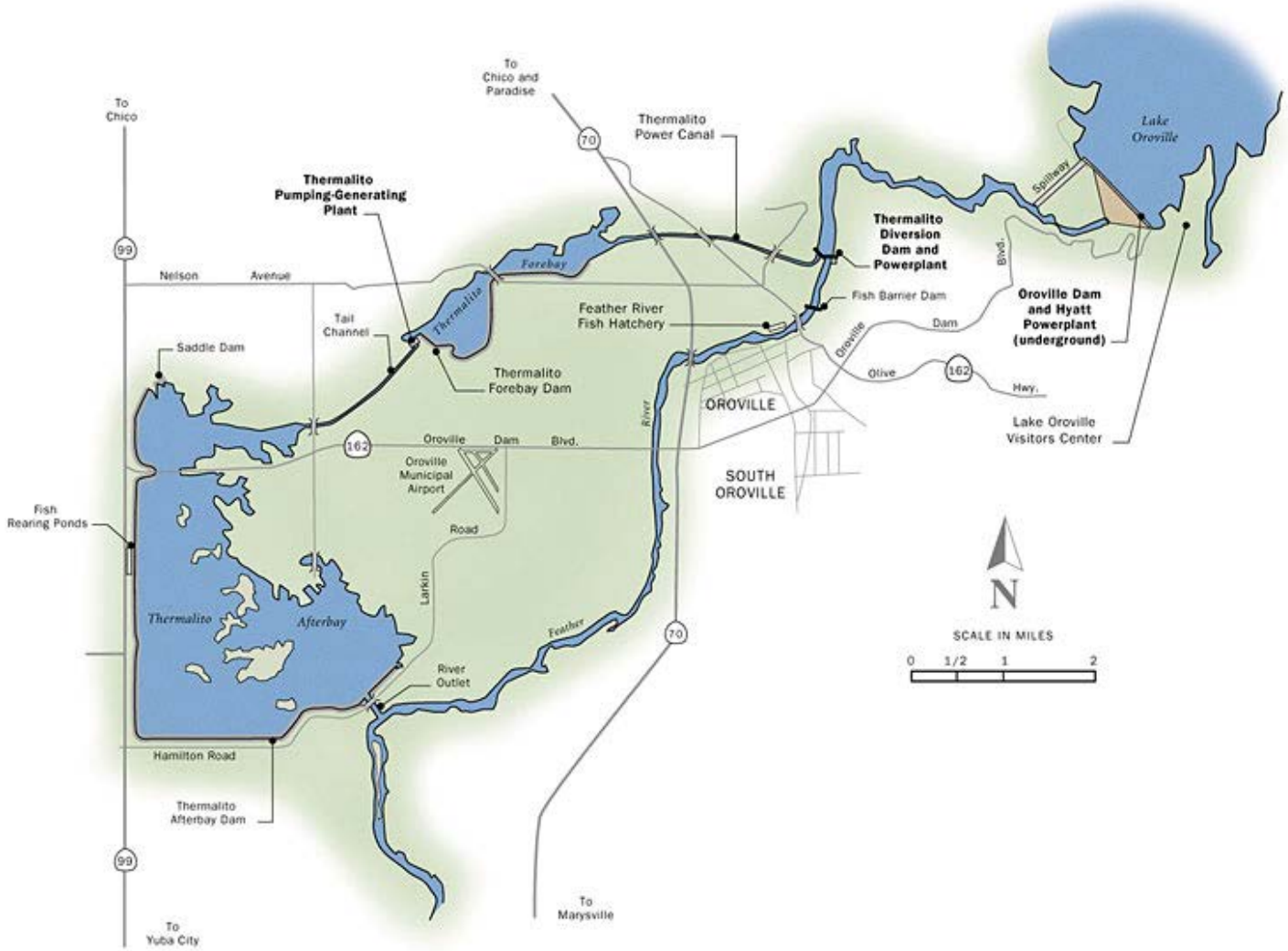
To Chico
To Chico and Paradise
70
Thermalito Power Canal
Lake Oroville
Spillway
Thermalito Pumping-Generating Plant
99
Nelson Avenue
Forebay
Thermalito Diversion Dam and Powerplant
Blvd.
Fish Barrier Dam
Feather River Fish Hatchery
Oroville Dam and Hyatt Powerplant (underground)
Tail Channel
Thermalito
Saddle Dam
Thermalito Forebay Dam
Oroville Dam Blvd.
Olive
162
Hwy.
OROVILLE
River
Lake Oroville Visitors Center
Oroville Municipal Airport
SOUTH OROVILLE
Fish Rearing Ponds
Road
Larkin
N
SCALE IN MILES
0 1/2 1 2
Thermalito
Afterbay
Feather
River Outlet
Hamilton Road
Thermalito Afterbay Dam
To Yuba City
To Marysville

Figure 2.