

## SECTION 9.0

# SUMMARY OF EFFECTS

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## 9.1 Summary of Anticipated Effects of the Proposed Action on EFH in the Action Area

### 9.1.1 Yuba River Watershed Upstream of Englebright Dam

The PFMC (2002) urges FERC to address the following issues as it considers relicensing actions in California, Washington, Oregon, and Idaho: 1) multiple dams and fish passage conditions; 2) impacts to stream flow and fish habitat in and below the Project Area; and 3) impacts to water quality in the Project Area.

In the Yuba River watershed upstream of the USACE's Englebright Dam, YCWA's Project facilities include the Our House and Log Cabin diversion dams, and New Bullards Bar Dam. The USACE's 260-ft-high Englebright Dam currently blocks Chinook salmon access to all EFH in the Yuba River Watershed upstream of the dam. Consequently, EFH in the Yuba River Watershed upstream of Englebright Dam is considered to be "not properly functioning" under the Environmental Baseline (i.e., existing conditions). Because the Proposed Action will not affect fish passage conditions at Englebright Dam, there will be no change to the current lack of access to EFH in the Yuba River watershed upstream of the USACE's Englebright Dam as a result of the Proposed Action.

YCWA's Project will continue to capture sediment, reduce peak lows, and augment low flows during the summer, and thereby has the potential to affect unoccupied EFH downstream of Project facilities in the Yuba River Watershed upstream of Englebright Dam. These effects are largely beneficial. Changes in flows from spills at the Our House and Log Cabin diversion dams and at New Bullards Bar Dam will continue to occur, but they will occur less frequently at Our House Diversion Dam and New Bullards Bar Dam because of implementation of spill cessation measures. The spill cessation schedule for Our House Diversion Dam (YCWA's Proposed Condition AR2) is designed to minimize the frequency and magnitude of flow changes in the Middle Yuba River downstream of Our House Diversion Dam to be protective of the foothill yellow-legged frog (breeding and early development lifestages) and stream fish (i.e., rainbow trout) populations. YCWA's proposed spill cessation schedule under Proposed Condition AR2 (Our House Diversion Dam) and Proposed Condition AR4 (New Bullards Bar Dam) encompass the period during which rainbow trout spawning, incubation and emergence are most likely to occur. The spill cessation schedule would provide for a stepped reduction in spills so that down-ramping is gradual, prolonging the total length of time during which each spill event occurs.

Simulated flows and water temperatures in the North Yuba River below New Bullards Bar Dam, in the Middle Yuba River above the Yuba River confluence, and in the Yuba River upstream of New Colgate Powerhouse under the Proposed Action indicate that aquatic habitat conditions would be improved in these reaches, particularly during the summer months, relative to existing conditions.

In addition to cooler water temperatures during the summer months, water quality conditions related to sediment transport and chemical contamination/nutrients generally would not be expected to change in the upper watershed as a result of the Proposed Action. In the Middle Yuba River, YCWA may need to remove material from the low level outlets at the Our House Diversion Dam Impoundment and the Log Cabin Diversion Dam Impoundment. The strategy is to open the low level outlet valves for brief periods during the winter when the majority of the water would pass through the outlet – not over the dam – to maximize direction of flow and movement of sediment in the impoundment, and when a high flow is expected to occur soon after, to continue moving sediment downstream of the dam after the pass-through event. The purposes of restricting the event to the winter months are to allow the high spring flows to continue to mobilize and redistribute moderate-size sediment below the dams. YCWA's Proposed Condition GS2 provides an excavation plan that addresses how material would be removed from the impoundments, where the material would be placed, how the material would be transported from the impoundment to its storage location, and measures that YCWA would undertake to mitigate any potential adverse environmental effects. Additionally, Proposed Condition GS2 calls for a slower low-level outlet closure following a sediment pass-through event, which is designed to enhance fine sediment deposition upon the floodplains downstream. Sediment passage events at Log Cabin and Our House diversion dams are permitted under a SWRCB-issued Clean Water Act Section 401 Water Quality Certification (WQC), which was issued to YCWA on February 10, 2016, and which is in conformance with the March 4, 2016 FERC-approved August 2016 Log Cabin and Our House Diversion Dam Sediment Management Plan. The 2016 WQC includes permit terms and conditions that YCWA must adhere to when sediment passage events occur. Additionally, Cal Fish and Wildlife issued Streambed Alteration Agreement Permit No. 1600-2014-0163-R2 for the Sediment Passage Project on September 8, 2014. Overall, Proposed Condition GS2 is expected to be beneficial to EFH in the Middle Yuba River. Several studies suggest that availability of suitably-sized spawning gravels is limited. Passage of sediments at Our House and Log Cabin diversion dams will likely improve salmonid spawning habitat in the Middle Yuba River by increasing the amount of suitably-sized substrate gravel. Therefore, the Proposed Action is expected to improve EFH conditions associated with substrate.

Project-related effects on BMI communities would potentially be positive, but minor. YCWA's studies did not identify any relationship between releases from Project facilities and BMI metrics.

YCWA's proposed Project includes the construction of several facilities, including New Colgate Powerhouse TDS, the New Bullards Bar Dam Flood Control Outlet, modifications to Our House Diversion Dam and Log Cabin Diversion Dam fish release outlets, modifications to the Lohman Ridge Diversion Tunnel Intake and various recreation facilities. For all construction activities related to YCWA's proposed facilities, potential effects to aquatic habitat (i.e., EFH) have been evaluated and addressed in the Amended FLA. As described in Exhibit E of the Amended FLA, YCWA will consult with appropriate agencies to obtain all necessary permits and approvals prior to initiating construction for these facilities. Construction-related avoidance/minimization measures (e.g., YCWA Proposed Conditions GEN1, GEN2, GEN3, GS1, AR7, WR7, and WR8) also are incorporated into the Project-specific construction components. Therefore, construction-

related effects would be temporary and localized, and would not be expected to result in long-term adverse effects to EFH in the Action Area.

Overall, the Proposed Action is expected to result in similar or improved aquatic habitat conditions, relative to those that occur under existing conditions. Consequently, it is reasonable to conclude that if aquatic conditions are improved, then these habitat conditions also will improve unoccupied EFH in the Yuba River watershed upstream of Englebright Dam.

NMFS (2004b) states that, as part of an EFH assessment, federal action agencies should indicate whether a Proposed Action may adversely affect HAPCs that are present in the Action Area. As previously discussed, NMFS and PFMC (2011) developed five potential HAPCs for Pacific Coast salmon EFH. The three HAPCs that occur within the Action Area for this Applicant-Prepared Draft EFH Assessment are: 1) spawning habitat; 2) thermal refugia; and 3) complex channels and floodplain habitats. Based on the flow and water temperature-related evaluations described in Section 8.0 of this Applicant-Prepared Draft EFH Assessment, the Proposed Action will not adversely affect potential spawning habitat, thermal refugia, or complex channels or floodplain habitats in the Yuba River watershed upstream of Englebright Dam.

### **9.1.2 Yuba River Downstream of Englebright Dam**

Under the Proposed Action, YCWA's Project will continue to operate to implement the Yuba Accord flow schedules, except for proposed changes to Conference Year flow requirements, revised flow fluctuation criteria at the Narrows 2 Development and coordinated operations with the Narrows Project. The changes in Conference Year requirements under the Proposed Action will provide similar or more suitable habitat conditions, including EFH conditions, for Chinook salmon, relative to the existing conditions for Conference Years. It is expected that the revised flow fluctuation criteria under the Proposed Action will further minimize the potential for Chinook salmon redd dewatering, and fry and juvenile stranding and isolation in the lower Yuba River. The Proposed Action would not introduce any new stressors, or substantially exacerbate ongoing stressors that occur to Chinook salmon in the lower Yuba River under existing conditions.

Overall, the Proposed Action will not eliminate, diminish, or disrupt any EFH in the Yuba River downstream of Englebright Dam. Although slight changes in Chinook salmon flow-related habitat availability and suitability, and water temperature suitability may occur with low probabilities under the Proposed Action relative to the existing condition, these slight changes would not be of sufficient magnitude or frequency to adversely affect Chinook salmon EFH in the lower Yuba River.

The Proposed Action would not result in any substantial changes to EFH in the Action Area. No substantial increases in the intensity, frequency, and duration of stressors associated with Chinook salmon EFH in the lower Yuba River would occur under the Proposed Action, relative to existing conditions.

Of the other 31 non-fishing threats to Pacific Coast salmon EFH identified in Appendix A to the Pacific Coast Salmon FMP, as modified by Amendment 18 to the Pacific Coast Salmon Plan (PFMC 2014), the Proposed Action may potentially affect EFH through changes in flows and water temperatures in the Yuba River downstream of Englebright Dam. However, flow and water temperature-related effects on EFH downstream of Englebright Dam associated with the Proposed Action are expected to result in non-substantial adverse effects, or in beneficial effects. The Proposed Action also will not adversely affect EFH conditions in the Feather River downstream of the Yuba River, the Sacramento River downstream of the Feather River, or in the Delta (see Section 4.0 of this Applicant-Prepared Draft EFH Assessment).

NMFS (2004b) states that, as part of an EFH assessment, federal action agencies should indicate whether a proposed action may adversely affect HAPCs. Considering the flow and water temperature-related evaluations described in this Applicant-Prepared Draft EFH Assessment, the Proposed Action will not adversely affect spawning habitat, thermal refugia, or complex channels and floodplain habitats in the Yuba River downstream of Englebright Dam. The Proposed Action also will not adversely affect HAPCs in the Feather River downstream of the Yuba River, the Sacramento River downstream of the Feather River, or in the Delta.

## **9.2 Summary of Anticipated Effects of the Cumulative Condition on EFH in the Action Area**

### **9.2.1 Yuba River Watershed Upstream of Englebright Dam**

The past and present actions described above in Section 8.4 are likely to continue in the future, although the magnitudes of particular actions may change. Non-Project diversions and exports of water to watersheds outside the Yuba River Basin by other users affect flows in Project-affected reaches. Upstream of the Project, SFWPA, NID and PG&E divert water for water deliveries and power generation. Information provided in the materials submitted to FERC by NID and PG&E for the relicensing of the Yuba-Bear Hydroelectric Project (FERC Project No. 2266) and the Drum-Spaulding Project (FERC Project No. 2310) respectively indicate that, for those relicensings under their Proposed Project and under future 2062 conditions of their proposed projects, exports will not change significantly compared to the historical exports that have occurred in the recent past, because the amounts of water that these projects divert is, and will continue to be, based on facility capabilities and operational limitations, and not on consumptive demands. The average annual amount of total exports by the upstream projects is 22 percent of the unimpaired runoff of the Yuba River Basin, and these total exports range from an average of 15 percent of the total unimpaired runoff during wet years to 34 percent during critical years (see Section 3 in Exhibit E of the Amended FLA). Consequently, future non-Project water diversions for use in-basin and the exports of water to basins outside the Yuba River Basin have the potential to contribute to effects on water resources (e.g., quantity, quality and temperature) and EFH within the Action Area. The owners of all of these upstream projects have submitted applications for renewals of their FERC licenses. In FERC's Final EIS for the Yuba-Bear and Upper Drum-Spaulding Projects, FERC (2014) states that the licensees conducted an expanded analysis of the cumulative effects of flow diversions in the Middle Yuba River, Canyon Creek, and South Yuba River. This Final EIS also states that the licensees

provided an expanded analysis of the potential effects of Project interbasin water transfers from the upper Yuba River watershed. FERC (2014) concluded that these projects (Upper Drum-Spaulding Hydroelectric Project, Yuba-Bear Hydroelectric Project) do not affect Pacific salmon EFH upstream of Englebright Reservoir.

Although climate change was identified as a new threat to Pacific salmon EFH during the 2011 5-Year review (NMFS and PFMC 2011), effects on EFH that may result from climate change would not be attributable to the Proposed Action. In fact, it is anticipated that the Proposed Action will achieve moderate improvements in aquatic habitat conditions, while maintaining as much hydropower generation as possible, to offset fossil fueled electricity generation and support renewable generation sources. This will minimize the contribution of the Proposed Action to the effects of global warming, within the ability of the Proposed Action to affect this stressor. Nevertheless, it is recognized that climate change will continue to be a stressor to EFH for Chinook salmon. Of the other 31 threats to Pacific salmon EFH identified in Amendment 14 of the FMP and the 2011 5-Year review, the Proposed Action could potentially affect EFH through changes in flows and water temperatures in the reaches of the Yuba River upstream of Englebright Reservoir that are downstream of Project facilities. However, flow and water temperature-related effects on EFH upstream of Englebright Reservoir associated with the Proposed Action are expected to result in non-substantial or beneficial effects.

Potential effects to unoccupied EFH in the Action Area in the Yuba River watershed upstream of Englebright Dam under the Cumulative Condition would not be expected to adversely affect Chinook salmon EFH. The reduced simulated flows under the Cumulative Condition scenario relative to the Proposed Action scenario for winter and spring of wet WYTs are not anticipated to substantially affect Chinook salmon EFH due to the relatively high flows that would still occur under the Cumulative Condition. Anticipated increased flows and lower water temperatures during summer months would be anticipated to have slightly beneficial effects. FERC (2014) concluded that the Yuba-Bear and Upper Drum-Spaulding Projects do not affect Pacific salmon EFH upstream of Englebright Dam, and analyses in this Applicant-Prepared Draft EFH Assessment demonstrate that the Cumulative Condition for this Proposed Action that is assessed in Section 8.4 of the Applicant-Prepared Draft EFH Assessment would not adversely affect EFH upstream of Englebright Dam. Consequently, this Applicant-Prepared Draft EFH Assessment concludes that the Cumulative Condition would not adversely affect unoccupied EFH upstream of Englebright Dam.

## **9.2.2 Yuba River Downstream of Englebright Dam**

The Cumulative Condition would not eliminate, diminish, or disrupt EFH in the Yuba River downstream of Englebright Dam. The Cumulative Condition would not affect the potential exposure of Chinook salmon to stressors in the lower Yuba River under the existing conditions, nor would the Cumulative Condition change the magnitudes of existing stressors.

Although climate change was identified as a new threat during the 2011 5-Year review (NMFS and PFMC 2011), and is a consideration under the Cumulative Condition, effects on EFH that may result from climate change would not be attributable to the Proposed Action. The

Cumulative Condition would not affect the potential exposure of Chinook salmon to stressors in the lower Yuba River relative to existing conditions, nor would the Cumulative Condition change the magnitudes of existing stressors. Nevertheless, it is recognized that climate change will continue to be a stressor to EFH for Chinook salmon. Of the other 31 threats to Pacific salmon EFH identified in Amendment 14 of the FMP and the 2011 5-Year review, the Cumulative Condition has the potential to affect EFH through changes in flows and water temperatures in the Yuba River downstream of Englebright Dam. However, slight flow and water temperature-related effects on EFH downstream of Englebright Dam associated with the Cumulative Condition are expected to result in non-substantive or beneficial effects.

## SECTION 10.0

# DETERMINATION

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This Applicant-Prepared Draft EFH Assessment describes the relationships between the relicensing of the Project and Chinook salmon EFH in the vicinity of the Project, and evaluates the potential effect of the Proposed Action (i.e., FERC's issuance of a new license for the Project) on Chinook salmon and their designated EFH.

Overall, considering the analyses presented in this Applicant-Prepared Draft EFH Assessment, the Proposed Action would not adversely affect EFH, including potential HAPCs in the Action Area, or their management, in a manner that would: 1) reduce the quality or quantity of EFH; or 2) eliminate, diminish or disrupt the current utilization of these habitats by various lifestages of Chinook salmon. Construction-related activities associated with the Project facilities may have a slight potential to result in localized effects (e.g., sedimentation, hazardous materials spill) that could temporarily affect the quality of unoccupied EFH in the immediate vicinity of where the construction work will occur in the upper Yuba River Basin. However, as previously discussed in this Applicant-Prepared Draft EFH Assessment, YCWA has incorporated construction-related BMPs and developed Proposed Conditions as part of the Proposed Action to avoid and minimize potential construction-related effects, which are described in Appendix E2 of the Amended FLA. It is suggested that YCWA's Proposed Conditions may also be proposed conservation recommendations for this Applicant-Prepared Draft EFH Assessment.

Consequently, this Applicant-Prepared Draft EFH Assessment concludes that the overall effects of the Proposed Action would not adversely affect designated Chinook salmon EFH in the Action Area.

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