

YUBA COUNTY WATER AGENCY

Responses to Comments on Updated Study Report and Updated Study Report Meeting Summary

Yuba River Development Project FERC Project No. 2246

[SECURITY LEVEL: PUBLIC]



Prepared By
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March 2014

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RESPONSE TO COMMENTS ON UPDATED STUDY REPORT

EXECUTIVE SUMMARY

On December 2, 2013, the Yuba County Water Agency (YCWA) filed with the Federal Energy Regulatory Commission (FERC or Commission) an Updated Study Report in support of YCWA’s relicensing of its Yuba River Development Project, FERC Project Number 2246 (Project). On December 31 2013, YCWA filed with FERC a summary of a December 17, 2013 Updated Study Report meeting. The Updated Study Report and Updated Study Report meeting summary described YCWA’s progress in performing 48 FERC-approved studies, stated that YCWA did not propose any study modifications or new studies, and provided an updated schedule for the completion of ongoing studies.

At the time this response is filed, YCWA has completed 45 of the 48 studies. Table 1.3-1 lists the three studies that are in progress and the expected completion date for each.

Table ES-1. Studies in progress and the date, in chronological order, that YCWA expects each study will be complete.

Study Number	Study Name	Date YCWA Posted an Interim Technical Memorandum to the Relicensing Website	Date YCWA Forecasts the Study Will be Complete
8.2	Recreational Flow	October 29, 2012	June 30, 2014
7.11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse	March 3, 2014 ¹	March 31, 2015 ^{1, 2}
7.11a	Radio Telemetry Study of Spring- and Fall-run Chinook Salmon Downstream of Narrows 2 Powerhouse		

¹ The FERC-approved studies direct that an interim technical memoranda for Studies 7.11 and 7.11a will be combined into a single interim technical memorandum that will be posted to YCWA’s relicensing Website; and the final technical memoranda for Studies 7.11 and 7.11a will be combined into a single final technical memorandum that will be filed with FERC by March 31, 2015. YCWA anticipates filing the joint interim technical memorandum by March 15, 2014.

² On February 11, 2014, YCWA filed a letter with FERC requesting that Study 7.11a be modified to reschedule 2014 fieldwork to 2015 due to the extreme drought conditions in California. If YCWA’s request is approved, the due date for the joint Study 7.11 and Study 7.11a final technical memorandum will be March 31, 2016.

Eight letters, which provided comments on YCWA’s Updated Study Report and Updated Study Report meeting summary, were filed with the FERC by the filing deadline of January 30, 2014. A ninth letter was filed one day late. Two letters, which requested a new study, were filed with FERC in July 2013, well before YCWA issued the Updated Study Report. One letter, which provides comments on a technical memorandum and was referred to in the Relicensing Participants’ Updated Study Report comment letter, was filed with FERC in July 2013. The letters were from: 1) the United States Department of Agriculture, Forest Service (Forest Service); 2) the United States Department of Interior (USDOI), National Park Service (NPS); 3) USDOI, Fish and Wildlife Service (USFWS); 4) the United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS); 5) the State Water Resources Control Board (SWRCB); 6) the California Department of Fish and Wildlife (Cal Fish and Wildlife or CDFW); 7) the Foothills Water Network (FWN); and 8) USDOI Bureau of Land Management (BLM).

Collectively, the commenters requested modifications to 14 FERC-approved studies and seven new studies. Table ES-2 lists the requested study modifications and new studies by commenter.

ES-2. Summary of requests for modifications of FERC-approved studies and requests for new studies.

Study		Commenter							
#	Name	Forest Service	BLM ¹	NPS	USFWS	NMFS	CDFW	SWRCB	FWN
REQUESTS FOR MODIFICATIONS TO FERC-APPROVED STUDIES									
2.2	Water Balance/Operations Model	X							X ²
3.2	Aquatic Macroinvertebrates Downstream of Englebright Dam				X ²		X		
3.10	Instream Flow Upstream of Englebright Reservoir	X							
3.11	Entrainment	X			X ²		X		X
3.12	New Colgate Powerhouse Ramping					X			
6.1	Riparian Habitat Upstream of Englebright Reservoir						X		
7.2	Potential Narrows 2 Powerhouse Intake Extension				X	X	X	X ²	X
7.8	ESA/CESA-Listed Salmonids Downstream of Englebright Dam				X ²	X			X ²
7.9	Green Sturgeon Downstream of Englebright Dam						X		
7.10	Instream Flow Downstream of Englebright Dam				X ²	X			X
7.11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse					X			
7.13	Fish Stranding Associated with Shutdown of Narrows 2 Powerhouse Partial Bypass					X	X ²		
8.2	Recreation Flow			X					
9.1	Primary Project Roads and Trails	X		X ²					
<i>FERC-approved Studies for which Modifications Are Requested</i>		<i>4</i>	<i>0</i>	<i>2</i>	<i>3</i>	<i>6</i>	<i>6</i>	<i>1</i>	<i>6</i>
<i>Subtotal</i>		<i>14</i>							
REQUESTS FOR NEW STUDIES									
--	Special-Status Wildlife Studies						X		
--	Log Cabin and Our House Diversion Dam Low Level Outlet Capacities	X			X		X		X
--	New Bullards Bar Dam – New Flood Control Outlet – Effects of Construction and Operation on FS Lands and Operations Model Scenarios	X	X ²				X		X

ES-2. (continued)

Study		Commenter							
#	Name	Forest Service	BLM ¹	NPS	USFWS	NMFS	CDFW	SWRCB	FWN
REQUESTS FOR NEW STUDIES									
--	Evaluation of the Effects of the New Bullards Bar Flood-Control Outlet and New Colgate Tailwater Depression System				X	X			
--	Narrows 2 Power Intake Entrainment				X		X		
--	Evaluation of the Effects of the Shot Rock in the Englebright Dam Reach and Associated Impacts to Anadromous Fish and Their Habitats					X			X ³
--	Fish Passage Assessment for Spring-run Chinook Salmon and Central Valley Steelhead							X	
<i>Requested New Studies</i>		2	1	0	3	2	4	1	2
<i>Subtotal</i>		7							
Total		21							

¹ The table does not include a row to document BLM's, USFWS' or FWN's comments regarding Study 6.2, *Riparian Habitat Downstream of Englebright Dam*. Neither BLM, USFWS nor FWN requests a study modification. Instead, they noted that YCWA had agreed to perform additional analysis. Nor does the table include a row to document the Forest Service's of FWN's comments regarding Study 6.1, *Riparian Habitat Upstream of Englebright Dam*, since YCWA, the Forest Service, FWN and other Relicensing Participants have reached agreement regarding additional analysis. Last, the table does not include a row to document NMFS', USFWS' and Cal Fish and Wildlife's comments regarding Study 7.11a, *Radio Telemetry Study of Spring- and Fall-run Chinook Salmon Downstream of Narrows 2 Powerhouse*, since YCWA, NMFS, USFWS, Cal Fish and Wildlife and other Relicensing Participants reached agreement that the HTI telemetry system would be used in Phase 2 of the study, though agreement regarding a cap on the number of additional hydrophones that could be added was not reached with NMFS or USFWS.

² This Relicensing Participant did not request a study modification, but commented on the study for which another Relicensing Participant requested a modification. For ease of reference, the Relicensing Participant's comments are discussed in this section.

³ FWN included in its letter a request to modify Study 1.2, *Chanel Morphology Downstream of Englebright Dam*. YCWA found FWN's study modification request and NMFS' request for a new study named Evaluation of the *Effects of the Shot Rock in the Englebright Dam Reach and Associated Impacts to Anadromous Fish and Their Habitats* to be very similar, so YCWA treated the two requests together as a new study request.

YCWA carefully reviewed all requests for study modifications and new studies, and has provided responses to each request for study modification or new study following FERC's appropriate study criteria in this document.

YCWA recommends that FERC issue a Determination on these unresolved study modifications and new study requests, based on its established study criteria, to enable timely completion of this phase of the relicensing process.

With regards to the 14 requests for study modifications, FERC should reject all the requests with the exception of NPS's request that if Study 8.2, *Recreation Flow*, is not completed this year, it should be completed in spring 2015.^{1,2}

¹ YCWA notes that Cal Fish and Wildlife requested YCWA recalculated the volumes of large woody material (LWM) reported in Technical Memorandum 6-1. YCWA did this and, on February 14, 2014, YCWA revised Technical Memorandum 6-1 with recalculated LWM volumes, posted the revised technical memorandum to the relicensing Website, and issued an e-mail to Relicensing Participants notifying them that the technical memorandum was revised.

With regards to the seven requests for new studies, FERC should reject all the request with the exception of the Forest Service, USFWS' and Cal Fish and Wildlife's requests for a *Log Cabin and Our House Diversion Dam Low Level Outlet Capacities Study*. FERC should direct YCWA to test the Our House and Log Cabin diversion dam low level outlets as described in the new study request, with two exceptions. First, the new study should be performed in 2015, not 2014, because of the need to obtain the necessary permits and ongoing drought conditions in California. Second, the study should not include an assessment of how much sediment passes through the low level outlets when they are fully opened during high flow events.

² With regards to Study 7.10: 1) FWN requested YCWA provide binned depth and velocity tables for additional flows below 4,000 cfs; and 2) NMFS requested YCWA provide tables that describe depths and velocities for only the area outside of the 5,000 cfs 2D model derived wetted area. YCWA did this and, on February 28, 2014, YCWA revised Technical Memorandum 7-10 with the requested information, posted the revised technical memorandum to the relicensing Website, and issued an e-mail to Relicensing Participants notifying them that the technical memorandum was revised.

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SECTION 1.0

INTRODUCTION

In accordance with 18 Code of Federal Regulations (C.F.R.) Section 5.15(f) of the Federal Energy Regulatory Commission's (FERC or Commission) regulations, the Yuba County Water Agency (YCWA or Licensee) provides this response to comments on YCWA's Updated Study Report and Updated Study Report meeting summary in support of the relicensing of YCWA's Yuba River Development Project, FERC Project Number 2246 (Project).

1.1 Background

YCWA owns and operates the Project. The initial license for the Project was issued by the Federal Power Commission, the FERC's predecessor, to YCWA on May 16, 1963, effective on May 1, 1963. The Federal Power Commission's May 6, 1966, *Order Amending License* changed the license's effective date to May 1, 1966, for a term ending on April 30, 2016.

YCWA intends to apply to the FERC for a new license for the Project using FERC's Integrated Licensing Process (ILP) as set forth in 18 C.F.R. Part 4. To this end, YCWA filed with FERC the following documents:

- *Notice of Intent to File an Application for a New License* filed on November 5, 2010
- *Pre-Application Document (PAD)* filed on November 5, 2010
- *Proposed Study Plan* filed on April 19, 2011
- *Revised Study Plan* filed on August 17, 2011
- *Initial Study Report* filed on December 3, 2012
- *Updated Study Report* filed on December 2, 2013
- *Draft License Application (DLA)* filed on December 2, 2013

YCWA intends to file with FERC a Final License Application (FLA) in April 2014.

1.2 Description of the Project

The Project, which was constructed in the mid 1960s and put into service in 1970, replaced three older facilities: 1) the Colgate Diversion Dam, Flume and Powerhouse, which originally were constructed in 1899 by the Yuba Electric Power Company, and which were replaced by the Colgate Tunnel and second Colgate Powerhouse, constructed by the Pacific Gas and Electric Company (PG&E) in 1940 and 1949, respectively; 2) the Bullards Bar Dam and Reservoir, which were constructed in 1923-1924 by a group of private investors led by Harry Payne Whitney and purchased by PG&E a few years later; and 3) the Bullards Bar Powerhouse, which was constructed by PG&E in 1949.

The existing Project is located in Yuba, Sierra, and Nevada counties, California, on the main stems of the Yuba River, the North Yuba River, and the Middle Yuba River, and on Oregon Creek, a tributary to the Middle Yuba River. A portion of the FERC Project Boundary³ is located on federal land managed by the United States Department of Agriculture, Forest Service, (Forest Service) as either the Plumas National Forest (PNF) or Tahoe National Forest (TNF).

The existing Project consists of three developments, New Colgate, New Bullards Minimum Flow, and Narrows 2, which range in elevation from 280 feet to 2,049 feet.⁴ The Project's principal works include:

- 1 dam and associated storage reservoir - New Bullards Bar
- 2 diversion dams - Our House and Log Cabin
- 2 diversion tunnels - Lohman Ridge and Camptonville
- 2 underground power tunnels - New Colgate and Narrows 2
- 1 above ground penstock - New Colgate
- 3 powerhouses - New Colgate, New Bullards Minimum Flow, and Narrows 2⁵
- 16 recreation facilities, all of which are located at New Bullards Bar Reservoir
- associated stream flow and reservoir gages
- associated streamflow gage
- Project primary roads and trails

The Project does not include any aboveground water conduits (e.g., canals or flumes) or transmission lines.^{6,7} The Project does not include any active spoil piles, but does include one active borrow area, which is located within the FERC Project Boundary on YCWA-owned land near the New Colgate Powerhouse.

³ The existing FERC Project Boundary encompasses all Project facilities and features as well as all land needed by YCWA for the normal operation and maintenance of the Project. The boundary is shown in Exhibit J and K, Project Maps, of the existing FERC license for the Project.

⁴ All elevation data are in United States Department of Commerce (USDOC), National Oceanic and Atmospheric Association (NOAA), National Geodetic Survey (NGS) Vertical Datum of 1929 (NAVD 29).

⁵ The Narrows 2 Powerhouse includes two associated facilities: the Narrows 2 Partial Bypass (Partial Bypass) and Narrows 2 Full Bypass (Full Bypass).

⁶ Project powerhouse switchyards are connected to the California Transmission Grid via non-Project transmission lines. Of note, the 60 kilovolt (kv) transmission line that extends from the Project's Narrows 2 Powerhouse Switchyard to the grid is owned and operated by PG&E. The portion of the transmission line is part of PG&E's Narrows 2 Substation 60 kV Transmission Line Project, for which PG&E holds a Minor-Part License (FERC Project No. 2678) from FERC. PG&E's license for Project 2678 expires on April 30, 2016. On July 6, 2011, PG&E filed with FERC a Notice of Intent to relicense the Narrows 2 Substation 60 kV Transmission Line Project.

⁷ The Project does not include the Narrows 1 Powerhouse, which is located on the south side of the Yuba River, about 0.5 mile downstream of the USACE's Englebright Dam. Narrows 1 Powerhouse is part of PG&E's Narrows Project (FERC Project No. 1403). PG&E's license for Project No. 1403 expires on January 31, 2023.

YCWA operates New Bullards Bar Reservoir by capturing winter and spring runoff from rain and snowmelt. Consequently, New Bullards Bar Reservoir normally reaches its annual peak storage at the end of the spring runoff season, and then is gradually drawn down until its lowest elevation is reached in mid-winter. The reservoir does not undergo substantial daily changes in elevation due to Project operations. Storage in wetter water years can also be affected by New Bullards Bar Reservoir mandatory flood pool criteria established by the United States Army Corps of Engineers (USACE) from October through April.⁸

Our House and Log Cabin diversion dam impoundments do not store water and YCWA operates them to divert water to New Bullards Bar Reservoir in spring during high flow periods.

One of the primary benefits of the Project is the dispatching (currently by PG&E) of New Colgate Powerhouse through the California Independent System Operator (ISO) to balance the northern California Transmission System through regulation up and down. The powerhouse is under ISO Automatic Generator Control, so the ISO has the ability to vary New Colgate Powerhouse generation on a real-time basis to meet energy needs. YCWA operates New Bullards Minimum Flow and Narrows 2 powerhouses as base-load facilities.

The existing Project passes water through the federally-owned Englebright Reservoir, which is located on the Yuba River near the City of Marysville and managed by the USACE. Additional water entering Englebright Reservoir comes from the Middle Yuba and South Yuba rivers. Englebright Dam is not part of the FERC-licensed Project, nor is it under FERC's jurisdiction. None of the Yuba River Development Project facilities are integral parts of Englebright Dam; the Project's Narrows 2 Power Conduit and Narrows 2 Powerhouse, the lowermost elevation Project facilities, are not connected or attached to Englebright Dam in any way, nor do they intersect the dam in any way (e.g., the powerhouse power tunnel and penstock do not pass through the dam).⁹

A uniquely important set of agreements regarding Project operations is the Lower Yuba River Accord (Yuba Accord). In 2005, YCWA and 16 other interested parties signed memoranda of understanding (MOU) that specified terms of the Yuba Accord. The Yuba Accord is a comprehensive, consensus-based program to protect and enhance aquatic habitat in the Yuba River downstream of Englebright Dam. Following environmental review, YCWA executed four agreements in 2007, which together comprise the Yuba Accord. The four agreements are: 1) the Lower Yuba River Fisheries Agreement, which specifies the Yuba Accord's Lower Yuba River minimum streamflows and creates a fisheries monitoring and evaluation program; 2) the Water Purchase Agreement, under which the California Department of Water Resources (CDWR)

⁸ The USACE contributed \$12 million to the construction of New Bullards Bar Dam in exchange for flood control space the reservoir would provide.

⁹ Englebright Dam, which is about 260 feet high and forms Englebright Reservoir, was constructed by the California Debris Commission in 1941, 18 years before YCWA was formed and 22 years before the Federal Power Commission issued the initial Project license. The dam is owned by the United States. When the California Debris Commission was decommissioned in 1986, administration of Englebright Dam and Reservoir passed to the USACE. The primary purpose of the dam is to trap and contain sediment derived from extensive historic hydraulic mining operations in the Yuba River watershed. Englebright Reservoir is about 9 miles long with a surface area of 815 acres. Englebright Reservoir when first constructed had a gross storage capacity of 70,000 ac-ft; however, due to sediment capture, the gross storage capacity today is approximately 50,000 ac-ft (USGS 2003).

purchases water, some of which is provided by the Yuba Accord's minimum streamflows, from YCWA for CALFED's Environmental Water Account¹⁰ and for State Water Project and Central Valley Project contractors; 3) the Conjunctive Use Agreements with seven of YCWA's member units, which specify the terms of the Yuba Accord's groundwater conjunctive use program; and 4) amendments to the 1966 Power Purchase Contract between YCWA and PG&E.¹¹

The Yuba Accord was developed by a multi-agency resource team, including representatives from: United States Department of Interior (USDOJ), Fish and Wildlife Service (USFWS); United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS); California Department of Fish and Wildlife (Cal Fish and Wildlife or CDFW); and a group of non-governmental organizations (NGO), including the South Yuba River Citizens League (SYRCL), Trout Unlimited (TU), Friends of the River (FOR), and The Bay Institute (TBI).

The Yuba Accord flow schedules were developed to essentially optimize fisheries habitat conditions during a majority¹² of years for this regulated river system. Subsequently, additional flow schedules were developed by the resources team for drier conditions which included a "balancing of resources" approach, to deploy the limited water resources to benefit the aquatic species and life stages of concern and to meet other demands in a balanced fashion. Together, this package of agreements commits more water to minimum instream flows and provides greater reliability for both instream and consumptive uses than would be possible without the agreements.

The Yuba Accord also provided a \$6 million River Management Fund for monitoring and evaluation of anadromous fish and their habitat in the Yuba River downstream of Englebright Dam. The fund is administered by the River Management Team (RMT), which is comprised of representatives of YCWA, Cal Fish and Wildlife, SYRCL, TU, FOR, and TBI — all of whom are signatories to the Lower Yuba River Fisheries Agreement, plus representatives of USFWS, NMFS, PG&E, and CDWR. The RMT, in collaboration with representatives from University of California, Davis (UC Davis) and the Pacific States Marine Fisheries Commission, has developed a Monitoring and Evaluation Program (M&E) to guide the efficient expenditure of the River Management Fund to evaluate the effects of implementation of the Yuba Accord on the aquatic resources of the lower Yuba River over the period extending from 2008 to 2016. The M&E Program embraces a monitoring-based adaptive management approach to increase the effectiveness of, and to address the scientific uncertainty associated with, the protectiveness of the Yuba Accord flows for salmonid fisheries. This program includes specific monitoring and study activities and restoration actions.

¹⁰ The purchase of water through the Yuba Accord Water Purchase Agreement was the first long-term acquisition of water by CDWR to protect San Francisco Bay/Delta fish and wildlife.

¹¹ The 1966 Power Purchase Agreement between YCWA and PG&E expires on April 30, 2016, the same day the existing FERC license for the Yuba River Development Project expires.

¹² The Yuba Accord establishes minimum streamflows in the Yuba River downstream of Englebright Dam for seven water year types ranging from wet water years (Schedule 1) to dry water years (Schedule 6), and includes "conference years." Water years in Schedule 1 and 2 were designed to optimize fisheries habitat and are expected to occur approximately 78 percent of the time.

The primary purpose of the M&E Program is to provide the monitoring data necessary to evaluate whether implementation of the Yuba Accord will maintain fish resources (i.e., the fish community, including native fish and non-native fish) of the lower Yuba River in good condition, and will support viable anadromous salmonid populations. The RMT has developed an M&E Program framework document that identifies data collection needs, analytic approaches and thresholds or other metrics for comparison or evaluation. The RMT developed and deployed study plans (i.e., Protocols, which should not be confused with the relicensing study proposals) for:

- Flow and Water Temperature Monitoring
- Topographic Mapping (Digital Elevation Model, or DEM)
- Substrate and Cover Mapping
- 2D Hydrodynamic Modeling
- Morphologic Unit Classification
- Mesohabitat Classification
- Riparian Vegetation Mapping
- Acoustic Tagging and Tracking
- VAKI™ Riverwatcher Fish Counter Monitoring
- Redd Surveys
- Fish Carcass Surveys
- Snorkel Surveys
- Rotary Screw Trap (RST) Fish Collection
- Genetic Sampling and Characterization
- Otolith Sampling and Characterization

The RMT monitors data collection activities, reviews analytic techniques, performs quality assurance/quality control (QA/QC) reviews of data and products, and compiles annual data reports. Monitoring observations, data and annual reports are made available on the RMT website (www.yubaaccordrmt.com) as they become available. Additionally, the RMT presents selected study results in public symposia and professional conferences, and provides data upon request to various other study efforts including those of RMT member entities. The RMT routinely coordinates and shares data with several other Sacramento River Valley monitoring or scientific programs, and data-shares with CDWR's Feather River monitoring programs, various Cal Fish and Wildlife monitoring programs, and research projects based at UC Davis, University of South Carolina, State University of New York, and the University of Idaho.

The RMT issued a draft M&E Report that summarizes, synthesizes and presents results of the first 6 years of the RMT's studies. The RMT's existing body of work, plus the results of the ongoing RMT data collection efforts and annual data reports, in addition to the results of

YCWA's relicensing studies and other information that may become available, may inform the development of YCWA's relicensing proposal.

YCWA has been operating the Project in conformance with the Yuba Accord since 2006.¹³ On May 20, 2008, the State Water Resources Control Board (SWRCB) adopted its Corrected Order WR 2008-0014, which approved the long-term amendments to YCWA's water-right permits that were necessary so that YCWA may continue to implement the Yuba Accord.

1.3 Updated Study Report and Updated Study Report Meeting Summary

The Updated Study Report, which was filed by YCWA with FERC on December 2, 2013, is one step in the transparent process of: study plan identification; study plan development; study plan comment submittal and reviews; and subsequent revisions to study plans that reflect the interests of Relicensing Participants.¹⁴ The report covered the period from initiation of the various relicensing studies through December 2, 2013, and provided, for each FERC-approved study: a description of YCWA's progress implementing the study plan and schedule; a summary of the data collected; and an explanation of any variance from the FERC-approved study.

YCWA held an Updated Study Report meeting on December 17, 2013 and filed with FERC an Updated Study Report meeting summary on December 31, 2013. The meeting summary stated that YCWA had completed 43 of the 48 FERC-approved studies.

Since the Updated Study Report was filed, YCWA has completed two other studies. In addition, as requested by Relicensing Participants, YCWA completed additional analysis on a completed study and provided the analysis to Relicensing Participants. These studies are:

- **In Progress When Updated Study Report Was Filed, and Now Completed:**
 - Study 6.1, Riparian Habitat Upstream of Englebright Dam
 - Study 7.13, Fish Stranding Associated with Shutdown of Narrows 2 Powerhouse Partial Bypass
- **Completed When Updated Study Report Was Filed, And Additional Analysis Provided:**
 - Study 6.2, Riparian Habitat Downstream of Englebright Dam

For each of these 45 completed studies, a final technical memorandum (tech memo or TM), which included the study goals and objectives, methods, results, discussion and any variances

¹³ The 2006, 2007, and early 2008 operations were under 1-year pilot programs that were approved by the SWRCB.

¹⁴ For this relicensing, "Relicensing Participants" are considered federal, state and local agencies, Native American tribes, non-governmental organizations, and unaffiliated members of the public interested in the relicensing of the Yuba River Development Project and who have routinely participated in the relicensing to date. That is not to imply that other parties may not be interested in the relicensing.

from the FERC-approved study, was posted to YCWA’s Relicensing Website (www.ycwa-relicensing.com).

Table 1.3-1 lists the three studies that are in progress and the expected completion date for each.

Table 1.3-1. Studies in progress and the date, in chronological order, that YCWA expects each study will be complete.

Study Number	Study Name	Date YCWA Posted an Interim Technical Memorandum to the Relicensing Website	Date YCWA Forecasts the Study Will be Complete
8.2	Recreational Flow	October 29, 2012	June 30, 2014
7.11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse	March 3, 2014 ¹	March 31, 2015 ^{1,2}
7.11a	Radio Telemetry Study of Spring- and Fall-run Chinook Salmon Downstream of Narrows 2 Powerhouse		

¹ The FERC-approved studies direct that an interim technical memoranda for Studies 7.11 and 7.11a will be combined into a single interim technical memorandum that will be posted to YCWA’s relicensing Website; and the final technical memoranda for Studies 7.11 and 7.11a will be combined into a single final technical memorandum that will be filed with FERC by March 31, 2015. YCWA anticipates filing the joint interim technical memorandum by March 15, 2014.

² On February 11, 2014, YCWA filed a letter with FERC requesting that Study 7.11a be modified to reschedule 2014 fieldwork to 2015 due to the extreme drought conditions in California. If YCWA’s request is approved, the due date for the joint Study 7.11 and Study 7.11a final technical memorandum will be March 31, 2016.

For each of these in-progress studies, YCWA posted to the YCWA Relicensing Website an interim technical memorandum that provided key findings and any variances from the FERC-approved study through November 30, 2012.

1.4 Comments on Updated Study Report and Updated Study Report Meeting Summary

Eight letters, which provided comments on YCWA’s Updated Study Report and Updated Study Report meeting summary, were filed with the FERC by the filing date deadline of January 30, 2014. A ninth letter was filed one day late. Two letters, which requested a new study, were filed with FERC in July 2013, well before YCWA issued the Updated Study Report.¹⁵ One letter from the USDOJ, National Park Service (NPS), which provides comments on a technical memorandum and was referred to in NPS’ Updated Study Report comment letter, was filed with FERC in July 2013. Table 1.4-1 lists each of these 12 letters, the commenter, and the date of its comment letter.

Table 1.4-1. Comment letters filed with FERC regarding YCWA’s Yuba River Development Project’s Initial Study Report and meeting summary.

Commenter	Date of Comment Letter	Date Letter Filed with FERC
USFWS	July 3, 2013	July 3, 2013
	December 30, 2013	December 31, 2013
	January 30, 2014	January 30, 2014

¹⁵ At the December 17, 2013 Updated Study Report meeting, FERC said it would address these two letters in the Updated Study Report process.

Table 1.4-1. (continued)

Commenter	Date of Comment Letter	Date Letter Filed with FERC
Forest Service	January 30, 2014	January 30, 2014
United States Department of Interior, Bureau of Reclamation (BLM)	January 30, 2014	January 30, 2014
NMFS	January 30, 2014	January 30, 2014
State Water Resources Control Board (SWRCB)	January 30, 2014	January 30, 2014
Cal Fish and Wildlife	July 3, 2013	July 3, 2013
	January 30, 2014	January 30, 2014
FWN ¹	January 30, 2014	January 30, 2014
NPS	July 26, 2013	July 26, 2013
	January 30, 2014	January 31, 2014
Total		12

¹ Representatives of multiple NGOs that signed FWN's January 30, 2014 letter, including FWN, California Sportfishing Protection Alliance, Trout Unlimited, American Whitewater, American Rivers, South Yuba River Citizens League, Sierra Club (Mother Lode Chapter), Northern California Federation of Fly Fishers, and Save Auburn Ravine Salmon and Steelhead.

YCWA would like to express its appreciation to Relicensing Participants for taking the time and effort to review the Updated Study Report, the meeting summary, and the technical memoranda posted by YCWA's to the Relicensing Website, and for attending over 150 relicensing meetings to date.

YCWA has carefully reviewed each comment letter, and has concluded that there are two general categories of comments requiring responses:

- Study Requests. These comments requested modifications to existing FERC-approved studies or new studies.¹⁶ In some cases, study requests were clearly called out in the comment letters, while in others the requests were less clearly identified.
- Non-Study Requests. These comments general pertain to a technical memorandum posted by YCWA to the relicensing website, and the comment does not include a specific request to modify the study.

In some instances, YCWA was unclear about which of the above categories a request should fall under. Nevertheless, YCWA made a good faith effort to identify all of the comments that fell into one of the categories noted above, and has provided a response to each of those comments in this document. YCWA apologizes if it inadvertently overlooked any comments.

If YCWA has not specifically addressed any comments in this response document, one should not infer that YCWA agrees or disagrees with that comment. YCWA reserves its right to address any comments, if and when appropriate.

¹⁶ In this document, requests for modifications to ongoing FERC-approved studies and requests for new studies are collectively referred to as "study requests."

1.5 Content of This Document

This document provides YCWA's responses to comments made on the Updated Study Report and Updated Study Report meeting summary, and includes the following sections:

- Section 1. Introduction. This section describes the background and content of this document.
- Section 2. Responses to Study Requests. This section provides YCWA's responses to study requests, including requests for modifications to existing studies and requests for new studies.
- Section 3. Responses to Non-Study Requests. This section provides YCWA's responses to non-study requests.
- Section 4. References Cited. This section includes a list of references cited in this document.

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SECTION 2.0

RESPONSE TO STUDY REQUESTS

YCWA reviewed each of the comment letters filed with FERC in response to YCWA’s Updated Study Report and Updated Study Report meeting summary and found that the letters requested modifications to 14 FERC-approved studies and seven new studies (Table 2.0-1.).

Table 2.0-1. Summary of study requests.

Study		Commenter							
#	Name	Forest Service	BLM ¹	NPS	USFWS	NMFS	CDFW	SWRCB	FWN
REQUESTS FOR MODIFICATIONS TO FERC-APPROVED STUDIES									
2.2	Water Balance/Operations Model	X							X ²
3.2	Aquatic Macroinvertebrates Downstream of Englebright Dam				X ²		X		
3.10	Instream Flow Upstream of Englebright Reservoir	X							
3.11	Entrainment	X			X ²		X		X
3.12	New Colgate Powerhouse Ramping					X			
6.1	Riparian Habitat Upstream of Englebright Reservoir						X		
7.2	Potential Narrows 2 Powerhouse Intake Extension				X	X	X	X ²	X
7.8	ESA/CESA-Listed Salmonids Downstream of Englebright Dam				X ²	X			X ²
7.9	Green Sturgeon Downstream of Englebright Dam						X		
7.10	Instream Flow Downstream of Englebright Dam				X ²	X			X
7.11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse					X			
7.13	Fish Stranding Associated with Shutdown of Narrows 2 Powerhouse Partial Bypass					X	X ²		
8.2	Recreation Flow			X					
9.1	Primary Project Roads and Trails	X		X ²					
<i>FERC-approved Studies for which Modifications Are Requested</i>		4	0	2	3	6	6	1	6
<i>Subtotal</i>		14							

Table 2.0-1. (continued)

Study		Commenter							
#	Name	Forest Service	BLM	NPS	USFWS	NMFS	CDFW	SWRCB	FWN
REQUESTS FOR NEW STUDIES									
--	Special-Status Wildlife Studies						X		
--	Log Cabin and Our House Diversion Dam Low Level Outlet Capacities	X			X		X		X
--	New Bullards Bar Dam – New Flood Control Outlet – Effects of Construction and Operation on FS Lands and Operations Model Scenarios	X	X ²				X		X
--	Evaluation of the Effects of the New Bullards Bar Flood-Control Outlet and New Colgate Tailwater Depression System				X	X			
--	Narrows 2 Power Intake Entrainment				X		X		
--	Evaluation of the Effects of the Shot Rock in the Englebright Dam Reach and Associated Impacts to Anadromous Fish and Their Habitats					X			X ³
--	Fish Passage Assessment for Spring-run Chinook Salmon and Central Valley Steelhead							X	
<i>Requested New Studies</i>		2	1	0	3	2	4	1	2
<i>Subtotal</i>		7							
Total		21							

¹ The table does not include a row to document BLM’s, USFWS’ or FWN’s comments regarding Study 6.2, *Riparian Habitat Downstream of Englebright Dam*. Neither BLM, USFWS nor FWN requests a study modification. Instead, they noted that YCWA had agreed to perform additional analysis. Nor does the table include a row to document the Forest Service’s or FWN’s comments regarding Study 6.1, *Riparian Habitat Upstream of Englebright Dam*, since YCWA, the Forest Service, FWN and other Relicensing Participants have reached agreement regarding additional analysis. Last, the table does not include a row to document NMFS’, USFWS’ and Cal Fish and Wildlife’s comments regarding Study 7.11a, *Radio Telemetry Study of Spring- and Fall-run Chinook Salmon Downstream of Narrows 2 Powerhouse*, since YCWA, NMFS, USFWS, Cal Fish and Wildlife and other Relicensing Participants reached agreement that the HTI telemetry system would be used in Phase 2 of the study, though agreement regarding a cap on the number of additional hydrophones that could be added was not reached with NMFS or USFWS.

² This Relicensing Participant did not request a study modification, but commented on the study for which another Relicensing Participant requested a modification. For ease of reference, the Relicensing Participant’s comments are discussed in this section.

³ FWN included in its letter a request to modify Study 1.2, *Chanel Morphology Downstream of Englebright Dam*. YCWA found FWN’s study modification request and NMFS’ request for a new study named Evaluation of the *Effects of the Shot Rock in the Englebright Dam Reach and Associated Impacts to Anadromous Fish and Their Habitats* to so similar that it treated the two requests together as a new study request.

YCWA responds to requests for modifications to ongoing studies in Section 2.1, and to requests for new studies in Section 2.2.

2.1 Requests for Modifications to Existing Studies

This section provides YCWA’s responses to requested modifications to the 14 FERC-approved studies listed in Table 2.0-1.

YCWA has organized each of its responses to address the two criteria in 18 C.F.R. Section 5.15(d) that must be addressed when a party requests a modification to a FERC-approved study. Specifically, Section 5.15(d) states:

d) *Criteria for modification of approved study.* Any proposal to modify an ongoing study pursuant to paragraphs (c)(1)-(4) of this Section¹⁷ must be accompanied by a showing of good cause why the proposal should be approved, and must include, as appropriate to the facts of the case, a demonstration that:

- (1) Approved studies were not conducted as provided for in the approved study plan; or
- (2) The study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.

2.1.1 Water Balance/Operations Model (Study 2.2)

2.1.1.1 Description of Request

The Forest Service requests that YCWA modify Study 2.2 to include a tool that will accommodate input data reflecting new flows resulting from relicensing of South Feather Water and Power Agency's South Feather Project (FERC Project No. 2088), Nevada Irrigation District's Yuba-Bear Hydroelectric Project (FERC Project No. 2266), and PG&E's Drum-Spaulding Project (FERC Project No. 2310). The Forest Service does not provide any description of the methods it proposes to make this modification or an estimate of the cost to implement the modification. (Page 1 of Attachment 1 to the Forest Service's January 30, 2014 letter.)

FWN does not request a modification to Study 2.2, but "*encourages*" YCWA to include in the Water Balance/Operations Model the input flows resulting from the upstream relicensings (Pages 6 and 7 of FWN's January 30, 2013 letter).

2.1.1.2 YCWA's Analysis

2.1.1.2.1 Criterion 1 – Conformance to FERC-Approved Study

The Forest Service does not state that it based its request to modify Study 2.2 on the fact that the study was not conducted as provided for in the FERC-approved study plan. In fact, YCWA conducted Study 2.2 as required by FERC, and posted a Study 2.2 final technical memorandum to YCWA's relicensing website on April 5, 2013.

¹⁷ 18 C.F.R. Section 5.15(c)(1) through (4) concern the Initial and Updated Study reports, applicant's Initial and Updated Study reports meetings, applicant's filing of an Initial and Updated Study reports meeting summary, and Relicensing Participants and Commission staff's filing of disagreements regarding applicant's Initial and Updated Study reports meeting summaries.

2.1.1.2.2 Criterion 2 – Anomalous Conditions

The Forest Service does not state that it based its request to modify Study 2.2 on the claim that the study was performed under anomalous conditions or that conditions have changed. In fact, YCWA conducted Study 2.2 using the hydrologic period of record, both upstream and downstream of the Project, from Water Year (WY) 1970 through WY 2010, which included wet and dry periods.

YCWA notes that the Forest Service made a similar study modification request in response to YCWA's Initial Study Report, and YCWA's position then was that, until FERC licenses for the upstream projects were issued, it was not appropriate to include them as part of the baseline or Base Case Scenario. In FERC's March 29, 2013 *Determination on Requests for Modifications to the Yuba River Hydroelectric Project Study Plan*, FERC agreed with YCWA's position and indicated no modification to the Water Balance/Operations Model nor revision of the Base Case Scenario to represent changes in upstream project operations was required, stating: "*The use of historical inflows to the Middle Yuba River and the South Yuba River represent the baseline condition and their use does not mean that the study was conducted under anomalous conditions or that conditions have so changed in a material way [section 5.15(d)(2)] to require a study modification.*" (FERC 2013) The FERC licenses for the upstream projects have not been issued at this time.

2.1.1.2.3 Demonstration of Extraordinary Circumstances

The Forest Service does not identify any extraordinary circumstances that would warrant the Forest Service's requested modification to Study 2.2, and YCWA is unaware of any pertinent extraordinary circumstances

2.1.1.2.4 Other Showings of Good Cause

The only reason that the Forest Service provides to support its request is that since the time FERC approved Study 2.2 on September 30, 2011, the Forest Service issued final FPA Section 4(e) conditions, which includes minimum flows, for the three upstream projects.

The Forest Service issued its FPA Section 4(e) conditions for the South Feather Water Project on March 6, 2009, 2 years before FERC approved Study 2.2. The Forest Service and BLM each filed FPA Section 4(e) preliminary conditions and final conditions on the Yuba-Bear Hydroelectric Project and the Drum-Spaulding Project on August 23, 2012 and November 20, 2013, respectively. At this time, FERC has not issued licenses for the upstream projects.

2.1.1.3 YCWA's Recommendation

FERC should not adopt the Forest Service's requests to modify Study 2.2. The request was made earlier in the relicensing and not adopted by FERC, and the Forest Service provides no additional information or a demonstration of extraordinary circumstances that warrant changing FERC's previous determination.

Moreover, as part of the cumulative effects analysis in its DLA, YCWA provided an analysis of a Future Proposed Project scenario that included the future potential license conditions and diversions for projects upstream and downstream from the Yuba River Development Project. YCWA also included the input hydrology and a version of the Water Balance/Operations Model configured to run the Future Proposed-Project scenario.

2.1.2 Aquatic Macroinvertebrates Downstream of Englebright Dam Channel Morphology Downstream of Englebright Dam (Study 3.2)

2.1.2.1 Description of Requests

Cal Fish and Wildlife requests “*that FERC make a determination as to whether this study [Study 3.2] is complete and consider the Department’s and other relicensing participants’ comments when making that determination*” (Page 2 of Cal Fish and Wildlife’s January 30, 2014 letter).

The only other Relicensing Participant that commented on Study 3.2 is the USFWS, which echoes Cal Fish and Wildlife’s concerns but does not request that FERC make a determination regarding whether the study is complete or requests a study modification (Page 2 of USFWS’ January 30, 2014 letter).

2.1.2.2 YCWA’s Analysis

2.1.2.2.1 Criterion 1 – Conformance to FERC-Approved Study

Cal Fish and Wildlife asserts that YCWA did not perform the study in conformance with the FERC-approved study plan:

... data was not collected from the floodplain during inundation, riparian edge, or backwater areas of the river. Due to the fact that riparian overstory (including its floodplain) is a primary driver for aquatic macroinvertebrate abundance, Technical Memorandum 3-2 only addresses a small subset of the prey base for salmonids (species of the Family Salmonidae) in the lower Yuba River. As such, the Department does not consider the data output from Study 3.2 to adequately represent aquatic macroinvertebrate populations downstream of Englebright Dam.

(Page 2 of Cal Fish and Wildlife’s January 30, 2014 letter.)

The USFWS echoes Cal Fish and Wildlife’s opinion that it “*does not consider the data output from study 3.2 to adequately represent aquatic macroinvertebrate populations downstream of Englebright Dam*” (Page 2 of USFWS’ January 30, 2014 letter).

In fact, YCWA performed the study using the method identified in the plan, and selected sampling sites collaboratively with Relicensing Participants, including Cal Fish and Wildlife.

YCWA notes that the statement that floodplains provide a source of prey-base is accurate, but the invertebrates are of terrestrial origin and not part of an aquatic macroinvertebrate investigation. Further, allochthonous material from floodplains is important, but is mobilized from the floodplain and displaced into aquatic habitat represented in the study. YCWA believes the study sufficiently characterizes aquatic macroinvertebrate populations below Englebright Dam.

2.1.2.2.2 Criterion 2 – Anomalous Conditions

Cal Fish and Wildlife does not state that it bases its request to modify Study 3.2 on the fact that the study was performed under anomalous conditions or that conditions have changed. In fact, YCWA conducted Study 3.2 during typical environmental conditions.

2.1.2.2.3 Demonstration of Extraordinary Circumstances

Cal Fish and Wildlife does not identify any extraordinary circumstances that would warrant its requested modification to Study 3.2, and YCWA is unaware of any pertinent extraordinary circumstances.

2.1.2.2.4 Other Showings of Good Cause

Cal Fish and Wildlife does not provide any other showings of good cause to support its requested modification to Study 3.2.

2.1.2.3 YCWA’s Recommendation

FERC should find that Study 3.2 is complete. The study was conducted in accordance with the FERC-approved study. In fact, Cal Fish and Wildlife participated in and approved the selection of sampling locations.

2.1.3 Instream Flow Upstream of Englebright Reservoir (Study 3.10)

2.1.3.1 Description of Request

The Forest Service requests that YCWA modify Study 3.10 to “*model fish habitat suitability curves within the 2-dimensional hydrodynamic models that were originally developed [in Study 3.5, Special-Status Amphibians – Foothill Yellow-Legged Frog Habitat Modeling] for foothill yellow-legged frogs (FYLF) in the Middle Yuba River and Oregon Creek.*” The Forest Service does not provide any description of the methods it proposes to make this modification other than stating “*We would like to discuss the exact specifications with the licensee, when possible.*” Nor does the Forest Service provide an estimate of the additional cost or time required to implement the modification. (Page 1 of Attachment 1 to the Forest Service’s January 30, 2014 letter.)

2.1.3.2 YCWA's Analysis

2.1.3.2.1 Criterion 1 – Conformance to FERC-Approved Study

The Forest Service does not state that it bases its request to modify Study 3.10 on the fact that the study was not conducted as provided for in the FERC-approved study plan. In fact, YCWA conducted Study 3.10 as required by FERC.

2.1.3.2.2 Criterion 2 – Anomalous Conditions

The Forest Service does not state that it bases its request to modify Study 3.10 on the fact that the study was performed under anomalous conditions or that conditions have changed. YCWA conducted Study 3.10 using normal hydrologic conditions.

2.1.3.2.3 Demonstration of Extraordinary Circumstances

The Forest Service does not identify any extraordinary circumstances that would warrant the Forest Service's requested modification to Study 3.10, and YCWA is unaware of any pertinent extraordinary circumstances

2.1.3.2.4 Other Showings of Good Cause

The only reason that the Forest Service provides to support its request is that *"This modeling would provide more detailed information on instream habitat suitability in areas of the river that include both fish species of interest and FYLF, as well as contributing to the validation of the instream flow study."*

The Forest Service does not provide any reason for why more detailed information is needed. YCWA conducted extensive studies, as directed by FERC and requested by Relicensing Participants, to develop flow-habitat relationships for fish and FYLF in the Middle Yuba River and Oregon Creek. Those hydraulic/habitat models were carefully calibrated, reviewed by Relicensing Participants, and have been relied on in discussions of potential protection, mitigation and enhancement (PM&E) measures. No Relicensing Participant has suggested those flow-habitat relationships are not adequate to inform license requirements. Therefore, the information requested by the Forest Service is not needed.

The Forest Service states that the information might be useful to validate the results reported in Technical Memorandum 3-10, *Instream Flow Upstream of Englebright Reservoir*. However, the information will not 'validate' the results of Study 3.10. As stated by the Forest Service, the exact methods of such a comparison would need to be discussed to ensure that the comparison of the new information to that in Technical Memorandum 3-10 is valid and practical. Specifically, the 2-dimensional (2D) model sites for Study 3.5 were not selected to best represent the full range of habitat conditions found in Oregon Creek downstream of Log Cabin Diversion Dam or on the Middle Yuba River downstream of Our House Diversion Dam. They were selected near FYLF known sites or expected good FYLF habitat. Though the 2D models provide detailed hydraulic and habitat information at specific sites, the Forest Services' statement that the results

will provide ‘*more detailed information*’ would only be accurate for the specific habitat types modeled and would not be suitable for application to areas beyond the extent where sites for the two studies overlap.

2.1.3.3 YCWA’s Recommendation

FERC should not adopt the Forest Service’s request for a modification of Study 3.10. YCWA performed Study 3.10 as directed by FERC and the Forest Service has not demonstrated extraordinary circumstances to support why the study should be modified at this late date.

2.1.4 Entrainment (Study 3.11)

2.1.4.1 Description of Requests

The Forest Service requests “*that FERC make a determination on whether this study is complete.*” (Page 2 of Attachment 1 of Forest Service’s January 30, 2014 letter).

Cal Fish and Wildlife makes a similar request “*that FERC make a determination as to whether this study is complete and consider the Department’s and other relicensing participants’ comments when making that determination.*” In addition, Cal Fish and Wildlife requests that several time periods be removed when entrainment rates are calculated, and opines that the entrainment rates may be low due the water year types when the study was performed. Also, Cal Fish and Wildlife states it is concerned about entrainment at New Bullards Bar Reservoir. (Pages 2 through 5 of Cal Fish and Wildlife’s January 30, 2014 letter.)

FWN states it “*supports comments by CDFW and encourages the Commission to make a determination on additional study phases.*” (Page 4 of FWN’s January 31, 2014 letter).

USFWS did not request a modification to the Study, but commented on the study technical memorandum (Pages 4 through 7 of USFWS’ January 30, 2014 letter).

2.1.4.2 YCWA’s Analysis

2.1.4.2.1 Criterion 1 – Conformance to FERC-Approved Study

The Forest Service contends that the YCWA did not perform the study in conformance with the FERC-approved study plan. Specifically, the Forest Service states:

there were several periods when the antenna arrays were off-line (removed to clear debris) or not functioning at appropriate efficiency rates. The potential effects of these functionality gaps should be discussed in the Tech Memo in relation to the calculated entrainment rates. At a minimum,

the licensee should acknowledge that the calculated rates are likely underestimates of actual rates.

(Page 2 of Attachment 1 of Forest Service's January 30, 2014 letter.)

Cal Fish and Wildlife also asserts that "*there were several periods when the antenna arrays were off-line (removed to clear debris) or not functioning at appropriate efficiency rates.*" (Pages 2 through 5 of Cal Fish and Wildlife's January 30, 2014 letter.)

The operation of a diversion facility requires regular maintenance to provide for safe operations. Debris removal is common at any intake. In order to monitor in this environment with flows that exceeded 1,000 cfs, YCWA built a very large half-duplex PIT antenna. To ensure reliable long term operation, some maintenance was required. Periods of maintenance or unmonitored events represented only 0.3 percent and 2.0 percent of the entire monitoring period for the Lohman Ridge and Camptonville diversion tunnel arrays, respectfully. Most events were less than an hour in duration and no events exceeded 6 hours. The study approach was approved by FERC and to assume that the array would never be down for cleaning is unrealistic.¹⁸ Relative to the monitoring period that extended for almost one year, the amount of time the arrays were removed for maintenance represents a very minimal proportion of sampling period.

Antenna detection efficiency was high and allowed for successful monitoring. Each intake detection station was composed of three stacked sub-antennas. The lower antenna (first to be wetted during diversion) had a mean detection efficiency greater than 94.6 percent for both arrays. The middle and upper antennas were infrequently wetted. The Camptonville Diversion Tunnel did experience lower detection efficiency in the middle antenna, but this was strategically implemented. The bottom antenna was the primary antenna wetted during the study; therefore, the entire array was tuned to maximize the performance and detection efficiency of the bottom antenna. This approach was often at the expense of the middle antenna, but maximized detection for the wetted area. All antennas were tested for efficiency regardless if they were wetted or not and the results reported. Water levels at the Camptonville Diversion Tunnel after January 15, 2013 only exceeded the bottom of the middle antenna for an estimated 12.5 percent of the remaining study period and, thus, allowed for system efficiency within required parameters of being greater than 80 percent.

Any concern regarding efficiency or down periods of maintenance could be further alleviated by extrapolating a rate of catch. YCWA identified that catch was less than 0.6 fish per day for both sites combined, so this extrapolation would likely not result in any substantive change in the reported data. The data are available for assessment by Relicensing Participants and is entirely sufficient for development of license requirements. The study has met the goals and objectives of the study.

¹⁸ On February 8, 2013, YCWA presented a handout describing antenna cleaning and operations at a consultation meeting. Agencies reviewed the information and simply suggested to be alerted of any cleaning event. No further objections were identified during or following that consultation meeting.

Entrainment at New Bullards Bar Reservoir was also suggested as a concern. This topic has been visited on many occasions in the relicensing, and the agencies provide no new information. The reservoir was never shallower than 231 ft throughout monitoring in 2012 and sampling conducted near the intakes captured the fewest fish. Only two fish (i.e., 1 spotted bass and 1 kokanee) were sampled in deepwater nets that extended up to 100 ft in depth. It is a common understanding that the dark, low productivity environment in deepwater is infrequently visited and extreme depths are likely not occupied at all. The deepwater intakes at New Bullards Bar Reservoir pose little to no risk of interaction with fish populations in the reservoir.

2.1.4.2.2 Criterion 2 – Anomalous Conditions

Neither the Forest Service nor FWN states that it bases its request on the fact that the study was performed under anomalous conditions or that conditions have changed. However, Cal Fish and Wildlife states that the study was performed in dry water years, and “*Consequently, the magnitude and duration of discharge was much lower and the total volume of flow and face velocities were much less during the study period than they would be in wetter years.*” (Page 4 of Cal Fish and Wildlife’s January 30, 2014 letter).

Cal Fish and Wildlife suggests that the 2012 and 2013 monitoring years were unrepresentative due to the water year type. For clarity, 2012 was below normal and 2013 was a dry water year. During these periods, the study monitored flows that exceeded 1,000 cfs and were representative of a full range of diversion rates. Figures 2.1.4-1 and 2.1.4-2 show flow and detection at Camptonville (capacity 1,100 cfs) and Lohman Ridge (capacity 860 cfs) tunnels. Both tunnels reach maximum diversion capacity during the monitoring year. Further, a series of studies were conducted that were all flow-dependent and considered representative of Project conditions.

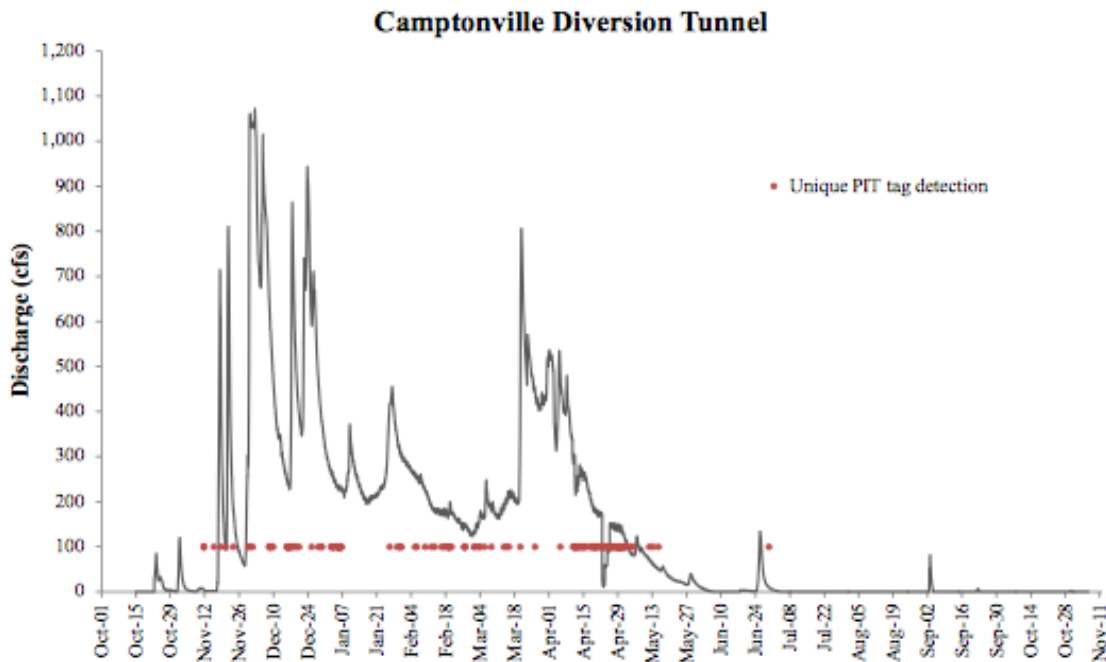


Figure 2.1.4-1. Flow and detections at Camptonville Diversion Tunnel. Note that maximum diversion capacity is 1,100 cfs.

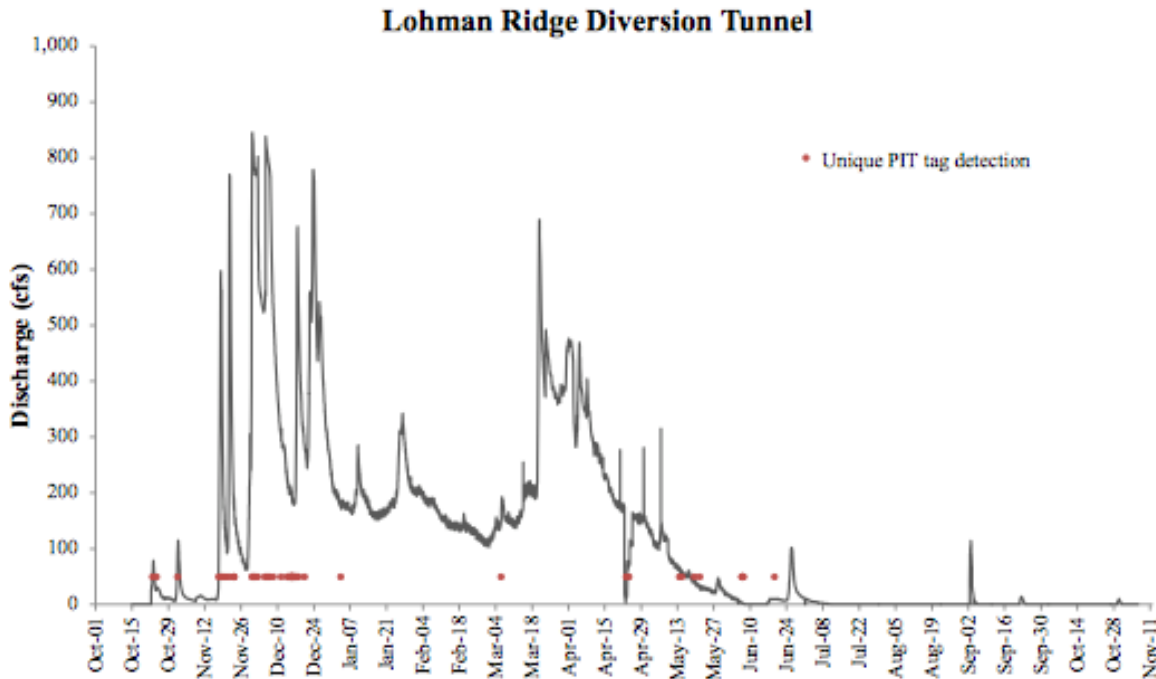


Figure 2.1.4-2. Flow and detections at Lohman Diversion Tunnel. Note that maximum diversion capacity is 860 cfs.

2.1.4.2.3 Demonstration of Extraordinary Circumstances

Neither the Forest Service, Cal Fish and Wildlife or FWN identify any extraordinary circumstances that would warrant their requested modification to Study 3.11, and YCWA is unaware of any pertinent extraordinary circumstances

2.1.4.2.4 Other Showings of Good Cause

Neither the Forest Service, Cal Fish and Wildlife or FWN provide any other showings of good cause to support its requested modification to Study 3.11.

2.1.4.3 YCWA's Recommendation

FERC should find that Study 3.11 is complete. YCWA conducted the study as directed by FERC, and it was to be expected that the antenna arrays would not be operable from time to time during routine maintenance. The periods when data are not operable are few given the overall sampling period. Studied flows were not unrepresentative. The study results meet the study goals and objectives and are reliable to inform license requirements.

2.1.5 New Colgate Powerhouse Ramping (Study 3.12)

2.1.5.1 Description of Request

NMFS repeats its request on YCWA's Initial Study Report that was included in NMFS' January 28, 2013 letter. Specifically, NMFS:

asked the Commission staff to clarify whether the stranding surveys satisfy the Director's Formal Study Dispute Resolution Determination and approved Study Plan. If not, NMFS requested that the Commission staff provide specific directives and study details to the Licensee to accomplish the Commission's goals.

(Pages 1 and 2 of Enclosure A of NMFS' January 30, 2014 letter.)

2.1.5.2 YCWA's Analysis

2.1.5.2.1 Criterion 1 – Conformance to FERC-Approved Study

NMFS states that the YCWA did not perform the study in conformance with the FERC-approved study plan. Specifically, NMFS asserts, "*It appears as though stranding surveys were not conducted during the normal range of representative flow fluctuations typical of peaking operations, and the study may not have captured the full Project effects on stranding.*" (Pages 1 and 2 of Enclosure A of NMFS' January 30, 2014 letter.)

FERC has previously rejected this request. In YCWA's *Reply to Comments on Initial Study Report* in February 2013, YCWA explained that Study 3.12 was conducted in conformance with the FERC-approved the study plan by providing the following clarifying and supporting information:

NMFS contends that the study did not capture the full Project effects because stranding surveys were not conducted during a full magnitude flow fluctuation from New Colgate Powerhouse (i.e., 3,200 to 60 cfs). YCWA examined the full range of releases, by conducting stranding surveys in two flow steps (i.e., ~3,200 to 1,500 cfs and ~1,500 to 100 cfs), rather than one flow step (i.e., ~3,200 – 100 cfs). The two step approach was used specifically to reduce the survey area during drawdown, and increase the likelihood of stranding detection. Moreover, because of the two tier flow step used, valuable information was discovered that would not have been if only one flow step had been studied. For example, results indicated that only 7 percent (i.e., n=1) of total fish stranding occurred during 3,200 – 1,500 cfs fluctuations while 93 percent (i.e., n=15) of all stranding occurred from 1,500 – 100 cfs. This information therefore, revealed that flow changes at the lower flow ranges of the typical

operational range had the greatest potential for stranding given the channel form downstream of the New Colgate Powerhouse.

2.1.5.2.2 Criterion 2 – Anomalous Conditions

NMFS does not state that it bases its request to modify Study 3.12 on the fact that the study was performed under anomalous conditions or that conditions have changed.

2.1.5.2.3 Demonstration of Extraordinary Circumstances

NMFS does not identify any extraordinary circumstances that would warrant its requested modification to Study 3.12, and YCWA is unaware of any pertinent extraordinary circumstances.

2.1.5.2.4 Other Showings of Good Cause

NMFS does not provide any other showings of good cause to support its requested modification to Study 3.12.

2.1.5.3 YCWA’s Recommendation

FERC should determine that YCWA’s surveys satisfy the Director’s Formal Study Dispute Resolution Determination and was performed consistent with the FERC-approved study. YCWA performed the study to coincide with the entire range of typical ramping flows, as directed by FERC, and NFMS has not demonstrated extraordinary circumstances to support why the study should be modified at this late date.

2.1.6 Riparian Habitat Upstream of Englebright Reservoir (Study 6.1)

2.1.6.1 Description of Requests

Cal Fish and Wildlife made two requests regarding LWM. The first request is that YCWA complete the goal stated in Study 6.1 that “*LWM budget will be developed using information regarding estimates of the annual volume of LWM trapped in reservoirs.*” The second request was that YCWA review the raw LWM data and recalculate the LWM volumes and revise Technical Memorandum 6-1, if necessary, and report the LWM as number of pieces per 100 m as agreed upon during the January 8, 2013 consultation meeting. (Pages 6 through 8 of Cal Fish and Wildlife’s January 30, 2014 letter.)

2.1.6.2 YCWA’s Analysis

2.1.6.2.1 Criterion 1 – Conformance to FERC-Approved Study

Cal Fish and Wildlife bases its first request on its contention that the YCWA did not perform the study in conformance with the FERC-approved study plan. Specifically, Cal Fish and Wildlife

states it *“has concerns about the implementation of Study 6.1 with respect to LWM¹⁹ (also referred to as “large woody debris” or “LWD”) and subsequent data analysis, and is not confident that the study was conducted as approved by FERC.”* Specifically, Cal Fish and Wildlife believes YCWA failed to meet this goal because, under current operations, YCWA passes some wood through Project diversion tunnels associated with the Log Cabin and Our House Diversion Dams and did not quantify the amount of wood passed through the tunnels. (Pages 6 through 8 of Cal Fish and Wildlife’s January 30, 2014 letter).

The study was performed in conformance to the FERC-approved Study 6.1, with one variance. Study 6.1 indicates that a LWM budget will be developed using existing information and anecdotal information regarding estimates of the annual volume of LWM trapped in reservoirs; the study did not require YCWA to develop an independent estimate, nor perform fieldwork to develop estimates, of the amount of LWM in reservoirs. The existing information is not adequate to develop an estimate of how much wood passes through Project diversion tunnels associated with the Log Cabin and Our House Diversion Dams, or how much passes over the diversion dams.

YCWA described the quantity of LWM observed in study sites, but did not estimate the annual volume of LWM passing over Project facilities since this LWM remains in the stream. Operators reported that no appreciable amount of LWM is captured by Our House or Log Cabin diversion dams because LWM passes over the dam spillways. Some material does accumulate on the trash racks for the diversion tunnels. When this becomes a safety issue, sensors inside and outside of the diversion tunnels, which detect changes in head, notify YCWA personnel of a build-up of debris against the trash racks. YCWA then treats this condition by: 1) removing pieces of LWM that are too large to safely pass through the tunnel, and allowing them to pass downstream over the dam; and 2) then, removing the trash racks with a crane and allowing the remaining small pieces of LWM (i.e., approximately 6 inches in diameter and 10 ft in length) to pass through the tunnel. Operators report this happens rarely during low flows, or as much as weekly during very high flow events, and could not estimate the typical number of LWM pieces that pass through the tunnel in a year. (Peter Wade, pers. comm., 2012.) Broad assumptions could be made regarding the amount of LWM that is annually passed through the tunnels, but these assumptions would devalue any findings since they would be so vague. Note that YCWA did report this variance in Technical Memorandum 6-1, and provided an explanation as to why the budget cannot be completed with any amount of accuracy

Cal Fish and Wildlife bases its second request on its contention that the YCWA did not perform an accurate analysis of the LWM data, and does not contest the conformance to the FERC-approved study plan.

¹⁹ YCWA categorized LWM in the four size classes for diameter (i.e., 4-12 inches (in.), 12-24 in., 24-36 in., and greater than 6 in.) and four size classes for length (i.e., 3-25 ft, 25-50 ft, 50-75 ft, and greater than 75 ft).

2.1.6.2.2 Criterion 2 – Anomalous Conditions

Cal Fish and Wildlife does not state that it bases its requests to modify Study 6.1 on the fact that the study was performed under anomalous conditions or that conditions have changed. In fact, YCWA conducted Study 6.1 during typical environmental conditions.

2.1.6.2.3 Demonstration of Extraordinary Circumstances

Cal Fish and Wildlife does not identify any extraordinary circumstances that would warrant its requested modification to Study 6.1, and YCWA is unaware of any pertinent extraordinary circumstances.

2.1.6.2.4 Other Showings of Good Cause

Cal Fish and Wildlife does not provide any other showings of good cause to support its first requested modification to Study 6.1 regarding the LWM budget.

Cal Fish and Wildlife based its second request (i.e., that YCWA review the raw LWM data and recalculate the LWM volumes and revise Technical Memorandum 6-1, if necessary) on conflicting calculations performed by Cal Fish and Wildlife. Based on this comment, YCWA recalculated the volumes of LWM and found very slight differences from those presented in Technical Memorandum 6-1. At survey sites upstream of all LWM assessment sites, a total volume of 120.6 (rather than 115.4) cubic meters, or 257 (rather than 232) pieces, of LWM were counted; associated revisions regarding the distribution of LWM were also calculated.

Based on this recalculation, on February 14, 2014, YCWA revised Technical Memorandum 6-1, posted the revised technical memorandum to the relicensing Website, and issued an e-mail to Relicensing Participants notifying them that the technical memorandum was revised.

2.1.6.3 YCWA's Recommendation

FERC should conclude that, with regards to a LWM budget, YCWA performed the study in conformance with the FERC-approved study, and that YCWA's revision of the technical memorandum adequately addresses Cal Fish and Wildlife's concern regarding checking the calculations regarding LWM volumes. Moreover, in its DLA, YCWA proposes a condition under which YCWA would pass the wood that accumulates on the trash racks at the Project diversion tunnels to downstream reaches.

2.1.7 Potential Narrows 2 Powerhouse Intake Extension (Study 7.2)

2.1.7.1 Description of Request

NMFS repeats its March 29, 2013 request, which was denied by FERC, that "*FERC order phase 2 of the potential Narrows 2 Intake Extension.*" (Page 2 of Enclosure A of NMFS' January 30, 2014 letter).

In addition, NMFS states:

NMFS' understanding is the "Upstream of Englebright Reservoir" temperature model for Study 2.8 does not model releases from the multiple-elevation inlets in New Bullards Reservoir to the New Colgate Power Tunnel Intake. This deficiency is relevant with respect to Study 7.2 because the output of the "Upstream of Englebright Reservoir" temperature model is input to the "Englebright Reservoir" temperature model (TM 2-8, p. 10), and this model would presumably be used to properly evaluate the Narrows 2 Powerhouse Intake Extension. If the failure to evaluate the potential thermal effects of the Project at New Bullards Bar Reservoir persists, we do not understand how sound information about the Project's downstream thermal effect capabilities can be obtained.

(Pages 2 and 3 of Enclosure A of NMFS' January 30, 2014 letter.)

The USFWS requests that:

FERC issue a determination about whether or not the results from this study warrant immediately going to Step 2 (Develop Conceptual Design for Preferred Alternative) listed in the Study Plan, or whether we should continue to wait to find out whether: 1) modeling scenarios developed later in licensing indicate that the Project may not be able to provide suitable water temperatures downstream of Englebright Dam; or 2) measured water temperatures in 2014, under the current drought conditions, illuminate the need for facility modification to access the lowest and coldest water in Englebright reservoir in order to meet temperature objectives in the Lower Yuba River.

(Pages 9 through 12 of USFWS' January 30, 2014 letter).

Cal Fish and Wildlife's request, which is almost identical to USFWS' request, is that:

The Department requests that FERC issue a determination regarding whether the results from Step 1 of the study warrant YCWA immediately moving to Step 2 of the study. Step 2 of the study, as described in FERC-approved Study 7.2, involves YCWA developing an alternative conceptual design for the Narrows 2 Power Tunnel Intake should Step 1 determine that a reconfiguration of the intake is necessary to achieve target water temperatures. The Department requests that FERC consider, in-lieu of advancing to Step 2 of the study, whether YCWA should wait to find out if: 1) modeling scenarios developed later in relicensing do suggest that the Project may not be able to provide suitable water temperatures downstream of Englebright Dam; or 2) measured water temperatures in 2014, under the current drought conditions, illuminate the need for facility

modification to access the lowest and coldest water in Englebright Reservoir for meeting temperature objectives in the Lower Yuba River.

(Pages 9 through 11 of Cal Fish and Wildlife's January 30, 2014 letter).

The FWN supports Cal Fish and Wildlife's request, reiterating many of the points in Cal Fish and Wildlife's letter (Page 4 of FWN's January 31, 2014 letter).

NMFS, Cal Fish and Wildlife, USFWS, SWRCB and FWN provide comments on Technical Memorandum 7-2.

2.1.7.2 YCWA's Analysis

2.1.7.2.1 Criterion 1 – Conformance to FERC-Approved Study

USFWS and Cal Fish and Wildlife suggest that YCWA did not perform Study 7.2 according to the FERC-approved study, and request that FERC issue a determination about whether or not the results from this study warrant immediately going to Step 2. FERC previously rejected this request in its September 30, 2011 Study Plan Determination. As stated by FERC on page 29 of that Determination:

We are not recommending adopting Cal Fish and Game's change to the trigger language in Step 1 for initiating Step 2 automatically. In Step 1, YCWA proposes that it will collaborate with relicensing participants on the need to implement Step 2. Pursuant to our discussion above under *Collaboration and Consultation on Study Plan Decisions*, in the event a consensus to proceed to Step 2 cannot be reached, YCWA must file its proposal with regard to Step 2 with the Commission for review and approval.

USFWS' and Cal Fish and Wildlife's contention is contrary to an agreement between YCWA, USFWS, Cal Fish and Wildlife and FWN on September 16, 2013. As documented at page 17 in YCWA's Technical Memorandum 7-2:

USFWS, Cal Fish and Wildlife and FWN acknowledged that they have agreed on a base case for operations and temperature modeling, but said they have not requested modeling many different operations scenarios and associated water temperatures. Therefore, at this time they cannot determine if it would be useful to proceed to Steps 2 and 3 of the study [7.2] (i.e., development of conceptual designs for an extension of the intake), nor can they identify the specifications for that intake extension design. USFWS, Cal Fish and Wildlife and FWN said, therefore, it would be premature to ask YCWA to undertake engineering design at this time. They recommended that YCWA finalize the study without any conceptual designs. USFWS, Cal Fish and Wildlife and FWN said they may return to this issue later in relicensing: 1) if modeling scenarios developed later in

relicensing suggest that the Project may not be able to provide suitable water temperatures downstream of Englebright Dam; or 2) if future discussion of water temperatures downstream of Englebright Dam suggest a temperature regime different from that in the RMT addendum. [Emphasis Added]

YCWA finalized the study as agreed to at the September 16, 2013 meeting. Further, YCWA is unaware of any modeling scenarios that have suggested the Project, as currently configured, may not be able to provide suitable water temperatures downstream of Englebright Dam.

With regards to a “*water temperature regime different from that in the RMT addendum,*” USFWS, Cal Fish and Wildlife and NMFS each contend that YCWA’s use of the RMT addendum was inappropriate and an unacceptable variance to the study. For instance, at page 2 of Enclosure A to its letter, NMFS states “*the RMT-established temperature targets were developed outside of this Integrated Licensing Process (ILP), and there is not agreement about their appropriateness,*” and USFWS states on page 11 of its letter that “*The Applicant should modify Technical Memorandum 7-2 using only those temperature criteria contemplated in the original, FERC-approved Study Plan.*”

YCWA’s use of the addendum is consistent with the FERC-approved study, which states:

Further, the RMT recommended that the Technical Memorandum [RMT 2010] be supplemented by incorporating additional data and information obtained from ongoing monitoring and evaluation activities, and by the application of a daily time-step water temperature model, when such a model becomes available, to provide greater resolution and to validate the exceedance estimates of the Yuba Accord Water Temperature Model. [Emphasis Added]

As stated at page 16 in Technical Memorandum 7-2, “*During October 2013, an addendum was prepared to RMT (2010). The RMT utilized the updated lifestage periodicities and water temperature index values identified in the Yuba Accord Monitoring and Evaluation Interim Report (RMT 2013) to evaluate water temperature suitabilities using updated water temperature monitoring and the YRDP daily water temperature model.*”

The water temperature index values evaluated in the technical memorandum are the updated water temperature index values evaluated by the RMT (2013) in their *Monitoring and Evaluation Interim Report*, as was anticipated in the RMT 2010 report. Therefore, the water temperature index values and associated species-specific lifestage periodicities evaluated in Technical Memorandum 7-2 represent the most recent water temperature index values identified by the RMT, consistent with the FERC-approved study.

In addition, NMFS contends that YCWA did not conduct Study 2.8, *Water Temperature Models*, in conformance with the FERC-approved study because the resulting model “*does not model releases from the multiple-elevation inlets in New Bullards Reservoir to the New Colgate Power Tunnel Intake.*” NMFS is incorrect. The New Bullards Bar Reservoir representation in the Upper

Temperature Model includes an option for making releases from the upper intake into the New Colgate Powerhouse penstock that would allow for the simulation of water temperatures resulting from releases through the upper intake. To date, no Relicensing Participant has requested that YCWA make such a model simulation.

2.1.7.2.2 Criterion 2 – Anomalous Conditions

None of the agencies or FWN states that it bases its request to modify Study 7.2 on the fact that the study was performed under anomalous conditions or conditions have changed.

2.1.7.2.3 Demonstration of Extraordinary Circumstances

None of the agencies or FWN identifies any extraordinary circumstances that would warrant its requested modification to Study 7.2.

2.1.7.2.4 Other Showings of Good Cause

None of the agencies or FWN provides any other showings of good cause to support its requested modification to Study 7.2.

2.1.7.3 YCWA's Recommendation

FERC should determine that YCWA performed the study in conformance to the FERC-approved study, and it is complete – performance of phase 2 of the study is not warranted at this time. On September 16, 2013, USFWS, Cal Fish and Wildlife and FWN advised YCWA that, at that time, they could not determine if it would be useful to proceed to Phase 2 (i.e., development of conceptual designs for an extension of the intake), nor could they identify the specifications for that intake extension design. They concluded it would be premature to ask YCWA to undertake engineering design at that time, and recommended that YCWA finalize the study without any conceptual designs, which YCWA did. NMFS, USFWS, Cal Fish and Wildlife and FWN have provided no new information, or demonstrated extraordinary circumstances, that change the conclusions on September 16, 2013. In addition, FERC previously rejected this request in its September 30, 2011 Study Plan Determination.

YCWA concludes that the Project would generally provide suitable water temperatures downstream of Englebright Dam. The Yuba Accord was designed to provide the coolest water available over the late summer and early fall in the greatest number of years (i.e., “optimum” flow schedules in approximately 78% of WYs), and contains no temperature thresholds, criteria or objectives. The technical memoranda resulting from the two studies simply compare temperatures that would result from operating according to the Yuba Accord flow regimes under the 41-year period of record with indices generally derived from published literature and considered most applicable to the lower Yuba River conditions and fish species present. In addition, it is unlikely that a Narrows 2 intake extension would result in cooler water temperatures being released from the Narrows 2 Powerhouse because the current intake is already generally below the thermocline in Englebright Reservoir.

As mentioned above, NMFS, Cal Fish and Wildlife, USFWS, SWRCB and FWN provide comments on Technical Memorandum 7-2. YCWA's responses to the comments are provided in Table 2.1.7-1.

Table 2.1.7-1. YCWA’s responses to comments on Technical Memorandum 7-2.

Comment	Commenter & Reference Page in Comment Letter	YCWA’s Response
<p><i>“The temperature objectives in Technical Memorandum 7-2 have been substantially modified from what was included (as Attachment 7.2A) in the FERC-approved Study 7.2.</i></p> <p><i>...Attachment 7-2B provides entirely different water temperature indices that were developed in the Yuba Salmon Forum (YSF) for assessing potential Chinook salmon (<i>Oncorhynchus tshawytscha</i>) reintroduction in the upper Yuba River watershed. The State and federal agencies that collaborated in the YSF, which are also Project relicensing participants, made it clear to the YSF that the temperatures developed in the YSF for the upper watershed were not to be used as “criteria”.</i></p> <p><i>The Department’s understanding was that all YSF participants agreed that the Water Temperature Indices (WTI) in Attachment 7-2B would be used only for comparison of potential upper tolerable habitat limitations in potential salmon reintroduction study reaches upstream of Englebright Dam, and never for assessing license compliance with other, significantly more protective, water temperature criteria.</i></p> <p><i>Thus, the application of Attachment 7-2B for Study 7.2 is inappropriate. Temperature exceedances should be analyzed by day, or at least by individual month, and by location in the river to determine their biological significance, so that more extreme, short-term impacts are assessed.”</i></p>	<p>CDFW, p. 10</p>	<p>As stated in the FERC-approved study, “<i>Further, the RMT recommended that the Technical Memorandum [RMT 2010] <u>be supplemented by incorporating additional data and information obtained from ongoing monitoring and evaluation activities</u>, and by the application of a daily time-step water temperature model, when such a model becomes available, to provide greater resolution and to validate the exceedance estimates of the Yuba Accord Water Temperature Model.</i>” [emphasis added]</p> <p>As stated in Technical Memorandum 7-2, “<i>During October 2013, an addendum was prepared to RMT (2010). The RMT utilized the updated lifestage periodicities and water temperature index values identified in the Yuba Accord Monitoring and Evaluation Interim Report (RMT 2013) to evaluate water temperature suitabilities using updated water temperature monitoring and the YRDP daily water temperature model.</i>”</p> <p>The water temperature index values evaluated in Technical Memorandum 7-2 are the updated water temperature index values evaluated by the RMT (2013) in their Monitoring and Evaluation Interim Report, as was anticipated in the RMT 2010 report. Therefore, the water temperature index values (and associated species-specific lifestage periodicities) evaluated in Technical Memorandum 7-2 represent the most recent water temperature index values identified by the RMT, consistent with the FERC-approved study.</p> <p>The commenter states that “<i>the temperatures developed in the YSF for the upper watershed were not to be used as “criteria”</i>”. Not only were the water temperatures used in Technical Memorandum 7-2 obtained from the RMT (2013) report, they were not used as “criteria” <i>per se</i>. They were used as index values indicating the potential for impact.</p> <p>Regarding temperature exceedances, the water temperature exceedance evaluations conducted in Technical Memorandum 7-2 used daily average water temperatures, presented on a semi-monthly time period, for the 41-year modeled scenarios (nearly 15,000 average daily water temperature values).</p>
<p><i>“...the Department believes that taking an average exceedance value over every month from the entire period of record is an inappropriate way to analyze temporal impacts to any specific species or life stage of fish. This approach was never discussed nor mentioned in the study methods section of FERC-approved Study 7.2.”</i></p>	<p>CDFW, p. 10</p>	<p>The commenter has misinterpreted the methodologies utilized in Technical Memorandum 7-2. First, water temperature exceedance probabilities were not “averaged” over any period of time. Second, the water temperature exceedance probabilities are shown for each half-month period, not for every monthly period.</p> <p>As stated in Technical Memorandum 7-2, “<i>...all occasions where the average daily water temperature exceeded the index value are included in the calculation of exceedance probabilities</i>”.</p> <p>The probability of a given water temperature exceedance value being exceeded is simply the percentage of all days in a given half-month period when the index value was exceeded. There was no averaging of probability of exceedance values – all mean daily water temperatures for every day in the simulated period of record are represented in the half-month probability of exceedance values. These methodologies are consistent with previous RMT water temperature evaluations, with the exception of utilizing half-month periods in Technical Memorandum 7-2 (compared to monthly periods in RMT 2010), which provides a more rigorous and accurate approach to calculating probability of exceedance values.</p>

Table 2.1.7-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<p><i>“the temperature index values were never intended to include a 10% exceedance value, regardless of how it was calculated. Notwithstanding these two issues, the results of the water temperature modeling in Technical Memorandum 7-2 still demonstrate that, even under YCWA’s own flow proposal, using higher than agreed upon temperature criteria, and with YCWA giving themselves a 10% criteria above which significance is determined, those temperature objectives cannot reliably be met in the Lower Yuba River using the species- and life stage-specific water temperature index values.”</i></p>	<p>CDFW, p. 10</p>	<p>It is unclear as to whether the commenter understands the use of “10%” in the analyses conducted in Technical Memorandum 7-2.</p> <p>As stated in Technical Memorandum 7-2, “An exceedance value of 10% or greater was used as an indicator of potentially impactful conditions for a specific species/run and lifestage. For example, the spring-run Chinook salmon spawning period is characterized as extending from September through mid-October. Application of model results (41 years) to this species/run and lifestage would indicate a potentially impactful condition if daily water temperatures exceeded the specified WTI value for 10% of the days evaluated during each one-half month period of this lifestage (41 years x 15 days = 615 days; 10% = 61 days). It should be noted that the sequential duration of exceedance of a water temperature index value was not considered, and a single day in a month where the average daily temperature exceeded the index value would likely be less impactful than a multi-day sequence where the average daily temperature exceeded the water temperature index value. However, all occasions where the average daily water temperature exceeded the index value are included in the calculation of exceedance probabilities. The following sections discuss specific species/runs/lifestages/months where model results indicate that water temperatures could exceed specified water temperature index values by 10% or more of the time, consistent with the approach used by RMT (2010).”</p> <p>The Tables 3.3-1, 3.3-2, 3.3-3, and 3.3-4 in Technical Memorandum 7-2 display the probability, as a percent of time (using all days in the simulated period of record), that each specified water temperature index value is exceeded for every half-month period. Ten percent was simply used to highlight specific half-month periods during a given species/lifestage when simulated water temperatures exceeded a specified index value 10% or more of the time (i.e., 10% or more of the days evaluated within a half-month period). The use of the probability of exceeding a water temperature index value 10% or more of the time is consistent with the methodology utilized in RMT (2010). However, because daily data were available for the analyses conducted in Technical Memorandum 7-2, exceedance of each water temperature index value was calculated for each half-month period, compared to each entire month in RMT (2010), providing for a more rigorous and accurate calculation of probability of exceedance values in Technical Memorandum 7-2.</p> <p>Therefore, the use of a water temperature index value being exceeded for 10% or more of the time as an indicator of potentially impactful conditions is consistent with the RMT’s previous and most recent evaluations, and therefore, is consistent with the FERC-approved study.</p>

Table 2.1.7-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<p>“...Section 5.3.1 of FERC-approved Study 7.2 states that for Step 1 of the study, “The model [Relicensing Water Balance/Operations Model and Relicensing Water Temperature Model] will also be used to investigate if the withdrawal of water from deeper portions of the Englebright Reservoir would facilitate meeting the target water temperatures.” YCWA concluded that temperature objectives are generally met in Technical Memorandum 7-2, but never actually used the Relicensing Water Balance/ Operations and Water Temperature Models to determine whether temperature objectives would be met during times when the modeling showed exceedances.”</p>	<p>CDFW, p. 10</p>	<p>As stated in Technical Memorandum TM 7-2 – “YCWA consulted with the USFWS, Cal Fish and Wildlife and Foothills Water Network (FWN) on September 16, 2013. ...USFWS, Cal Fish and Wildlife and FWN acknowledged that they have agreed on a base case for operations and temperature modeling, but said they have not requested modeling of different operations scenarios and associated water temperatures. Therefore, at this time they cannot determine if it would be useful to proceed to Steps 2 and 3 of the study (i.e., development of conceptual designs for an extension of the intake), nor can they identify the specifications for that intake extension design. USFWS, Cal Fish and Wildlife and FWN said, therefore, it would be premature to ask YCWA to undertake engineering design at this time. They recommended that YCWA finalize the study without any conceptual designs. USFWS, Cal Fish and Wildlife and FWN said they may return to this issue later in relicensing: 1) if modeling scenarios developed later in relicensing suggest that the Project may not be able to provide suitable water temperatures downstream of Englebright Dam; or 2) if future discussion of water temperatures downstream of Englebright Dam suggest a temperature regime different from that in the RMT addendum.”</p> <p>Also, it is noted that Section 5.3.1 of FERC-approved study states that if Phase 1 determines that the existing Narrow 2 Power Tunnel Intake as configured is adequate to meet the RMT target water temperatures and other water temperature targets, if collaboratively agreed to, the study will skip development of a conceptual design and proceed to report preparation.</p>
<p>“The Department requests that YCWA revise the analysis in Technical Memorandum 7-2 utilizing only those temperature criteria included as Attachment 7.2A in FERC-approved Study 7.2.”</p>	<p>CDFW, p. 10</p>	<p>As stated in the FERC-approved study, “Further, the RMT recommended that the Technical Memorandum [RMT 2010] <u>be supplemented by incorporating additional data and information obtained from ongoing monitoring and evaluation activities, and by the application of a daily time-step water temperature model, when such a model becomes available, to provide greater resolution and to validate the exceedance estimates of the Yuba Accord Water Temperature Model.</u>” [emphasis added]</p> <p>As stated in Technical Memorandum 7-2, “During October 2013, an addendum was prepared to RMT (2010). The RMT utilized the updated lifestage periodicities and water temperature index values identified in the Yuba Accord Monitoring and Evaluation Interim Report (RMT 2013) to evaluate water temperature suitabilities using updated water temperature monitoring and the YRDP daily water temperature model.”</p> <p>The water temperature index values evaluated in Technical Memorandum 7-2 are the updated water temperature index values evaluated by the RMT (2013) in their Monitoring and Evaluation Interim Report, as was anticipated in the RMT 2010 report. Therefore, the water temperature index values (and associated species-specific lifestage periodicities) evaluated in Technical Memorandum 7-2 represent the most recent water temperature index values identified by the RMT, consistent with the FERC-approved study.</p>

Table 2.1.7-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<p><i>"...the temperature objectives in TM 7-2 have been substantially modified from what was approved by the Commission in the study plan. Attachment 7-2A to Study 7-2 is the November 2010 RMT Secretary Bose, FERC 10 "Lower Yuba River Water Temperature" Technical Memorandum, which was approved by the RMT workgroup. However, also attached as an addendum to TM 7-2 is Attachment 7-2B, which is a December 2013 "Lower Yuba River Water Temperature Technical Memorandum Addendum." In this addendum, the authors use the water temperature indices that were developed in the Yuba Salmon Forum (YSF) for upper Yuba River modeling runs.</i></p> <p><i>The Agencies that worked together in the YSF were very clear that the temperatures developed in that forum were not "criteria" and should only be used as indices for modeling comparisons between the North Yuba River, Middle Yuba River, and Oregon Creek. The agreed upon YSF temperatures were for the sole purpose of evaluating potential habitat available in each of the reaches and were for comparison purposes only. The YSF charter specifies that for each primary alternative identified, the YSF would evaluate the biological and environmental benefits and technical feasibility of each alternative. The YSF temperature indices were developed for alternative analysis exclusively. In short, the understanding of the USFWS is that all YSF participants agreed these Water Temperature Indices (WTI) would be used only for comparison of potential upper tolerable habitat limitations, never for "assessing license compliance with other, significantly more protective, water temperature criteria..."</i></p> <p><i>The Applicant should modify TM 7-2 using only those temperature criteria contemplated in the original, FERC-Approved Study Plan."</i></p>	<p>USFWS, identical comment paragraphs on pgs. 9, 10 and 11</p>	<p>See the responses above to very similar comments provided by Cal Fish and Wildlife.</p> <p>Also, the commenter states that <i>"The Agencies that worked together in the YSF were very clear that the temperatures developed in that forum were not "criteria" and should only be used as indices for modeling comparisons between the North Yuba River, Middle Yuba River, and Oregon Creek"</i>. This statement is in contrast to the YSF Habitat Summary Report for all of the YSF investigations, which presents the comparisons for the stated reaches as well as for the lower Yuba River from Englebright Dam to the mouth.</p>
<p><i>"The Applicant states in TM 7-2 that, "An exceedance value of 10% or greater was used as an indicator of potentially impactive conditions for a specific species/run and lifestage." Taking an average exceedance value over every month from the entire period of record is an inappropriate way to analyze temporal impacts to any specific species or life stage of fish, and was not mentioned in the Study Plan Methods section. Temperature exceedances should be analyzed by day, or at least by individual month, and by location in the river to determine their biological significance, so that more extreme, short-term impacts are assessed."</i></p>	<p>USFWS, pgs. 10 and 11</p>	<p>See the response to a nearly identical comment from Cal Fish and Wildlife above.</p>

Table 2.1.7-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<i>"The quantified temperature exceedances are based on mean daily water temperatures over two week time periods, so more extreme, short-term impacts are not assessed."</i>	USFWS, p. 12	It is not clear what the commenter means by <i>"temperature exceedances are based on mean daily water temperatures over two week time periods, so more extreme, short-term impacts are not assessed"</i> . The relicensing water temperature models only provides mean daily water temperatures – it does not provide sub-daily temperatures. All mean daily simulated water temperatures over the period of record are utilized in calculating the probability of exceeding specified water temperature index values.
<i>"...the temperature thresholds are not universally agreed upon and tend to be a little higher than those cited in the OCAP biological assessment which are based on Boles et al. (1988), or than the standards endorsed by the USFWS (EPA 2003, Enclosure C). In the OCAP biological assessment, the U. S. Bureau of Reclamation cites 60 degrees Fahrenheit instead of 65 degrees as the recommended temperature for holding Chinook salmon adults. This may be meaningful in the lower Yuba River where holding adult spring-run Chinook salmon are present throughout the summer and acoustic tagging has shown they tend to stay downstream of Daguerre Point Dam rather than up in the Narrows where it would be even cooler."</i>	USFWS, p. 12	The water temperature index values utilized in Technical Memorandum 7-2 and by the RMT (2013) were developed for the Yuba River Basin based on the most comprehensive review of water temperature suitabilities for anadromous salmonids conducted to date, with special emphasis on studies and information from the Central Valley. The Lower Yuba Accord was designed to provide the coolest water available over the late summer and early fall in the greatest number of years (i.e., "optimum" flow schedules in approximately 78 % of Water Years), and contains no temperature thresholds, criteria or objectives. The tech memo simply compares temperatures that would result from operating according to the Lower Yuba Accord flow regimes under the 41-year period of record. Regardless, this comment does not request a specific modification to the study.
<i>"The results of the water temperature modeling in TM 7-2 demonstrate that, even under the Applicant's own flow proposal, and even using higher than agreed upon temperature criteria, and even giving themselves a 10 percent criteria above which significance is determined, those temperature objectives cannot reliably be met in the Lower Yuba River using the species- and lifestage-specific water temperature index values developed originally by the RMT in 2010. The USFWS urges the Commission to only accept temperature modeling based upon established temperature criteria, such as by the Environmental Protection Agency in 2003 (EPA 2003)(Enclosure C) or by the RMT in 2010."</i>	USFWS, p.11	See responses to similar comments provided by Cal Fish and Wildlife above.
<i>"...the Study Plan 7-2 states in Section 5.3.1 that: "The [water balance model and water temp] model will also be used to investigate if the withdrawal of water from deeper portions of the Englebright Reservoir would facilitate meeting the target water temperatures." Because the Applicant concluded that temperature objectives are generally met in TM 7-2, the Applicant never actually used the water balance and temperature models to determine whether temperature objectives would be met during times when the modeling showed exceedances."</i>	USFWS, p.11	See response to the identical comment provided by Cal Fish and Wildlife above.

2.1.8 ESA/CESA-Listed Salmonids Downstream of Englebright Dam (Study 7.8)

2.1.8.1 Description of Request

NMFS contends that “*the study has not been conducted as provided for in the Commission-approved Study Plan. § 5.15 (d) (1).*” NMFS also provides comments on Technical Memorandum 7-8, *ESA/CESA-Listed Salmonids Downstream of Englebright Dam*.

USFWS and FWN commented on Technical Memorandum 7-8, but do not request a study modification.

2.1.8.2 YCWA’s Analysis

2.1.8.2.1 Criterion 1 – Conformance to FERC-Approved Study

NMFS asserts that:

the study has not been conducted as provided for in the Commission-approved Study Plan. § 5.15 (d) (1). The FERC Director’s Formal Study Dispute Resolution Determination (December 28, 2011) amended Study 7.8 to require that YCWA include a matrix in the initial study report that: 1) evaluates information needed to assess fish passage in the lower Yuba River; 2) describes how both the relicensing studies and Yuba River Management Team’s studies address those information needs; and 3) includes a schedule for the completion of any ongoing related studies both inside and outside of the relicensing process. (p. 4).”

In fact, Study 7.8 was conducted according to the FERC-approved Study Plan 7-8 and the December 28, 2011 FERC Determination. YCWA responded previously to a similar comment from NMFS in its response to comments on the Initial Study Report on February 27, 2013. Scheduled dates for completion of the specified studies were provided in the matrix. In addition, as required by the FERC-approved study, YCWA held a Relicensing Participants consultation meeting on February 8, 2013 to discuss Technical Memorandum 7-8, and specifically, to discuss the fish passage matrix NMFS refers to, as required by the December 28, 2011 FERC Determination. No comments from Relicensing Participants, including NMFS, were provided to YCWA associated with this consultation.

The following is taken from page 3-7 of YCWA’s response to a similar comment from NMFS on the Initial Study Report on February 27, 2013.

As stated in the FERC Director’s Formal Study Dispute Resolution Determination issued Dec. 28, 2011, “*...the Panel recommended...development of a study matrix to facilitate the comparison of NMFS’ information requests for Study NMFS-1, Element 4, to the*

studies proposed in the approved study plan, plus relevant studies planned or already completed outside of the licensing process, such as studies currently underway under the direction of the RMT.” Therefore, YCWA specifically considered NMFS’s information requests for Study NMFS-1, Element 4 in developing the matrix. No RMT studies were included in the matrix because they do not provide any additional information pertinent to NMFS’ information requests not already being provided by the proposed FERC studies identified in the matrix. YSF studies conducted to date pertain to areas upstream of Englebright Dam and therefore also were not included in the matrix.

2.1.8.2.2 Criterion 2 – Anomalous Conditions

NMFS does not state that it bases its request to modify Study 7.8 on the fact that the study was performed under anomalous conditions or that conditions have changed.

2.1.8.2.3 Demonstration of Extraordinary Circumstances

NMFS does not identify any extraordinary circumstances that would warrant its requested modification to Study 7.8.

2.1.8.2.4 Other Showings of Good Cause

NMFS does not provide any other showings of good cause to support its requested modification to Study 7.8.

2.1.8.3 YCWA’s Recommendation

FERC should determine that YCWA has performed the study in conformance to the FERC-approved study. Such a determination would be consistent with FERC’s previous determination regarding this issue. NMFS has provided no additional information that suggests FERC should change its previous determination, nor has NMFS demonstrated extraordinary circumstances to support its request.

As mentioned above, NMFS, USFWS and FWN provided comments on Technical Memorandum 7-8. YCWA’s responses to the comments are provided in Table 2.1.8-1.

Table 2.1.8-1. YCWA’s responses to comments on Technical Memorandum 7-8.

Comment	Commenter & Reference Page in Comment Letter	YCWA’s Response
<p><i>“Regarding statements in TM 7-8 related to spring-run Chinook salmon in the lower Yuba River existing at a low extinction risk, NMFS states “We cannot agree at this time, especially given the high contribution of hatchery fish. TM 7-8 noted that the recent 3-year running average of adipose-fin-clipped phenotypic spring-run Chinook salmon in the total annual run is 22.9 percent (p. 40), which is higher than in a population at low extinction risk (Lindley et al. 2007, Figure 1, p. 6). More discussion on this topic and its significance is warranted, including about what constitutes an “independent population” that would be subject to an extinction risk evaluation.”</i></p>	<p>NMFS, pgs. 3 and 4 of Enclosure A</p>	<p>YCWA appreciates this comment, but suggests that the specific language in Technical Memorandum 7-8 has been misinterpreted. The reference to “low extinction risk” in Technical Memorandum 7-8 was in regards to only the abundance and trend criteria specified by Lindley et al. (2007). As stated in Technical Memorandum 7-8, “<i>The spring-run Chinook salmon abundance and trend considerations would correspond to low extinction risk according to NMFS criteria (Lindley et al. 2007).</i>”</p> <p>Further, Technical Memorandum 7-8 goes on to state the following. “<i>However, the RMT questioned the applicability of any of these criteria addressing extinction risk because they presumably apply to independent populations and, as previously discussed, lower Yuba River anadromous salmonids represent introgressive hybridization of larger Feather-Yuba river populations.</i>”</p> <p>All available information regarding spring-run Chinook salmon in the lower Yuba River is provided in the RMT’s (2013) Monitoring and Evaluation Interim Report, which was provided as an attachment to Technical Memorandum 7-8.</p>
<p><i>“A major concern with meeting the objective of monitoring and evaluating the effectiveness of the implementation of the Accord Flow Schedules is that only 3 Schedules have been “enacted” in the lower Yuba since 2007; this is due to how the North Yuba River Index is applied to select a Schedule. Therefore, if the Schedule flows were the flows occurring in the lower Yuba River during a year, a full investigation of the Schedule effects would not yet be possible.”</i></p>	<p>NMFS, p. 6 of Enclosure A</p>	<p>Per the FERC-approved study, Technical Memorandum 7-8 compiled results of previously conducted studies in the lower Yuba River. Evaluation of the Yuba Accord flow schedules was designed and implemented by the RMT, which includes representatives from NMFS, USFWS, Cal Fish and Wildlife, CDWR, YCWA, PG&E and NGOs.</p> <p>Regardless, this comment does not request a specific modification to the study.</p>
<p><i>“A related (fundamental) problem with the reported effects studies of the Accord Flow Schedules is that lower Yuba River flows very often differ greatly from those specified in a given year’s Schedule... effect evaluations undertaken in the lower Yuba River during years of identical Schedules will likely encounter very different flows. ...effects studies of these environmental conditions cannot be related to Accord Flow Schedules if the flows do not reflect the actually-occurring discharges in the lower Yuba River.”</i></p>	<p>NMFS, p. 6 of Enclosure A</p>	<p>Per the FERC-approved study, Technical Memorandum 7-8 compiled results of previously conducted studies in the lower Yuba River. Evaluation of the Yuba Accord flow schedules was designed and implemented by the RMT, which includes representatives from NMFS, USFWS, Cal Fish and Wildlife, CDWR, YCWA, PG&E and NGOs.</p> <p>Regardless, this comment does not request a specific modification to the study.</p>
<p><i>“Another difficulty is that Accord Flow Schedules are to be met at two stream gaging locations, the Smartsville gage (less than a mile downstream of Englebright Dam) and the Marysville gage (well downstream, closer to the river mouth); also, Accord Flow Schedules “A” and “B” apply. ... Therefore, effect evaluations could be fundamentally flawed if they do not account for the fact that two different flow regimes exist in the lower Yuba River.”</i></p>	<p>NMFS, p. 7 of Enclosure A</p>	<p>Per the FERC-approved study, Technical Memorandum 7-8 compiled results of previously conducted studies in the lower Yuba River. Evaluation of the Yuba Accord flow schedules was designed and implemented by the RMT, which includes representatives from NMFS, USFWS, Cal Fish and Wildlife, CDWR, YCWA, PG&E and NGOs. Attachment 7-8C to Technical Memorandum 7-8 presents available information regarding fisheries and habitat both above Daguerre Point Dam (Smartsville Gage) and below Daguerre Point Dam (Marysville Gage). Regardless, this comment does not request a specific modification to the study.</p>

Table 2.1.8-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<p><i>"With respect to anadromous fish study, the designs of investigations intended to evaluate Project or Accord effects must account for the occurrence of higher-than-minimum Accord Schedule flows in the River, as well as the different flow regimes occurring upstream and downstream of Daguerre Dam.... RST information will be of limited use unless study designs allow study objectives to be met. The RST studies discussed in the M&E Report used a design to assess Accord effects with information from a single trap deployed near Hallwood, downstream of Daguerre Dam... Given that two different flow regimes exist in the lower Yuba River, how can information from a study using a single RST meet overall objectives?"</i></p>	<p>NMFS, p. 7 of Enclosure A</p>	<p>Per the FERC-approved study, Technical Memorandum 7-8 compiled results of previously conducted studies in the lower Yuba River. Evaluation of the Yuba Accord flow schedules was designed and implemented by the RMT, which includes representatives from NMFS, USFWS, Cal Fish and Wildlife, CDWR, YCWA, PG&E and NGOs. The commenter does not indicate what objectives are being referred to vis-à-vis RST sampling. Much of the RST sampling at Hallwood Boulevard used two or three RSTs, with an objective of documenting downstream movement and outmigration at the lowermost practical RST sampling point in the lower Yuba River. Furthermore, RST sampling is only one aspect of a widely varied Monitoring and Evaluation Program.</p> <p>Regardless, this comment does not request a specific modification to the study.</p>
<p><i>"...in addition to flow, RST study designs would need to account for other complicating, influencing factors. The irrigation diversions just upstream of Daguerre Dam not only result in different flow regimes, but are thought to cause juvenile mortality at some of the screens. Predation downstream of Daguerre Dam (especially in the plunge pool) has been identified as likely, and would be a factor that could reduce the survival of the juvenile salmon reaching Hallwood. Lastly, if the upper river (i.e. Timbuctoo Bend) is where most spring-run Chinook salmon spawn and initially rear, RST deployment a short distance downstream (e.g. near Parks Bar?) would be needed to quantify the timing and abundance of emerging, rearing and emigrating spring-run fry. Given the multiple Chinook salmon runs to the lower Yuba, can RST study designs be implemented to discern the juvenile production, emigration timing, and outmigration survival of the separate runs? While we understand there are costs associated with RST monitoring, any expenditures will return information of limited use unless study designs make it possible to meet study objectives."</i></p>	<p>NMFS, p. 7 of Enclosure A</p>	<p>Per the FERC-approved study, T Technical Memorandum 7-8 compiled results of previously conducted studies in the lower Yuba River. The RST study that this comment refers to was designed and implemented by the RMT, which includes representatives from NMFS, USFWS, Cal Fish and Wildlife, CDWR, YCWA, PG&E and NGOs.</p> <p>Regardless, this comment does not request a specific modification to the study or a new study.</p>
<p><i>"TM 7-8 (p. ES-3) and the M&E Report (p. 4-61) discuss how pre- and post-Accord monitoring years (i.e., 1999-2005 and 2006-2009) revealed an apparent temporal shift in timing of emigration, with post-Accord emigration occurring approximately 1 month later than emigration during the pre-Accord years. More discussion (and perhaps study) may be necessary to understand the biological consequences of this delay, which could bear on the ultimate population status. In any case, it would be incorrect to assume that "out-of-basin" factors alone dominantly control juvenile outmigration success or, ultimately, population status."</i></p>	<p>NMFS, p. 8 of Enclosure A</p>	<p>Per the FERC-approved study, Technical Memorandum 7-8 compiled results of previously conducted studies in the lower Yuba River, including results from the RMT's (2013) Monitoring and Evaluation Interim Report.</p> <p>Regardless, this comment does not request a specific modification to the study or a new study.</p>

Table 2.1.8-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<p><i>"...it does not appear that FERC staff reviewed the RMT's study plan against the ILP regulations governing content (§5.11 (d)), or schedule, methods, and the manner and extent to which information will be shared (§5.11 (b)). Were these regulations compared with the Accord Fisheries Agreement, sections 5.4.9 "FERC Relicensing" and 5.3.7 "Recording Responsibilities for RMF Supported Studies?" These sections refer to FERC filing protocol and the appropriate content of reports that result from the M&E Program....We think FERC staff's review of Attachment 7-8C will find abundant interpretations and conclusions not allowed by the Fisheries Agreement...So, it now appears that the M&E Report has been filed in this FERC ILP in a manner inconsistent with the agreed-upon procedures regarding information sharing and filing of information in the FERC proceeding. It also appears this restriction against a report including interpretations and conclusions is subject to the regulations governing the "manner and extent to which information will be shared" (§5.11 (b)). To resolve this issue, NMFS recommends FERC staff discuss with YCWA, the RMT, and interested ILP participants the action of obtaining review of the M&E Report by independent (outside) experts, as mentioned above. In this way, the (already filed) M&E Report (containing its interpretations and conclusions) could be critically reviewed, and the reviews could be filed in this ILP to provide a more balanced view for all..."</i></p>	<p>NMFS, p. 8 of Enclosure A</p>	<p>As described in Section 1.2 of this Response, the River Management Team (RMT) monitors data collection activities, reviews analytic techniques, performs quality assurance/quality control (QA/QC) reviews of data and products, and compiles annual data reports. Monitoring observations, data and annual reports are made available on the RMT website (www.yubaaccordrmt.com) as they become available. Additionally, the RMT presents selected study results in public symposia and professional conferences, and provides data upon request to various other study efforts including those of RMT member entities. The RMT routinely coordinates and shares data with several other Sacramento River Valley monitoring or scientific programs, and data-shares with CDWR's Feather River monitoring programs, various Cal Fish and Wildlife monitoring programs, and research projects based at UC Davis, University of South Carolina, State University of New York, and the University of Idaho. The Yuba Accord pre-dates the initiation of relicensing for the YRDP, and monitoring activities, data compilation, QA/QC, and reporting have occurred since 2006. The RMT has overseen all aspects of that data collection and dissemination process; NMFS has been a participant in the RMT since the onset of the program, and has participated in all aspects of oversight of Accord-funded monitoring activities, including analysis, documentation and reporting.</p> <p>The RMT has found it necessary to undertake various degrees of analysis and reached conclusions, both to inform subsequent study efforts by the RMT and in support of the RMT's charge to evaluate the effectiveness of the Accord flow schedules. YCWA disagrees with the argument that FERC should consider the issue of the RMT's compliance with the Accord Fisheries Agreement. The entire body of RMT work is the best available information and science for the Lower Yuba River, and is appropriately utilized in the relicensing process.</p>
<p><i>"Of particular concern is how flows affect juvenile salmonid rearing habitat and how the limited access of juvenile fish to the floodplain may affect juvenile salmonid survival in the lower Yuba River...The RMT Draft Interim Report summarizes the results of a coded-wire tag study of wild caught juvenile spring-run Chinook salmon in the lower Yuba River, reporting the "extremely low" return rate, based on tag recovery from post-spawn adults, of 0.0004 percent. The RMT Interim Report prematurely concludes that these low return rates "indicate potential overwhelming out-of-basin mortality influences" when the issues of small outmigrant size, lack of access to a nutrient-rich floodplain, and reduced energetic drivers (from deficiency of large woody material and disrupted shredder/conditioners/collectors food web) have not been addressed (page 6-27 of the RMT Draft Interim Report)."</i></p>	<p>USFWS, p. 12</p>	<p>Per the FERC-approved study, Technical Memorandum 7-8 compiled results of previously conducted studies in the lower Yuba River, including results from the RMT's (2013) Monitoring and Evaluation Interim Report.</p>

Table 2.1.8-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<p><i>“As noted above under General Comments, the Draft Interim M&E Report states conclusions which are not appropriate for a relicensing study, and should be disregarded. For example, the RMT report concludes that no changes to flow are recommended by the RMT for the purposes of improving the condition of ESA listed fishes. It is important for the Commission to understand that the RMTs Draft Report was authored by YCWA’s consultants, and that RMT members representing fishery agencies and NGOs have not endorsed such conclusions in the context of this relicensing. RMT members have not yet even provided formal comments on the Draft Report. Additional information pertaining to fish population conditions in the lower Yuba River is still being gathered and reported. The Network has concerns about the condition of ESA-listed fish populations in the lower Yuba River and will present additional analysis in its forthcoming comments on the YCWA’s Draft License Application.”</i></p>	<p>FWN, p. 7</p>	<p>FWN is misleading and partially mistaken in its comment that “<i>RMT members representing fishery agencies and NGOs have not endorsed such conclusions in the context of this relicensing.</i>” Internal drafts of the RMT’s M&E Interim Report were provided to all RMT members for review and comment prior to release of the public draft. In addition, RMT meetings were held specifically to discuss and review any comments on the M&E Interim Report from all RMT members, including NGO representatives. Moreover, one RMT meeting was specifically dedicated to finalizing the Conclusions chapter of the M&E Interim Report with RMT members to achieve consensus on the conclusions of the Interim Report with RMT members, including NGO representatives.</p>

2.1.9 Green Sturgeon Downstream of Englebright Dam (Study 7.9)

2.1.9.1 Description of Request

Cal Fish and Wildlife requests “*that FERC make a determination as to whether this study is complete and consider the Department’s and other relicensing participants’ comments when making that determination.*” (Page 11 of Cal Fish and Wildlife’s January 30, 2014 letter).

In addition, Cal Fish and Wildlife provides comments on YCWA’s Technical Memorandum 7-9, *Green Sturgeon Downstream of Englebright Dam*.

2.1.9.2 YCWA’s Analysis

2.1.9.2.1 Criterion 1 – Conformance to FERC-Approved Study

Cal Fish and Wildlife bases its request on its contention that the YCWA did not perform the study in conformance with the FERC-approved study plan. Specifically, Cal Fish and Wildlife states:

The Department is concerned that the methodology utilized to determine the presence or absence of green sturgeon within the Project area did not adequately fulfill the goals of the FERC-approved study. Specifically, the methodology used by the YCWA to detect green sturgeon presence in the Project area did not favor spatial or temporal life history patterns of green sturgeon and thus decreased the likelihood of detecting green sturgeon during the study period.

(Page 11 of Cal Fish and Wildlife’s January 30, 2014 letter.)

This comment is the same comment that Cal Fish and Wildlife submitted on the Initial Study Report. YCWA previously responded to this comment in its response to comments dated February 27, 2013 (provided below) on the Initial Study Report.

...the methods and data collection activities used in Study 7.9 were consistent with the FERC-approved Study 7.9. Additionally, as stated in FERC’s September 30, 2011 Study Plan Determination for the Yuba River Hydroelectric Project, “*YCWA’s study specifically states that it would compile data from on-going data collection activities, including the California Fish Tracking Consortium Central Valley Acoustic Telemetry Project, to document the presence of tagged green sturgeon in the Yuba River.*” Given that the Interim Technical Memorandum 7-9 clearly described the efforts undertaken to examine CDFW’s fixed station acoustic monitoring Yuba River database, CDFW’s roving monitoring survey Yuba River database, and the RMT’s roving survey Yuba River monitoring database for the detection of any tagged green sturgeon by the

California Fish Tracking Consortium and DWR, the comment by CDFW does not provide any information explaining how methods used “*have decreased the likely chances of detection.*”

As stated on pages 32-33 of FERC’s September 30, 2011 Study Plan Determination:

We disagree with FWS’ assertion that YCWA, in study 7.9, would not attempt to detect green sturgeon in the field. YCWA’s study specifically states that it would compile data from on-going data collection activities, including the California Fish Tracking Consortium Central Valley Acoustic Telemetry Project, to document the presence of tagged green sturgeon in the Yuba River. While we recognize that not all green sturgeon have been tagged, and therefore some undetected green sturgeon may be present in the lower Yuba River, FWS has not demonstrated how this additional information is critical to evaluating potential project effects beyond that already proposed in the study (study criterion 7). As such, we do not recommend modifying study 7.9 to include specific surveys for green sturgeon.

Cal Fish and Wildlife has provided no additional information to address regarding this comment. Moreover, the fixed station acoustic monitoring at numerous locations from Daguerre Point Dam to the mouth of the lower Yuba River extended year-round, and thereby covered both the spatial and temporal potential distributions of green sturgeon in the lower Yuba River.

2.1.9.2.2 Criterion 2 – Anomalous Conditions

Cal Fish and Wildlife does not state that it bases its request to modify Study 7.9 on the fact that the study was performed under anomalous conditions or that conditions have changed.

2.1.9.2.3 Demonstration of Extraordinary Circumstances

Cal Fish and Wildlife does not identify any extraordinary circumstances that would warrant its requested modification to Study 7.9.

2.1.9.2.4 Other Showings of Good Cause

Cal Fish and Wildlife does not provide any other showings of good cause to support its requested modification to Study 7.9.

2.1.9.3 YCWA’s Recommendation

FERC should determine that YCWA performed the study in conformance to the FERC-approved study, and it is complete. Such a determination would be consistent with FERC’s previous determination regarding this issue. Cal Fish and Wildlife has provided no additional information that suggests FERC should change its previous determination, nor has Cal Fish and Wildlife demonstrated extraordinary circumstances to support its request.

As mentioned above, Cal Fish and Wildlife provided comments on Technical Memorandum 7-9. YCWA's responses to the comments are provided in Table 2.1.9-1.

Table 2.1.9-1. YCWA’s responses to comments on Technical Memorandum 7-9.

Comment	Commenter & Reference Page in Comment Letter	YCWA’s Response
<p><i>“The Department disagrees with the use of Feather River data to ascertain that green sturgeon are not utilizing the lower Yuba River. Acoustic data collected on the Feather River represents a very small sample size (four green sturgeon) and small temporal scale (one year post tagging).”</i></p>	<p>CDFW, p. 11</p>	<p>YCWA previously responded to this comment from Cal Fish and Wildlife in its response to comments on the Initial Study Report on February 27, 2013 (provided below). Cal Fish and Wildlife has provided no additional information to address.</p> <p>The following is taken from YCWA’s response to a similar comment from NMFS on the Initial Study Report on February 27, 2013: <i>” the use of acoustic tracking data from green sturgeon that were acoustically-tagged in the Feather River was not for the purpose of making a determination on whether green sturgeon utilize the lower Yuba River. It was simply one source of data used to document the potential use of the lower Yuba River by green sturgeon.”</i></p>

2.1.10 Instream Flow Downstream of Englebright Dam (Study 7.10)

2.1.10.1 Description of Request

NMFS requests that “*FERC staff provide the originally-requested information, which does not combine floodplain results with in-channel results; this would allow a clear evaluation of the floodplain inundation conditions and thus meet the original purpose of the study.*” (Page 9 of Enclosure A to NMFS’ January 30, 2014 letter).

FWN requested the following modification to Study 7.10: “*The Network requests that FERC determine that additional data is needed for the completion of Study 7-10. Required information should include, at a minimum, the same data as specified in the December 28th Determination but for flows of 1700, 2000, 2500 and 3000 cfs, all of which have already been run with the 2D model.*” (Pages 5 and 6 of FWN’s January 31, 2014 letter).

USFWS did not request a study modification or claim the study was not complete, but requested “*the Commission consider the additive and complementary nature of the cbec (2013) report data, to the data generated for TM 7-10.*” (Page 13 and 14 of the USFWS’ January 30, 2014 letter).

2.1.10.2 YCWA’s Analysis

2.1.10.2.1 Criterion 1 – Conformance to FERC-Approved Study

NMFS bases its request on the contention that YCWA did not perform the study in conformance with the FERC-approved study. Specifically, NMFS states:

After reviewing the final TM 7-10 (dated September, 2013), NMFS found the analysis and results presented in the tables and graphs have not provided the information as FERC ordered in its approved Study Plan. § 5.15 (d) (1).

The floodplain in this study refers to areas wetted at flows greater than 5,000 cfs. The floodplain inundation results (Section 3.3) presents depths and velocities from within the channel (i.e. at flows < 5,000 cfs) and combined these results with depths and velocities from floodplain flows (i.e. > 5,000 cfs). The bolded text in the Commission’s Determination above indicates that the areas of floodplain inundation are to be broken down by depth and velocity bins, not combined with the in-channel results. Figures 3.3-2 and 3.3-3, and Tables 3.3-1 and 3.3-2, show depths and velocities of combined in-channel and floodplain flow, making it impossible to discern depths and velocities on the floodplain and achieve the principle purpose of the study. Tables 3.3-1 and 3.3-2 show results for 4,000 and 5,000 cfs, before water has even started flowing on the floodplain. Results for the floodplain flows (i.e. 7,500 cfs and higher)

incorporate the inchannel results and therefore do not accurately represent what is happening on the floodplain in the model.

(Page 9 of Enclosure A to NMFS' January 30, 2014 letter.)

FWN bases its request on the contention that YCWA did not perform the study in conformance with the FERC-approved study. Specifically, FWN stated:

This study is incomplete because it does not adequately address the requests of relicensing participants for information concerning project effects on juvenile salmonid rearing habitat as a function of habitat inundation frequency and duration. The Network appreciates that the Commission's Study Disputes Determination (December 28, 2011) required YCWA to produce information on floodplain inundation areas. However, the information generated does meet the information need. The need is to understand how project operations may reduce juvenile rearing habitat availability by reducing the frequency and critical duration of inundated river bank and floodplain habitats.

With respect to NMFS' request, YCWA acknowledges that the floodplain analysis currently includes the in-channel portion of the wetted area. In response, On February 27, 2014, YCWA posted an addendum to Technical Memorandum 7.10 on its relicensing Website that provides similar binned depth and velocity tables to those provided in the technical memorandum, which describe only the areas outside of the wetted area for the modeled flow 5,000 cfs (the in-channel portion). YCWA issued an e-mail to Relicensing Participants advising them that this new information was available.

YCWA notes that FWN's comment relates to the flows listed in the FERC-approved study. Specifically, FWN believes that additional flows below 4,000 cfs should have been included in the study plan. As such, YCWA's study report conforms to the FERC approved-study. That said, in the spirit of collaboration, YCWA has provided binned depth and velocity tables for additional flows below 4,000 cfs in its February 27, 2014 addendum to Technical Memorandum 7.10.

2.1.10.2.2 Criterion 2 – Anomalous Conditions

Neither NMFS nor FWN state that it bases its request to modify Study 7.10 on the fact that the study was performed under anomalous conditions or that conditions have changed.

2.1.10.2.3 Demonstration of Extraordinary Circumstances

Neither NMFS nor FWN identify any extraordinary circumstances that would warrant its requested modification to Study 7.10.

2.1.10.2.4 Other Showings of Good Cause

NMFS does not provide any other showings of good cause to support its request.

FWN provides the following statement to support its request:

A report recently prepared for the U.S. Fish and Wildlife Service (cbec 2013) and submitted by the Service in their own comments on the USR contains results from hydrologic modeling of ecologically significant flows for juvenile salmonids. The results show that the current hydrology of the lower Yuba River has dramatically altered the availability of floodplain habitat at 5000 cfs. Compared to unimpaired hydrology, wherein flows of 5000 cfs or more occur 2 out of 3 years for 21 days or longer, existing hydrology produces flows of 5000 cfs 1 out 2 years for just 3 days or longer. The implications for salmonid growth are profound, due in part to the ecological significance of 21 day duration flows. The comparative frequency and duration of flows of 5000 cfs in unimpaired hydrology now equates to a flow at 1700 cfs. This represents 41% less habitat, or a reduction in wetted habitat (Parks Bar to Marysville) from 695 acres 494 acres.

Simple data on inundation area for flows of 4000 cfs and higher (as provided in Tech Memo 7.10) does not inform how the project has affected habitat availability for flows ecologically significant to juvenile salmonids.

YCWA notes that FWN believes that inundation data for flows less than 4,000 cfs are important for understanding habitat availability for juvenile salmonids. Although, YCWA's Technical Memorandum 7.10 conforms to the FERC approved-study, in the spirit of collaboration, YCWA has provided binned depth and velocity tables for additional flows below 4,000 cfs as an addendum to the memorandum, as described above.

2.1.10.3 YCWA's Recommendation

YCWA has provided an addendum to YCWA's Technical Memorandum 7-10, *Instream Flow Downstream of Englebright Dam*, which includes an additional analysis with resulting tables that describe depths and velocities for only the area outside of the 5,000 cfs 2D model derived wetted area and binned depth and velocity tables for the additional flows requested by FWN (i.e., 1,700, 2,000, 2,500 and 3,000 cfs). As such, FERC should determine that the addendum to YCWA's Technical Memorandum 7-10, *Instream Flow Downstream of Englebright Dam*, satisfies NMFS' and FWN's request.

2.1.11 Fish Behavior and Hydraulics Near Narrows 2 Powerhouse (Study 7.11)

2.1.11.1 Description of Request

NMFS requests:

that the analysis of hydrological data as proposed in the Study Plan for 7.11 be completed as described in the study methods. This includes an analysis of 15-minute flow data, and a calculation of the rate of change in flow using the 15-minute data. This analysis should be conducted separately for the partial and full bypass valves, which NMFS now understands to be possible (based on YCWA's response to FERC Compliance). The analyses should extend from the present back to the time when construction of the full-bypass was completed (2006).

The raw, time series of hydrologic data should be made available to ILP participants. The (15-minute) hydrologic data (and analysis of the data) is requested for the Narrows 2 powerhouse, partial-bypass valve, full-bypass valve, PG&E's Narrows 1 Powerhouse, and spills over Englebright Dam (i.e., the various flow components that make up the discharge at the Project's flow compliance point at the Yuba Smartsville Gage).

(Pages 9 through 12 of Enclosure A to NMFS' January 30, 2014 letter.)

2.1.11.2 YCWA's Analysis

2.1.11.2.1 Criterion 1 – Conformance to FERC-Approved Study

NMFS does not base its request on the fact that the study was not performed in conformance with the FERC-approved study.

2.1.11.2.2 Criterion 2 – Anomalous Conditions

NMFS bases its request on new information. Specifically, NMFS states:

knowledge about environmental conditions (in the Narrows 2 vicinity) has changed in a material way that FERC staff (and others) were not aware of, and so there is good cause for Study 7.11 modifications (§ 5.15 (d)) (2). Our comments that follow indicate that more information is available to learn how these environmental conditions change, and have changed in the past.

(Pages 9 through 12 of Enclosure A to NMFS' January 30, 2014 letter.)

On page 11, NMFS also states:

Flow data presented in the interim TM for Study 7.11 divides flow into Narrows 1 release, Narrows 2 generation, Narrows 2 bypass, and Englebright Dam spill (see Figure 3.1-3). Thus, flows from the full-bypass valve and the partial-bypass valve are aggregated as “Narrows 2 bypass” flow. NMFS has requested YCWA (on multiple occasions) to provide information that disaggregates the Narrows 2 bypass flow into the separate discharge values from the partial and full-bypass valves, but YCWA responded that this information was unavailable. However, in YCWA’s response (December 26, 2013)²⁰ to FERC’s Division of Hydropower Administration and Compliance regarding stranding incidents (see below for additional detail), YCWA provides two figures (Figure 7 and 11) that explicitly detail flow through all conduits at Narrows 2 (including disaggregation of the partial and full-bypass flows) at 15-minute interval resolutions.

All flows associated with the Narrows 2 Powerhouse and its bypasses are measured at a gage in the penstock upstream from the bifurcation between the Full Bypass and the Narrows 2 Powerhouse. Calculation of bypass or generating flow, as previously reported by YCWA is made based on a combination of flow and generation records; periods with flow but not generation were identified as bypasses, otherwise, flows were attributed to generating flows. YCWA’s plant information databases do not contain detailed 15-minute flow information regarding releases through the partial or full-flow bypasses. However, a period of record specifying flows through either the Partial or Full bypasses was constructed for Study 7.13 and Study 7.11 through an exhaustive review of YCWA’s hand-written operator logs identifying specific release mechanisms during bypass periods. This information is provided as an attachment to Technical Memorandum 7-13, *Fish Stranding Associated with Shutdown of Narrows 2 Powerhouse Partial Bypass*, which YCWA posted to the Relicensing Website on February 21, 2014. This technical memoranda also describe operations of the Narrows 2 Powerhouse, Full Bypass and Partial Bypass.

Rates of change in flow, commonly referred to as ramping rates, are examined in Technical Memorandum 2-1, *Hydrologic Alterations*, Sections 2.2, 3.1, and 4.1. This information reviews

²⁰ In response to FERC letter dated November 25, 2013, on December 26, 2013, YCWA filed with FERC a letter providing the following information: 1) an account of fish stranding or fish mortalities that occurred in the vicinity of the Narrows 2 Powerhouse during September and October 2013; 2) a detailed chronology of events leading up to, and including the days when any fish stranding or mortalities occurred and any corrective actions taken in response to the incident; 3) any correspondence with agencies regarding the fish strandings; 4) a description of current procedures for releasing flows to the lower Yuba River, including a description of how flows are re-allocated at each of the four release locations when a given facility is taken offline; and 5) a proposal for avoiding similar incidents in the future, if applicable. With regards to avoiding similar incidents, YCWA proposed the following: 1) removal of gravel bar across from the Full Bypass within 3 months of FERC’s approval and after obtaining all necessary permits and approvals; and 2) if during the course of Study 7.11a fieldwork, YCWA’s consultant staff observes any fresh fish carcasses or live stranded fish, YCWA will notify NMFS, Cal Fish and Wildlife and FERC via e-mail within 24 hours; and if during the course of its normal work at the Narrows 2 Powerhouse area, YCWA’s Operations staff observes any fresh fish carcasses or live stranded fish, YCWA will notify NMFS, Cal Fish and Wildlife and FERC via e-mail within 24 hours. The activities would occur under the existing license.

ramping rates for Narrows 2 facilities based on the available 15-minute data at the USGS Smartsville gage. Divisions in flow among the three Narrows 2 facilities (i.e., powerhouse, Full Bypass, and Partial Bypass) were determined through a process of elimination using generation data and operators logs. Although concerted effort was made to align the information in these logs with the 15-minute flow data, the accuracy of these logs is not sufficient to allow the calculation of rates of change between Project facilities.

Furthermore, there are no existing constraints on flow changes between the Narrows 2 Powerhouse and the Full Flow Bypass or the Partial Bypass; currently, all flow requirements, ramping rates, and flow fluctuation limitations are applied at the USGS Smartsville gage location, rather than at the Narrows 2 facilities.

While 15-minute release data for the Narrows 1 Powerhouse is provided as part of Attachment 7-13A to Technical Memorandum 7.13, the Narrows 1 Powerhouse is not a Project facility, and YCWA has no control over its release rates, so it would not be appropriate for YCWA to perform any sort of analysis on its releases. Similarly, there are no controls on spills over Englebright Dam, so a ramping rate analysis, or evaluation of spills, beyond that performed in Technical Memorandum 2.1, is not available.

2.1.11.2.3 Demonstration of Extraordinary Circumstances

NMFS does not base its request on extraordinary circumstances.

2.1.11.2.4 Other Showings of Good Cause

NMFS does not provide any other showings of good cause to support its request.

2.1.11.3 YCWA's Recommendation

FERC should not adopt NMFS' request for study modification, but should determine that the flow data requested by NMFS is included, to the extent available, in YCWA's recently posted Technical Memorandum 7-13, and analysis of those data is included in that technical memorandum.

2.1.12 Fish Stranding Associated with Shutdown of Narrows 2 Powerhouse Partial Bypass (Study 7.13)

2.1.12.1 Description of Request

NMFS argues that YCWA did not comply with Study 7.13 because YCWA's Updated Study Report does not discuss the Chinook salmon carcass that was discovered on October 7, 2013 or the temporary stranding of six adult Chinook salmon in a pool below Englebright Dam in the vicinity of the Narrows 2 Full Bypass on October 13, 2013. Because these incidents, NMFS requests that FERC order a modification to Study 7.13: (a) "by adding fish stranding surveys from 2014 until a new license is issued;" (b) by expanding the scope of the study "to include

areas inundated and operational changes related to the use of the full bypass valve;” and (c) to explore “*the potential for conducting stranding surveys along parts of the bank during operation of the partial bypass.”* (Underlining in original.) NMFS states that “[t]he protocols for expanding the stranding surveys and for study to further understand the hydraulic conditions in the pool opposite the full bypass valve (and any other potential stranding hazard areas) should be developed in consultation with the fisheries agencies and other interested ILP participants.” NMFS claims that its request satisfies the requirements of 18 C.F.R. Section 5.15(d)(1)&(2). (NMFS’s January 30, 2014 letter, Encl. A, pp. 12-14.)

Cal Fish and Wildlife commented on Study 7.13, but did not request any modification.

2.1.12.2 YCWA’s Analysis

2.1.12.2.1 18 C.F.R. section 5.15(d)(1) – Conformance to FERC-Approved Study Plan

NMFS states that the discovery of a fish carcass on the right bank of the river was not reported in YCWA’s Updated Study Report, which states that on October 7, 2013 “*stranded fish were not observed, but fish were observed from the waters surface*” (Table 2.7-1, Event 5 on October 7, 2013). NMFS argues that “*this USR information appears contradictory to the YCWA response to FERC Compliance (December 26, 2013). Simply because the carcass was found at 12:15 PM during partial bypass operation, and prior to the partial bypass shutting down at 2:00 PM (and hence the “official” commencement of the stranding survey) does not in any way preclude the discovery of the stranded fish from being an “official” result of the stranding surveys and Study 7.13. As we stated above, stranding surveys were not designated to begin during operation of the partial bypass purely due to safety concerns of field staff.*” (NMFS’s January 30, 2014 letter, Encl. A, p. 13.)

YCWA disagrees with NMFS’s argument. The goal of Study 7.13 was to gain a better understanding of the potential relationship between shutdowns of the Partial Bypass and the potential for fish stranding. In its March 29, 2013, *Determination on Requests for Modifications to the Yuba River Hydroelectric Project Study Plan*, the Commission stated: “*YCWA should develop and implement a stranding survey study. YCWA should conduct this study immediately after operations of the partial-bypass cease.”* (Underlining added.)

The fish carcass found on the right bank on October 7, 2013 was not reported in the Updated Study Report because the carcass was found prior to the Partial Bypass shutting down, not “immediately after” Partial Bypass operations ceased. Because of this temporal sequence, the Partial Bypass shutdown could not have caused the stranding, and the observation of the carcass was simply an incidental observation.

Moreover, NMFS’s comments concede that the temporary stranding of the six adult Chinook salmon on October 13, 2013 was associated with changes in discharge rates of the Full Bypass. Because Study 7.13 concerned the Partial Bypass, a different facility, the October 13, 2013 temporary stranding incident was not associated with Study 7.13 or the goals and objectives of Study 7.13.

Last, on February 21, 2014, YCWA posted to the relicensing Website Technical Memorandum 7.13, *Fish Stranding Associated with Shutdown of Narrows 2 Powerhouse Partial Bypass*, and issued an e-mail to Relicensing Participants advising them that the technical memorandum was available. In that technical memorandum, YCWA describes all incidental observations during the relicensing studies of fish carcasses and fish in isolated pools near Narrows 2 Powerhouse, including operations of Project facilities up to, during and after the incidental observations.

For these reasons, YCWA disagrees with NMFS's argument that Study 7.13 was not conducted as provided in the FERC-approved study. The criterion in 18 C.F.R. Section 5.15(d)(1) therefore are not satisfied here.

2.1.12.2.2 18 C.F.R. section 5.15(d)(2) – Anomalous Environmental Conditions

NMFS also argues that the criterion in 18 C.F.R. Section 5.15(d)(2) is satisfied because “*our knowledge about environmental conditions (in the Narrows 2 vicinity) has changed in a material way; FERC staff, NMFS, and others were not aware of these conditions when Study 7.13 was devised and adopted.*” (NMFS's January 30, 2014 letter, Encl. A, p. 14.)

This argument does not satisfy the provisions of 18 C.F.R. Section 5.15(d)(2), which require that “[t]he study was conducted under anomalous environmental conditions or that environmental conditions have changed in a material way.” Nothing in NMFS's arguments suggests that the environmental conditions under which Study 7.13 was conducted were “anomalous” or “have changed in a material way.”

2.1.12.3 YCWA's Recommendation

Because NMFS has not demonstrated that there is good cause for requiring modifications to Study 7.13, YCWA recommends that FERC deny NMFS's request for modifications of this study.

To assure that ESA-listed fishes do not become isolated in the pool that is formed by the gravel bar across from the Narrows 2 Full Bypass, YCWA proposes to remove this gravel bar. Specifically, within 3 months of the Commission's approval of the gravel bar removal concept, YCWA will submit applications for permits and approvals to remove the bar. When YCWA has received all necessary permits and approvals, YCWA will file them with FERC, and will remove the gravel bar as soon as reasonably practicable after receiving FERC's final approval. Because YCWA already has proposed to remove this gravel bar, NMFS's request for further information regarding the pool that currently is created by this gravel bar is not appropriate.

2.1.13 Recreational Flow (Study 8.2)

NPS recommends that if Study 8.2 could not be completed in 2014 due to dry Water Year conditions, “*it be attempted again in winter/spring of 2014/2015.*” (Page 3 of NPS' January 31, 2014 letter).

In addition, NPS provides one comment on the Interim Technical Memorandum 8-2, *Recreation Flow*, at pages 3 and 4 of its July 26, 2013 letter. The comment is:

We continue to think that the results in section 3.1.1 of the TM are questionable. The TM states that, “Nearly all boaters responded that the flow level they boated was “marginal” to “totally unacceptable” with some exceptions.” According to American Whitewater (AW) representatives who were in attendance at the focus group meeting, these survey results appear inconsistent with other survey responses and comments made during the focus group. Table 3.1-18 shows that boaters would overwhelmingly return to paddle the Our House Dam to Highway 49 reach at optimal flow levels. These are the same flow levels that were rated as completely unacceptable in the previous section. One of the challenges in doing an opportunistic, rather than an organized controlled flow, study is that the surveys are self-administered. It is possible that participants may have misunderstood the survey questions and responded inappropriately. We recommend that the Licensee’s consultants follow-up and contact the survey respondents in order to clarify/verify their survey responses.

2.1.13.2 YCWA’s Analysis

2.1.13.2.1 Criterion 1 – Conformance to FERC-Approved Study

YCWA agrees that this study is still in progress. However, YCWA attempted to complete this study in 2012 and 2013, per the FERC-approved study schedule, but due to inadequate water in the watershed YCWA has been unable to complete the study portion related to the final reach. Again in 2014, YCWA will attempt to complete this study in winter/spring 2014. As such, YCWA is currently providing weekly flow forecast updates via email for the study reach while the dry conditions persist to keep the boating workgroup/team updated and engaged. Further, if the flow conditions show signs of approaching the target flows for the study reach, then YCWA will begin weekly conference calls with the boating workgroup/team with the intention of getting boaters on the reach to complete the study.

2.1.13.2.2 Criterion 2 – Anomalous Conditions

As of early February 2014, YCWA recognizes that the current water conditions are very dry due to a lack of snow pack and precipitation through the winter months. As such this very dry/drought condition is an anomalous condition.

2.1.13.2.3 Demonstration of Extraordinary Circumstances

NPS does not identify extraordinary circumstances that would warrant its request.

2.1.13.2.4 Other Showings of Good Cause

NPS does not provide any other showings of good cause to support its request.

2.1.13.3 YCWA’s Recommendation

YCWA will continue to attempt to complete this study in 2014, but if the current water conditions persist, YCWA is willing to continue this study through the spring 2015, if FERC, YCWA and the Relicensing Participants agree that this is necessary to inform license requirements.

With regards to NPS’s comment on the interim technical memorandum, YCWA reviewed Section 3.1.1 and Table 3.1-13, which NPS referred to (not Table 3.1-18 as NPS referenced). YCWA was aware of this anomalous result and determined that a table header was incorrect, which provided misleading results. The table in the interim technical memorandum showed a scale from left to right of “Totally Acceptable” to “Totally Unacceptable”. In reality, the scale should have read in reverse from “Totally Unacceptable” to “Totally Acceptable,” as is shown in the corrected table below. With this correction, the results are consistent with the data collected and with American Whitewater staff understands of the results from the focus group meeting. Since Study 8-2 is still in progress (NPS comment was on Interim Technical Memorandum 8-2), when YCWA issues the final version of the technical memorandum, this error will be corrected in Section 3.1.1.

Table 3.1-13 (Revised) of Technical Memorandum 8-2. Evaluation of flow level by boater type in the Middle Yuba River from Our House Diversion Dam to Highway 49 Bridge.

Watercraft Type ¹	Flow Level (cfs)	Number of Boaters	Response by Percentage					
			Cannot Estimate at This Flow	Totally Unacceptable	Unacceptable	Marginal	Acceptable	Totally Acceptable
Hardshell Kayak	400	7	42.9%	0.0%	0.0%	57.1%	0.0%	0.0%
	600	7	14.3%	0.0%	0.0%	29.0%	43.0%	14.0%
	800	14	0.0%	0.0%	0.0%	25.0%	7.1%	71.4%
	1,000	14	0.0%	0.0%	0.0%	0.0%	21.4%	78.6%
	1,200	13	0.0%	0.0%	0.0%	0.0%	23.1%	76.9%
	1,400	13	0.0%	0.0%	0.0%	0.0%	7.7%	92.3%
	1,600	13	0.0%	0.0%	0.0%	7.7%	0.0%	92.3%
	1,800	13	0.0%	0.0%	7.7%	15.4%	0.0%	76.9%
	2,000	13	15.4%	0.0%	0.0%	15.4%	0.0%	69.2%
2,200	12	16.7%	0.0%	0.0%	16.7%	0.0%	66.7%	
Inflatable-Kayak	400	4	0.0%	0.0%	0.0%	0.0%	25.0%	75.0%
	600	4	0.0%	0.0%	25.0%	0.0%	25.0%	50.0%
	800	4	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%
	1,000	4	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%
	1,200	4	50.0%	0.0%	0.0%	0.0%	50.0%	0.0%
	1,400	2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	1,600	2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	1,800	2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	2,000	2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2,200	2	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Table 3.1-13 (Revised) of Technical Memorandum 8-2. (continued)

Watercraft Type ¹	Flow Level (cfs)	Number of Boaters	Response by Percentage					
			Cannot Estimate at This Flow	Totally Unacceptable	Unacceptable	Marginal	Acceptable	Totally Acceptable
R2	400	12	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	600	12	0.0%	0.0%	0.0%	0.0%	8.3%	91.7%
	800	12	0.0%	0.0%	0.0%	0.0%	8.3%	91.7%
	1,000	12	8.3%	0.0%	0.0%	8.3%	0.0%	83.3%
	1,200	12	8.3%	0.0%	8.3%	0.0%	83.3%	0.0%
	1,400	7	28.6%	0.0%	0.0%	0.0%	71.4%	0.0%
	1,600	7	28.6%	0.0%	0.0%	71.4%	0.0%	0.0%
	1,800	7	28.6%	0.0%	0.0%	71.4%	0.0%	0.0%
	2,000	7	28.6%	0.0%	0.0%	71.4%	0.0%	0.0%
Raft	400	1	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
	600	1	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
	800	1	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	1,000	1	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
	1,200	1	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
	1,400	1	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
	1,600	1	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%
	1,800	1	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
	2,000	1	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
2,200	1	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	

¹ Watercraft types are types of crafts reported by respondents for each question. Note there may be differences in responses by watercraft type due to lack of response by a boater reporting on a particular watercraft type. As such, R2 refer to rafts less than 12 feet long, Raft refers to rafts greater than 12 feet long.

2.1.14 Primary Roads and Trails (Study 9.1)

The Forest Service requests that YCWA modify Study 9.1 to include that YCWA “provide appropriate deed information for these roads [Yuba County Road 169, which accesses Cottage Creek Campground, and Yuba County Road 157, which accesses Dark Day recreation facilities] to the Forest Service and other relicensing participants.” The Forest Service does not provide any description of how YCWA would acquire the deed information, as compared to the Forest Service acquiring it directly, or an estimate of the cost to implement the modification. (Page 2 of Attachment 1 to the Forest Service’s January 30, 2014 letter.)

NPS does not request a modification to Study 9.1 in its January 31, 2014 letter. However, NPS provides comments on Technical Memorandum 9-1, *Primary Project Roads and Trails*, in its July 26, 2013 letter, as follows:

We continue to seek resolution regarding the status of the two road segments, not included in TM 8.1 and 9.1 analyses that connect to project-related recreation facilities:

- The segment of County Road 169 between Marysville Road (County Road 8) and the Cottage Creek Overflow Campground. While the Cottage Creek parking area was inspected and assessed as part of the TM 8.1, there is no recognition of the segment of County Road 169

that passes through the parking area to the campground or to the Marina boat launch in either TM 8.1 or TM 9.1.

- The segment of County Road 157 leading north from Marysville Road (County Road 8) to the point that it changes to a USFS road. This county road is the entrance to all three Dark Day recreation facilities. YCWA has installed a kiosk on this County road section that is directly related to the Dark Day recreation facilities. (NPS, p. 4)

2.1.14.1 YCWA's Analysis

2.1.14.1.1 Criterion 1 – Conformance to FERC-Approved Study

The Forest Service does not state that it bases its request to modify Study 9.1 on the fact that the study was not conducted as provided for in the FERC-approved study plan. In fact, YCWA conducted Study 9.1 as required by FERC, and posted Technical Memorandum 9-1, *Primary Project Roads and Trails*, to YCWA's relicensing website on July 9, 2013.

2.1.14.1.2 Criterion 2 – Anomalous Conditions

The Forest Service does not state that it based its request to modify Study 9.1 on the fact that the study was performed under anomalous conditions or that conditions have changed. In fact, YCWA conducted Study 9.1 under normal conditions.

2.1.14.1.3 Demonstration of Extraordinary Circumstances

The Forest Service does not identify any extraordinary circumstances that would warrant the Forest Service's requested modification to Study 9.1, and YCWA is unaware of any pertinent extraordinary circumstances

2.1.14.1.4 Other Showings of Good Cause

The Forest Service does not provide in its January 30, 2014 letter any rationale for its request, or even why it believes that YCWA's characterization of land ownership for the two road segments is inaccurate.

However, at a meeting on February 6, 2014, the Forest Service confirmed that the road segments in question by both the Forest Service and NPS are Yuba County Road 169, which begins immediately at the turnoff from Marysville Road (Yuba County Road 8) and ends at the entrance to Cottage Creek Campground, with a total road segment length of 1.24 miles, and Yuba County Road 157, which begins immediately at the turnoff from Marysville Road (Yuba County Road 8) and ends at the Y in the road that forms the entrance to the Dark Day Campground and Boat Launch facilities, with a total road segment length of 0.56 mile. At the meeting, the Forest Service said it made its request because Technical Memorandum 9-1 identified Yuba County Road 169 and Yuba County Road 157 as "county roads," rather than "Forest Service" roads. The Forest Service believes they are Forest Service roads, and requests YCWA confirm

ownership. YCWA asked if the Forest Service had any proof of ownership, and the Forest Service said it does not readily have this. YCWA explained at the meeting that based on the County Road Geographic Information System (GIS) data prepared by Yuba County and provided to YCWA, the entire lengths of both road segments are included in the Yuba County Road system, and are under the management and administration of the county. Further, YCWA said that the Forest Service, rather than YCWA, is in the best position to resolve the Forest Service's differences with the country regarding ownership of the road.

In the spirit of collaboration, YCWA agreed to make inquiries with Yuba County to confirm whether parts or all of these road segments are in the County Road System or not. For segments confirmed to be within the County Road system, YCWA said it would continue to work on development of a road maintenance agreement with the County that would assure the road segments are maintained in good condition, and that the agreement may be made outside of the FERC License. If, however, the road segments are determined to be Forest Service roads, YCWA would incorporate the roads into its Transportation System Management Plan, and the roads would be managed as Primary Project Roads on National Forest System (NFS) land.

2.1.14.2 YCWA's Recommendation

FERC should not direct YCWA to search out deed information, as requested by the Forest Service. YCWA understands that the Forest Service is not certain whether the Forest Service or the county owns the road segments in question. YCWA should not be required to resolve a potential difference of opinion between the Forest Service and county. However, in the spirit of collaboration, YCWA has agreed to check its contacts at the county and YCWA and the Forest Service have agreed on a plan to address the Forest Service's issue.

2.2 Requests for New Studies

This section provides YCWA's response to the requests for the eight new studies listed in Table 2.0-1.

YCWA organized each of its responses to address the five criteria identified by FERC in 18 C.F.R. Section 5.15(f) that must be addressed when a party requests a new study at this stage of the relicensing. Specifically, Section 5.15(f) states the proponent must address the criteria at 18 C.F.R. 5.15(e), which states:

e) *Criteria for new study.* Any proposal for new information gathering or studies pursuant to paragraphs (c)(1)-(4) of this Section²¹ must be accompanied by a showing of good cause why the proposal should be

²¹ Section c(1) through (4) of 18 C.F.R. Section 5.15 deals with the Initial and Updated Study Reports, applicant's Initial and Updated Study Report meetings, applicant's filing of Initial and Updated Study Report meeting summaries, and Relicensing Participants' and Commission staff's filing of any disagreements regarding applicant's Initial and Updated Study Report meeting summaries.

approved, and must include, as appropriate to the facts of the case, a statement explaining:

- (1) Any material changes in the law or regulations applicable to the information request;
- (2) Why the goals and objectives of any approved study could not be met with the approved study methodology;
- (3) Why the request was not made earlier;
- (4) Significant changes in the project proposal or that significant new information material to the study objectives has become available; and
- (5) Why the new study request satisfies the study criteria in § 5.9(b).

As reference, FERC's study criteria in 18 C.F.R. § 5.9(b) are:

1. Describe the goals and objectives of each study proposal and the information to be obtained;
2. If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied;
3. If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study;
4. Describe existing information concerning the subject of the study proposal, and the need for additional information;
5. Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements;
6. Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge; and
7. Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

In addition, Section 5.15(f) states "*the proponent must demonstrate extraordinary circumstances warranting approval.*"

2.2.1 Special-status Wildlife Surveys

2.2.1.1 Description of Request

Cal Fish and Wildlife “*recommends YCWA conduct species-specific surveys utilizing Department-approved protocols and provide the results of these studies, as well as an analysis of the potential Project impacts to those species and their habitats, in the forthcoming CEQA document for the Project.*” Cal Fish and Wildlife did not provide any description of the methods it proposes YCWA use to perform these studies, other than saying YCWA should use “*Department-approved protocols,*” or an estimate of the cost to perform the new studies. (Pages 5 and 6 of Cal Fish and Wildlife’s January 30, 2014 letter.)

2.2.1.2 YCWA’s Analysis

2.2.1.2.1 Criterion 1 – Material Changes in Laws and Regulations

Cal Fish and Wildlife does not base their requests on material changes in applicable laws and regulations, or the implementation of those laws and regulations. YCWA is unaware of any laws or regulations that have changed since FERC’s Determination that would support the requests.

2.2.1.2.2 Criterion 2 – Goals and Objectives Could Not Be Met with Approved Study

Cal Fish and Wildlife does not provide the goals and objectives for its new study. However, based on the context in which the new study was proposed, YCWA assumes they would be similar to the goal and objectives of the FERC approved study, Study 4.1, *Special-Status Wildlife – California Wildlife Habitat Relationships*.

The goal of Study 4.1 was to determine presence and distribution of special-status wildlife in the vicinity of the existing FERC Project Boundary, and Project O&M activities that might affect these species (YCWA 2012). The Objective of the study was to query the Cal Fish and Wildlife’s CWHR system and Project Operations Staff in order to meet the goal of the study (YCWA 2012). All occurrence and habitat information obtained from Study 4.1 were imported into a Geographical Information System (GIS) database and incorporated with Project features so that overlaps between habitat (which is indicative of a species potential to occur), known species occurrences, and O&M activities could be determined; and Project related disturbances could be identified.

Cal Fish and Wildlife contends that the use of these databases is not adequate in determining species presence or distribution, and that from the study they are unable to determine which species actually occur within the study area and therefore may be potentially affected by Project O&M. Cal Fish and Wildlife support their position on page 5 of their January 30, 2014 letter with the following examples. “*California spotted owl (Strix occidentalis occidentalis) and Pacific fisher (martes pennant pacificus), both species have protected habitat and known*

*occurrences in the study area.”²² and, “American marten (*Martes americana*) and mule deer (*Odocoileus hemionus*), also have protected habitat within the study area, but YCWA did not find documentation of their occurrence in the study area.”²³ Cal Fish and Wildlife further states on page 6 for their January 30, 2014 letter “...that CNDDDB is not a comprehensive database and may not contain the most current species occurrence information.”*

The FERC approved study was never intended to be a comprehensive census of wildlife within 0.25-mile of the FERC Project Boundary. By using the CWHR and CNDDDB, the study allowed YCWA to identify all special-status species that are known to occur or have the potential to occur within 0.25-mile of the boundary. YCWA believes that the four examples provided by Cal Fish and Wildlife demonstrate that the study was successful in that it showed: 1) known occurrences for some special-status species; 2) the predicted occurrence of other special-status species based on the presence of habitat; and 3) in some cases both predicted and known occurrences. YCWA believes that implementing species-specific surveys for all special-status species is not appropriate since the results of the surveys would only be valid for a year or two after completion. Furthermore, if any of those species-specific surveys did not document its target species, it is unlikely that YCWA would no longer need to consider protective measures for that particular species; especially if habitat is present in the Project area. Relying on predictive databases like the CWHR allows YCWA to identify and address all wildlife that has the potential to occur, without having to implement numerous costly species specific surveys.

YCWA agrees with Cal Fish and Wildlife that the CNDDDB is not comprehensive, but YCWA’s use of the CWHR to predict a species presence allows inclusion of many species that may not have been previously documented by the CNDDDB (e.g., American marten). The information gathered under Study 4.1 serves as the basis for informing the development of protective measures for the license, which are presented in YCWA’s DLA. In many cases, the resulting protective measures may ultimately require species-specific surveys, but those surveys will be spatially focused and performed within an appropriate time frame with respect to protecting wildlife from potential Project disturbances.

The results of Study 4.1, along with species-specific surveys performed by YCWA for special-status bats and bald eagle, identified 57 special-status wildlife species that are known to occur or have the potential to occur within or adjacent to the FERC Project Boundary. YCWA used the results of these studies to perform an evaluation of the anticipated effects of the proposed Project on each of the 57 special-status wildlife species (DLA, Exhibit E, Section 3.3.4). Included in this evaluation is a description of each species’ habitat, known occurrences, where those habitats

²² YCWA is unaware of any protected Pacific fisher or American marten habitat within or adjacent to the Project. The habitat identified for Pacific fisher American marten under Study 4.1 was based on the TNF’s Forest Carnivore Network, which identified the largest blocks of habitat, and connectors between those blocks. Projects directed by the TNF would emphasize enhancing and maintaining habitat for Pacific fisher and American marten.

²³ YCWA is unaware of any protected mule deer habitat within or adjacent to the proposed Project. The mule deer habitat(s) identified under Study 4.1 was derived from Cal Fish and Wildlife developed management plans for deer herds in the vicinity of the Project. The habitats presented in Study 4.1 are related to seasonal use of general areas within each herd’s boundary (e.g., summer, winter, and fawning habitat), and are not State or federally managed wildlife areas, ecological reserves, or parks, which receive formal, legal protection.

or occurrences overlap with Project facilities or activities, and whether or not the Project is likely to affect them.

2.2.1.2.3 Criterion 3 – Why Request Was Not Made Earlier

Cal Fish and Wildlife does not indicate why their request for species-specific surveys utilizing approved protocols was not made earlier.

2.2.1.2.4 Criterion 4 – Significant Changes in Proposed Project or New Information

Cal Fish and Wildlife did not base their request on the fact that there have been significant changes to the proposed Project.

2.2.1.2.5 Criterion 5 – Study Criteria in Section 5.9(b)

In reviewing the proposed study, Cal Fish and Wildlife did not formally address the seven study criteria presented in 18 C.F.R Section 5.9(b).

2.2.1.2.6 Demonstration of Extraordinary Circumstances

Cal Fish and Wildlife does not identify any extraordinary circumstances that would warrant their request for species-specific surveys, and YCWA is unaware of any pertinent extraordinary circumstances.

2.2.1.2.7 Other Showings of Good Cause

The only reason that Cal Fish and Wildlife provides to support its request is its beliefs that the databases used to perform Study 4.1 are not adequate in determining presence and distribution of special-status wildlife species.

YCWA chose the CWHR and CNDDDB as the basis for Study 4.1 because they were developed by Cal Fish and Wildlife, the agency responsible for the conservation, protection, and management of fish and wildlife, native plants, and the habitats necessary to sustain their populations (California Fish and Game Code §1802). According to Cal Fish and Wildlife, the CWHR is a comprehensive information system for terrestrial vertebrates and their habitats in California (CDFW 2014). The information contained in CWHR is based on current published and unpublished biological information and professional judgment by recognized experts on California's wildlife (CDFW 2014). While the CNDDDB may not be entirely comprehensive nor does it contain the most current species occurrence information, its use, in combination with the CWHR should provide the most accurate information available on the presence, predicted presence, and distribution of wildlife in and adjacent to the proposed Project sufficient for the purposes of the relicensing process.

2.2.1.3 YCWA's Recommendation

FERC should not adopt Cal Fish and Wildlife's request for new protocol level terrestrial studies. The FERC-approved Study 4.1 provides adequate information to inform license requirements regarding Project effects on special-status wildlife species. YCWA's DLA includes an assessment of these effects. Cal Fish and Wildlife has not provided a demonstration of extraordinary circumstances that warrants FERC's approval of the request.

2.2.2 Log Cabin and Our House Diversion Dam Low Level Outlet Capacities

2.2.2.1 Description of Request

At pages 3 through 8 of Attachment 1 in its January 30, 2014 letter, the Forest Service requests a *Log Cabin and Our House Diversion Dam Low Level Outlet Capacities Study*. The geographic scope of the study is not specifically stated, but YCWA infers it would include the Log Cabin and Our House diversion dam impoundments and some distance downstream of each dam. Specifically, the Forest Service requests that YCWA open the low level outlets valves six times as follows: 1) at maximum head (YCWA's best estimate at the time); 2) when the pool is at the dam crest or greater (i.e., spilling); 3) when the pool is at an intermediate level between dam crest diversion tunnel invert; and 4) when the pool is at diversion tunnel invert (diversion ceasing); 4) when the pool is at least 1 foot below the diversion tunnel invert; and 6) when the pool is 3 to 5 feet below the diversion tunnel invert. Further, the Forest Service requests, YCWA open the low level outlet in four steps each time and hold each opening until the downstream flow gage is relatively stable. The four target valve openings are 25 percent, 50 percent, 75 percent and fully opened.

In addition, the Forest Service states that one of the goals of the study is to "*Determine if and how much sediment (especially gravel to small cobble size material) passes through the LLO [low level outlets] when it is fully opened at high flow events.*" The Forest Service said it will discuss appropriate methodologies to make this determination with YCWA.

The Forest Service estimates the effort to perform its requested study is 58 person-days plus sediment transport work. The Forest Service does not provide a cost estimate.

USFWS and Cal Fish and Wildlife request the same study as the one requested by the Forest Service, and included in their respective comment letters an almost identical copy of the study description included in the Forest Service's letter. FWN stated it supported the Forest Service's request.

2.2.2.2 YCWA's Analysis

2.2.2.2.1 Criterion 1 – Material Changes in Laws and Regulations

The Forest Service, USFWS and Cal Fish and Wildlife do not base their requests on material changes in applicable laws and regulations, or the implementation of those laws and regulations. YCWA is unaware of any laws or regulations that have changed since FERC's Determination that would support the requests.

2.2.2.2.2 Criterion 2 – Goals and Objectives Could Not Be Met with Approved Study

The Forest Service, USFWS and Cal Fish and Wildlife state that the goals and objectives of their new study can not be met with other approved studies because none of the existing FERC-approved studies were designed to assess the capacities of the existing Log Cabin and Our House diversion dams' low level outlets, and the amount of sediment that would pass through the outlets at various valve openings. YCWA agrees.

2.2.2.2.3 Criterion 3 – Why Request Was Not Made Earlier

The Forest Service, USFWS and Cal Fish and Wildlife state that they did not request the study earlier because they were unaware until summer 2013 that the information they wanted was not available until summer 2013.²⁴ With regards to testing of the low level outlet valves, YCWA agrees. YCWA made Relicensing Participants aware, as soon as YCWA was aware, of its misgivings regarding the maximum capacities of the Log Cabin and Our House diversion dams low level outlets. As noted by the agencies, YCWA proposed to test the outlets in spring 2014, which would require excavation of sediment in front of the Log Cabin Diversion dam low level valve intake. YCWA applied for the necessary permits, but did not receive them all until it was too late to reliably proceed with the excavation work.

The Forest Service, USFWS and Cal Fish and Wildlife did not state why they did not make their request regarding the amount of sediment that would pass through the low level outlet valves at various openings earlier in the relicensing. In fact, such requests were not made by any Relicensing Participant.

2.2.2.2.4 Criterion 4 – Significant Changes in Proposed Project or New Information

The Forest Service, USFWS and Cal Fish and Wildlife do not base their request on the fact that there have been significant changes to the proposed Project. There have not.

²⁴ The agencies each provide Table 1 that lists the various estimates of capacity through the low level outlets. As a clarification, YCWA notes that there is no inconsistency in the last two rows, which refer to information in the DLA, in the table. The engineer's estimate for the maximum capacity of the Our House Diversion Dam low level outlet is 600 cfs when the pool is at dam crest and 463 cfs when the pool is at the Lohman Ridge Diversion Tunnel invert. The engineer's estimate for the maximum capacity of the Log Cabin Diversion Dam low level outlet is 540 cfs when the pool is at dam crest and 348 cfs when the pool is at the Camptonville Diversion Tunnel invert.

With regards to the capacities of the low level outlets, the agencies base their requests on the fact that they only recently became aware of the uncertainty regarding the maximum capacity of the Log Cabin and Our House diversion dams low level outlets. YCWA agrees that this information only came to light in summer 2013.

With regards to the amount of sediment that passes through the low level outlets at various openings, the Forest Service, USFWS and Cal Fish and Wildlife do not base their request on new information. YCWA is unaware of new information regarding this item.

2.2.2.2.5 Criterion 5 – Study Criteria in Section 5.9(b)

In most cases, YCWA believes the Forest Service, USFWS and Cal Fish and Wildlife adequately address the study criteria at 18 CFR Section 5.9(b).

With regards to Criterion 4, the agencies imply that the Water Balance/Operations Model uses outdated information (i.e., maximum capacity of 800 cfs through each low level outlet). It does not. When YCWA became aware of the issue, it performed an engineer's estimate and advised the agencies that the engineer's estimated maximum capacities at dam crest for the Our House and Log Cabin diversion dam low level outlets is 600 and 540 cfs, respectively. These values were used in the No Action Alternative (base case) model run included in YCWA's DLA, and in most model runs made by YCWA for Relicensing Participants. Further, the model allows a user to treat these maximum capacities as variables (i.e., change them) in all subsequent model runs. Therefore, the values are not "hard caps."

2.2.2.2.6 Demonstration of Extraordinary Circumstances

The Forest Service's, USFWS' and Cal Fish and Wildlife's demonstration of extraordinary circumstances is that they need the information to inform PM&E flow discussions. YCWA believes this does not constitute an extraordinary circumstance. In many relicensings, valve and spillway capacities are based on engineers' estimates, not detailed hydraulic tests of the valves. Further, the relicensing Water Balance/Operations Model allows a user to vary the maximum capacity of the low level outlets, though engineer's estimates are available.

2.2.2.2.7 Other Showings of Good Cause

The Forest Service, USFWS and Cal Fish and Wildlife do not provide any other showings of good cause.

2.2.2.3 YCWA's Recommendation

FERC should direct YCWA to test the Our House and Log Cabin diversion dam low level outlets as described in the Forest Service's, USFWS' and Cal Fish and Wildlife's January 30, 2014 letters, with two exceptions. First, YCWA does not believe that either outlet can be tested until spring 2015 because of the need to obtain Clean Water Act (CWA) Section 404 permits from the USACE and CWA Section 401 permits from the Central Valley Regional Water Quality Control Board (CVRWQCB), which could take 3 to 6 months. Contrary to the Forest Service's

statement at page 4 of Attachment 1 to its January 30, 2014 letter, during a January 24, 2014 Relicensing Participants conference call, the USACE and CVRWQCB were specifically asked if testing the low level outlets would require obtaining 404 and 401 permits. Both agencies said it would.

Second, YCWA believes the need to determine how much sediment passes through the low level outlets when they are fully opened during high flow events, as requested by the Forest Service, USFWS and Cal Fish and Wildlife, has not been justified. The agencies have not identified any new information that has come to light or demonstrated extraordinary circumstances that warrant approval of this request.

2.2.3 New Bullards Bar Dam – New Flood Control Outlet – Effects of Construction and Operation on FS Lands and Operations Model Scenario

2.2.3.1 Description of Request

At pages 9 through 12 of Attachment 1 in its January 30, 2014 letter, the Forest Service requests a *New Bullards Bar Dam – New Flood Control Outlet – Effects of Construction and Operation on FS Lands and Operations Model Scenarios Study*. The geographic scope of the study is the area near New Bullards Bar Dam that would be affected by construction and operation of YCWA's proposed Flood Control Outlet, as described in Section 2.2.1.2 of Exhibit E in YCWA's DLA. The Forest Service's request includes seven components:²⁵ 1) developed targeted surveys and/or mapping efforts in the study area related to a number of studies²⁶ already performed by YCWA; 2) evaluate the planned level of NFS road use associated with the construction, operation and maintenance of the Flood Control Outlet; 3) assess the visual quality of the Flood Control Outlet; 4) modify the relicensing Water Balance/Operations Model to include the new Flood Control Outlet; 5) evaluate how operations of the new Flood Control Outlet will affect channel morphology and instream flow habitat for aquatic species downstream of New Bullards Bar Dam; 6) evaluate hillslope stability below of the new Flood Control Outlet; and 7) evaluate fish entrainment into the new Flood Control Outlet. The Forest Service does not provide detailed methods for its requested new study, and estimates the study would cost between \$160,000 and \$320,000 to complete.

Cal Fish and Wildlife includes in its January 30, 2014 letter an almost identical study request as the one requested by the Forest Service (pages 18 through 21 of Cal Fish and Wildlife's January 30, 2014 letter). BLM and FWN state they each support the Forest Service's requested new study (page 1 of BLM's January 30, 2014 letter and page 6 of FWN's January 30, 2014 letter).

²⁵ The Forest Service lists three study components on page 12 of Attachment 1 to its January 30, 2014 letter. For the purpose of YCWA's response, these are divided into the listed seven components.

²⁶ The Forest Service provides a list of the studies.

2.2.3.2 YCWA's Analysis

2.2.3.2.1 Criterion 1 – Material Changes in Laws and Regulations

The Forest Service, Cal Fish and Wildlife, BLM and FWN do not base their requests on material changes in applicable laws and regulations, or the implementation of those laws and regulations. YCWA is unaware of any laws or regulations that have changed since FERC's Determination that would support the requests.

2.2.3.2.2 Criterion 2 – Goals and Objectives Could Not Be Met with Approved Study

The Forest Service bases its request, in part, on its contention that “*No studies were previously designed to assess effects of construction on NFS lands and provide operational scenarios.*” (Page 9 of Attachment 1 to the Forest Service's January 30, 2014 letter). Cal Fish and Wildlife bases its request, in part, on its contention that that “*No studies were previously designed to assess effects of construction on fish, wildlife and plant resources, and provide operational scenarios.*” (Page 18 of Cal Fish and Wildlife's January 30, 2014 letter).

First, YCWA must clarify that, except for small portions of potential borrow areas 2a, 2b and 2c, the proposed new Flood Control Outlet does not affect NFS land. As shown in Figure 2.2.3-1, the entire facility and the area potentially affected by construction are located on YCWA-owned or privately-owned land. Further, there is no NFS land downstream of New Bullards Bar Dam. Therefore, the only areas that directly affect NFS land are those small portions of potential borrow areas 2a, 2b and 2c.

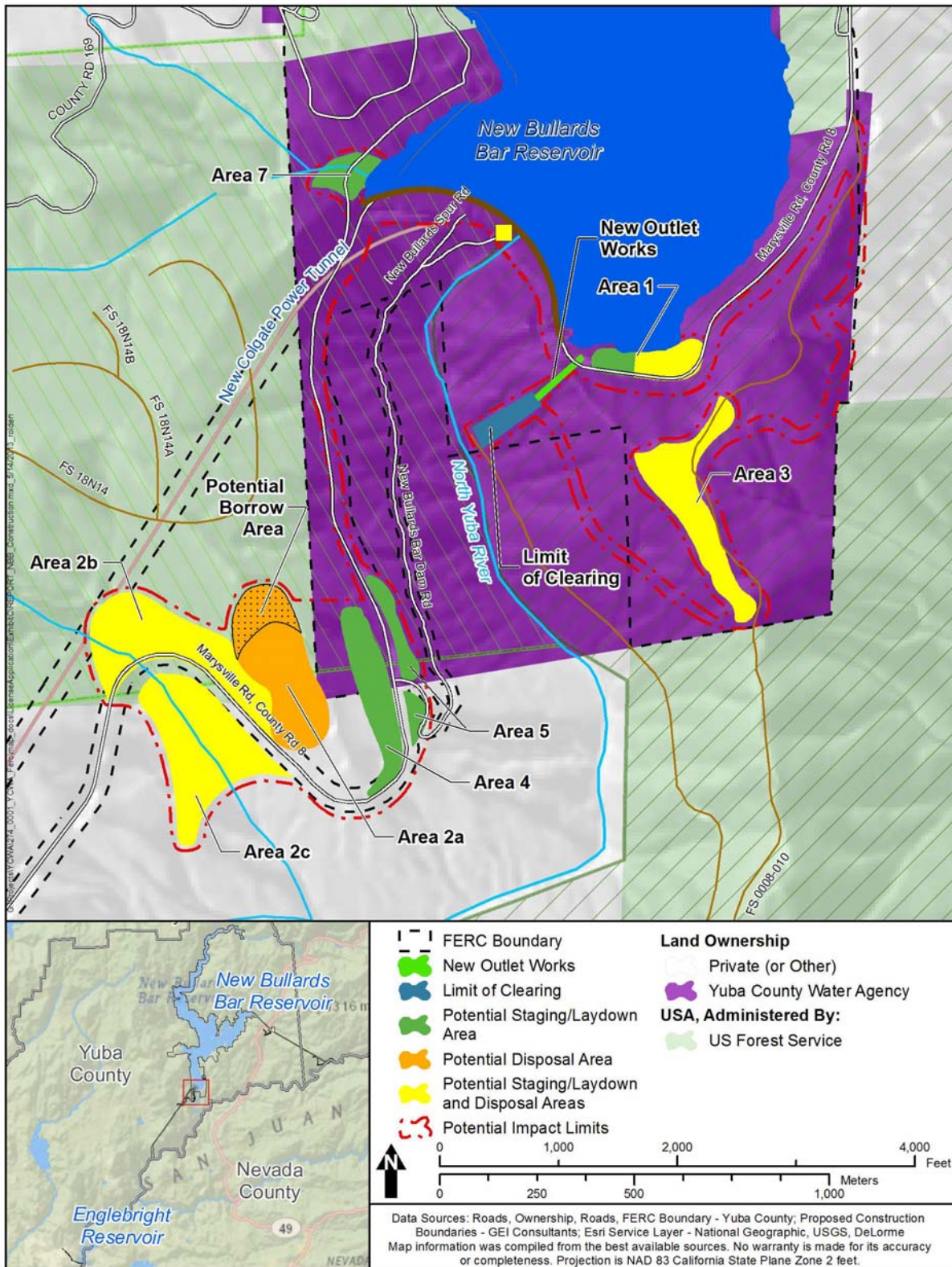


Figure 2.2.3-1. Conceptual layout of YCWA’s proposed new Flood Control Outlet and areas that would be affected by construction of the outlet. [from Figure 2.2-5 in Exhibit E in YCWA’s December 2, 2013 DLA.]

Second, both the Forest Service and Cal Fish and Wildlife incorrectly state that the existing FERC-approved studies do not provide information regarding resources potentially affected by construction, operation and maintenance of the new Flood Control Outlet. Table 2.2.3-1 lists how each of the FERC-approved studies, for which the Forest Service and Cal Fish and Wildlife request “*developing targeted surveys and/or mapping efforts,*” provide information relevant to the new Flood Control Outlet.

Table 2.2.3-1. FERC-approved studies for which the Forest Service and Cal Fish and Wildlife request “*developing targeted surveys and/or mapping efforts*” to provide information relevant to YCWA’s proposed new Flood Control Outlet.

Study		Relationship of Study to Construction, Operation and Maintenance of the New Flood Control Outlet	Is Additional Information Needed?
#	Name		
1.1	Channel Morphology Upstream of Englebright Reservoir	The FERC-approved study provides information regarding existing channel morphology conditions and sediment movement models upstream of Englebright Reservoir to inform the development of license requirements.	No. Existing information and the study, which addressed the area potentially affected by the new Flood Control Outlet, provide adequate information for the development of license requirements. The only change is a short-term potential for sediment input during construction and the sediment control measures should keep this input to a minimum. A study site has been established that has assessed sediment availability and transport capacity just downstream of the construction area and the information and data collected are sufficient to address any potential issues.
2.2	Water Balance/Operations Model	The FERC-approved study resulted in the development of a Water Balance/Operations Model, which is included in YCWA’s DLA. The model includes as part of YCWA’s proposed Project operations of the new Flood Control Outlet.	No. The model includes the new Flood Control Outlet and its operations, as proposed by YCWA. Relicensing Participants may make model scenario runs, modifying operations of the outlet, as they deem appropriate. YCWA has not received any requests from Relicensing Participants to make such runs until now.
2.6	Water Temperature Model	The FERC-approved study resulted in the development of water temperature models, which are included in YCWA’s DLA. The models include as part of YCWA’s proposed Project operations of the new Flood Control Outlet.	No. The models include water temperatures that would result from operations of YCWA new Flood Control Outlet, as proposed by YCWA. Relicensing Participants may make model scenario runs, modifying operations of the outlet, as they deem appropriate. YCWA has not received any requests from Relicensing Participants to make such runs until now.
3.10	Instream Flow Upstream of Englebright	The FERC-approved study provides flow-habitat relationships for life stages of targeted fishes.	No. Existing information and the study, which addressed the area potentially affected by the new Flood Control Outlet, provide adequate information for the development of license requirements. Evaluating changes to flow releases during construction, if any, or during flood events post-construction are within the capability of the various instream flow study modeling tools developed in collaboration with Relicensing Participants.

Table 2.2.3-1. (continued)

Study		Relationship of Study to Construction, Operation and Maintenance of the New Flood Control Outlet	Is Additional Information Needed?
#	Name		
3.11	Entrainment	The FERC-approved study provides information regarding entrainment of fish at Project intakes, but not spillways.	No. Existing information is adequate to assess the effects of the new Flood Control Outlet on fish due to entrainment. As described in YCWA's DLA, the new Flood Control Outlet would operate very infrequently and only during times of very high flow. Further, fish that enter the facility will be passed directly downstream (no powerhouse).
4.1	Special-Status Wildlife – California Wildlife Habitat Relationships	The FERC-approved study included the area potentially affected by construction, operations and maintenance of YCWA's proposed new Flood Control Outlet.	No. Existing information and the FERC-approved studies are adequate to assess the potential affects of the construction, operation and maintenance of YCWA's proposed new Flood Control Outlet.
4.2	Special-Status Bats	The FERC-approved study classifies bat use at Project facilities where O&M activities may disturb roosting bats. No roosts were found, reported, or known to exist at the proposed location for the proposed new Flood Control Outlet.	No. Existing information and the FERC-approved studies are adequate to assess the potential affects of the construction, operation and maintenance of YCWA's proposed new Flood Control Outlet. Furthermore YCWA is unsure as to how additional information could be collected since the location of the proposed new Flood Control Outlet is inaccessible to surveyors due to safety concerns. This site is either underwater or on the downstream side of a 600-ft-tall dam. Activities associated with proposed disposal staging/laydown areas are not expected to modify any of the surrounding cliff habitat that may be used as roosts.
5.1	Special-Status Plants	The FERC-approved study provides information regarding existing special-status plant populations within the Project Boundary to inform the development of license requirements.	No. Existing information and the study are adequate to assess the effects of the new Flood Control Outlet on special-status plants.
6.1	Riparian Habitat Upstream of Englebright Reservoir	The FERC-approved study provides information regarding existing riparian habitat conditions upstream of Englebright Reservoir to inform the development of license requirements.	No. Existing information and the study are adequate to assess the effects of the new Flood Control Outlet on Riparian Habitat. The proposed Flood Control Outlet has little overlap with riparian areas; and study information is adequate to determine any potential impacts.
6.3	Wetlands	The FERC-approved study provides information regarding existing wetlands within the Project Boundary to inform the development of license requirements.	No. Existing information and the study are adequate to assess the effects of the new Flood Control Outlet on wetlands. The Study determined that there are no wetlands within the Project Boundary, therefore, there cannot be any impacts to wetlands.
7.1	ESA-Listed Plants	The FERC-approved study provides information regarding existing ESA-Listed Plant populations within the Project Boundary to inform the development of license requirements.	No. Existing information and the study are adequate to assess the effects of the new Flood Control Outlet on ESA-Listed Plants. The study demonstrated that there are no ESA-Listed Plants, or potentially suitable ESA-Listed Plant habitats within the Flood Control Outlet.

Table 2.2.3-1. (continued)

Study		Relationship of Study to Construction, Operation and Maintenance of the New Flood Control Outlet	Is Additional Information Needed?
#	Name		
7.2	ESA-Listed Amphibians – California Red-legged Frog	The study included a review of potential California red-legged frog (CRLF) potential habitat in the FERC Project Boundary and adjoining area. Potential habitat and records of CRLF observations were not found in the vicinity of the new Flood Control Outlet.	No. Existing information and the study are adequate to assess the effects of the new Flood Control Outlet on California red-legged frog. The study demonstrated that there are no aquatic habitats suitable for California red-legged frog in areas that maybe affected by construction or operation. The nearest potentially suitable site is an impoundment on Cottage Creek west of Area 7 [see Figure 2.2.3-1], a potential staging/laydown area, is outside of the area that may be affected.
7.4	ESA-Listed Wildlife – Valley Elderberry Longhorn Beetle	The FERC-approved study provides information regarding existing ESA-Listed Wildlife – Valley Elderberry Longhorn Beetle habitats within the Project Boundary to inform the development of license requirements.	No. Existing information and the study are adequate to assess the effects of the new Flood Control Outlet on ESA-Listed Wildlife – Valley Elderberry Longhorn Beetle. The study demonstrated that there are no ESA-Listed Wildlife – Valley Elderberry Longhorn Beetle habitats within the vicinity of the proposed Flood Control Outlet.
7.5	CESA-Listed Plants	The FERC-approved study provides information regarding existing CESA-Listed Plant populations within the Project Boundary to inform the development of license requirements.	No. Existing information and the study are adequate to assess the effects of the new Flood Control Outlet on CESA-Listed Plants. The study demonstrated that there are no CESA-Listed Plants, or potentially suitable CESA-Listed Plant habitats within the vicinity of the proposed Flood Control Outlet.
7.6	CESA-Listed and Fully Protected Wildlife – California Wildlife Habitat Relationships	The FERC-approved study included the area potentially affected by construction, operations and maintenance of YCWA’s proposed new Flood Control Outlet.	No. Existing information and the FERC-approved studies are adequate to assess the potential affects of the construction, operation and maintenance of YCWA’s proposed new Flood Control Outlet.
9.1	Primary Project Roads and Trails	The FERC-approved study included survey of the New Bullards Bar Dam Road which addresses a portion of the area potentially affected by construction, operations and maintenance of YCWA’s proposed new Flood Control Outlet.	No. Any additional information that may be needed would be scoped following development of a project description during the permitting process.
12.1	Historic Properties	The FERC-approved study included survey of the lands within the FERC Project Boundary and a 200-foot buffer. This survey addressed all of the areas where the new facility would be located and a portion of the potential borrow and/or disposal areas.	No. Any additional information that may be needed, once the final location of the borrow areas is identified, would be scoped following development of a project description during the permitting process.
13.1	Native American Traditional Cultural Properties (TCP)	The FERC-approved study included the area potentially affected by construction, operations and maintenance of YCWA’s proposed new Flood Control Outlet.	No. Existing information and the study results are adequate to assess the effects of the new Flood Control Outlet on TCPS. The study determined that there are no TCPs within the FERC Project Boundary; therefore there would be no effect to TCPs.

Third, the Forest Service and Cal Fish and Wildlife do not describe what additional “targeted surveys and/or mapping efforts” they request.

Last, the Forest Service, Cal Fish and Wildlife, BLM and FWN do not take into account that prior to the time YCWA constructs the new Flood Control Outlet, it will do detailed design and engineering work, which will include drilling and surveying, and apply for all necessary permits and approvals to construct the facility, including potential borrow or disposal areas. Adherence to the terms and conditions in these permits and approvals will provide for adequate resource protection during construction. Further, prior to construction, FERC must approve the facility drawings, and the Forest Service must approve any facilities on NFS land.

2.2.3.2.3 Criterion 3 – Why Request Was Not Made Earlier

The Forest Service and Cal Fish and Wildlife state that they did not request the study earlier because they were not provided the details regarding the facility until August 2013. YCWA agrees. YCWA made Relicensing Participants aware, as soon as YCWA was reasonably certain that it would propose the new Flood Control Outlet in its Application for New License.

2.2.3.2.4 Criterion 4 – Significant Changes in Proposed Project or New Information

The Forest Service and Cal Fish and Wildlife base their requests, in part, on the fact that there have been significant changes to the proposed Project. As described under Criterion 3, YCWA does not disagree with this.

2.2.3.2.5 Criterion 5 – Study Criteria in Section 5.9(b)

In most cases, YCWA believes the Forest Service and Cal Fish and Wildlife adequately address the study criteria at 18 CFR Section 5.9(b).

With regards to Criterion 1, YCWA notes that, as requested by Relicensing Participants, most relicensing studies do not include a requirement to determine Project effects, but provide information regarding the resources potentially affected so that each Relicensing Participant can make its own assessment when it recommends license requirements. If the Forest Service and Cal Fish and Wildlife request this study include an assessment of effects, they would need to provide methods to do this

2.2.3.2.6 Demonstration of Extraordinary Circumstances

The Forest Service's and Cal Fish and Wildlife's demonstration of extraordinary circumstances is that they were not aware of YCWA's proposal until August 2013. YCWA believes this does not constitute an extraordinary circumstance.

2.2.3.2.7 Other Showings of Good Cause

The Forest Service and Cal Fish and Wildlife do not provide any other showings of good cause.

2.2.3.3 YCWA's Recommendation

FERC should not adopt the Forest Service's and Cal Fish and Wildlife's requested new study. The new Flood Control Outlet is included in both the relicensing Water Balance/Operations Model and water temperature models, and the existing FERC-approved studies provide adequate information to inform license requirements. The drawings and descriptions of the new Flood Control Outlet and its construction included in YCWA's DLA are consistent with FERC's relicensing regulations, and YCWA will provide detailed design drawings and specifications to FERC and the appropriate agencies for review, and ultimately FERC's approval, prior to construction. YCWA will obtain all necessary permits and approvals prior to construction, and adherence to the terms and conditions included in those permits and approvals will provide adequate protection to resources during construction.

2.2.4 Evaluation of the Effects of the New Bullards Bar Flood-Control Outlet and New Colgate Tailwater Depression System Narrows 2 Entrainment

2.2.4.1 Description of Request

At pages 19 through 25 of its January 30, 2014 letter, USFWS requests an *Evaluation of the Effects of the New Bullards Bar Dam Flood-Control Outlet and New Colgate Tailwater Depression System [TDS] Study*. USFWS describes the geographic scope of the study as “*the area immediately affected by construction, including clearing, staging, laydown, disposal areas and road use.*” The USFWS' request includes the same components requested by the Forest Service and Cal Fish and Wildlife in their requested new study named *New Bullards Bar Dam – New Flood Control Outlet – Effects of Construction and Operation on FS Lands and Operations Model Scenarios*, which YCWA addresses in Section 2.2.3. The components of USFWS' requested study are:²⁷ 1) develop targeted surveys and/or mapping efforts in the study area related to a number of studies²⁸ already performed by YCWA; 2) evaluate the planned level of NFS road use associated with the construction, operation and maintenance of the Flood Control Outlet; 3) assess the visual quality of the Flood Control Outlet; 4) modify the relicensing Water Balance/Operations Model to include the new Flood Control Outlet; 5) evaluate how operations of the new Flood Control Outlet will affect channel morphology and instream flow habitat for aquatic species downstream of New Bullards Bar Dam; 6) evaluate hillslope stability below of the new Flood Control Outlet; and 7) evaluate fish entrainment into the new Flood Control Outlet. USFWS does not provide detailed methods for its requested new study, and estimates the study would cost between \$160,000 and \$320,000 to complete.

At pages 1 through 6 of Enclosure B to its January 30, 2014 letter, NMFS requests an *Evaluation of the Effects of the New Bullards Bar Dam Flood-Control Outlet and New Colgate Tailwater Depression System Study*. NMFS does not describe the geographic scope of its requested study,

²⁷ USFWS lists three study components on page 24 of its January 30, 2014 letter. For the purpose of YCWA's response, these are divided into the listed seven components.

²⁸ USFWS provides a list of the studies.

or provide detailed methods, stating “*we expect FERC will order study (including methodology) consistent with that of other studies of Project facilities and operations ordered in this ILP.*” NMFS states that it expects its new study will cost approximately 5 percent of the original combined total cost of the related ILP studies.

2.2.4.2 YCWA’s Analysis

2.2.4.2.1 Criterion 1 – Material Changes in Laws and Regulations

Neither USFWS nor NMFS bases its requests on material changes in applicable laws and regulations, or the implementation of those laws and regulations. YCWA is unaware of any laws or regulations that have changed since FERC’s Determination that would support the requests.

2.2.4.2.2 Criterion 2 – Goals and Objectives Could Not Be Met with Approved Study

Both USFWS and NMFS base their request, in part, on their contention that no studies were previously designed to assess effects of the Flood Control Outlet of TDS. In fact, the existing FERC-approved studies provide information regarding resources potentially affected by construction, operation and maintenance of the new Flood Control Outlet and TDS. With regards to the new Flood Control Outlet, Table 2.2.3-1 lists how each of the FERC-approved studies, for which the USFWS (NMFS did not list any specific studies) provide information relevant to construction, operation and maintenance of the outlet. With regards to the new TDS, the proposed laydown area is the New Colgate Powerhouse parking area, which is within the FERC Project Boundary and was included in each FERC-approved study, as appropriate, and construction will occur within the powerhouse.

2.2.4.2.3 Criterion 3 – Why Request Was Not Made Earlier

Both USFWS and NMFS state that they did not request the study earlier because they were not provided the details regarding the facility until August 2013. YCWA agrees. YCWA made Relicensing Participants aware, as soon as YCWA was reasonably certain that it would propose the new Flood Control Outlet and TDS in its Application for New License.

2.2.4.2.4 Criterion 4 – Significant Changes in Proposed Project or New Information

USFWS and NMFS base their requests, in part, on the fact that there have been significant changes to the proposed Project. As described under Criterion 3, YCWA does not disagree with this.

2.2.4.2.5 Criterion 5 – Study Criteria in Section 5.9(b)

In most cases, YCWA believes USFS and NMFS adequately address the study criteria at 18 CFR Section 5.9(b).

With regards to Criterion 1, YCWA notes that, as requested by Relicensing Participants, most relicensing studies do not include a requirement to determine Project effects, but provide

information regarding the resources potentially affected so that each Relicensing Participant can make its own assessment when it recommends license requirements. If USFWS and NMFS request this study include an assessment of effects, they would need to provide methods, on which YCWA could respond to do this.

2.2.4.2.6 Demonstration of Extraordinary Circumstances

USFWS' and NMFS' demonstration of extraordinary circumstances is that they were not aware of YCWA's proposal until August 2013. YCWA believes this does not constitute an extraordinary circumstance.

2.2.4.2.7 Other Showings of Good Cause

USFWS and NMFS do not provide any other showings of good cause.

2.2.4.3 YCWA's Recommendation

FERC should not adopt USFWS' and NMFS' requested new study. The new Flood Control Outlet and new TDS are included in both the relicensing Water Balance/Operations Model and water temperature models, and the existing FERC-approved studies provide adequate information to inform license requirements.

The drawings and descriptions of the new Flood Control Outlet and new TDS and their construction included in YCWA's DLA are consistent with FERC's relicensing regulations, and YCWA will provide detailed design drawings and specifications to FERC and the appropriate agencies for review, and ultimately FERC's approval, prior to construction. YCWA will obtain all necessary permits and approvals prior to construction, and adherence to the terms and conditions included in those permits and approvals will provide adequate protection to resources during construction.

2.2.5 Narrows 2 Power Intake Entrainment

2.2.5.1 Description of Request

In letters dated July 3, 2013, both Cal Fish and Wildlife and USFWS requests almost identical new Narrows 2 Power Intake Entrainment Studies. Each agency proposes that its requested study would focus on resident rainbow trout; the study period would be 1 year; and the sampling would occur using large tapered nets that would survey the entire flow in the Narrows 2 Powerhouse tailrace. The sampling would occur in two phases. The first phase would occur for two to four weeks in June and July, and would be conducted for four days per week, 24 hours per day. The second phase would extend from August through May and sampling would occur five to six days each month. The goal of the sampling is a confidence interval of ± 50 percent of the sampling mean. Each agency estimates the cost to perform the study is between \$250,000 and \$300,000.

2.2.5.2 YCWA's Analysis

YCWA responded to Cal Fish and Wildlife's new study request in a letter filed with FERC on July 17, 2013, and to USFWS' new study request in a letter filed with FERC on July 23, 2013. Since these letters are on file with FERC, YCWA has not repeated their contents here, but includes them in this document by reference.

2.2.5.3 YCWA's Recommendation

FERC should not adopt Cal Fish and Wildlife's and USFWS' request for a new Narrows 2 Power Intake Entrainment Study for the reasons described in YCWA's July 17, and July 23, 2013 letters.

2.2.6 Evaluation of the Effects of the Shot Rock in the Englebright Dam Reach and Associated Impacts to Anadromous Fish and Their Habitats

2.2.6.1 Description of Request

NMFS requests a new study to provide information on shot rock within the Englebright Dam Reach, which includes the immediate vicinity of the Narrows 2 Powerhouse and Full Bypass. NMFS requests the study results include:

- Quantification of shot rock within the reach (both within and outside the channel) and that which is available for transport into the reach.
- Documentation and quantification of potential stranding hazards associated with the shot rock.
- Documentation of sources of shot rock to the reach, both current, active sources as well as historical sources. These would include but not be limited to the construction of Narrows 2 Powerhouse, construction of the Full Bypass, and construction and ongoing maintenance of the Narrows 2 access road.
- Quantification of how ongoing Project operations influence the mobilization and deposition of shot rock, including the operation of the Full Bypass.
- Development of strategies to mitigate existing shot rock deposits that exert deleterious effects on anadromous fishes, and to minimize future impacts on habitat that may result from ongoing Project operations (that mobilize and deposit shot rock).

NMFS states that this study should be accomplished through review of historical aerial photography and field inspection of existing shot rock sources. NMFS estimates the requested study would cost between \$25,000 and \$50,000 to complete.

FWN requested a modification to Study 1.2, *Channel Morphology Downstream of Englebright Dam*, because Technical Memorandum 1-2 "*fails to describe channel conditions in the*

Englebright Dam Reach as affected by large angular rock (“shot rock”) that is mobilized into the channel due to project operations, a project road, and other causes” “or the fact that the Narrows 2 facilities does not allow sediment to pass.” Specifically, FWN requests the study be modified as follows:

We recommend that this study be completed by including an addendum to Tech Memo 1.2. Extensive deposits of the shot rock have been documented outside this relicensing process, for instance in the Lower Yuba Fisheries Technical Working Group. The Gravel Augmentation Implementation Plan (Army Corps of Engineers 2010) addresses the shot rock as an issue for planning gravel augmentation to the reach. The Habitat Expansion Plan (Pacific Gas & Electric and California Department of Water Resources 2010) placed significant emphasis on the need for removal of the shot rock material to allow for enhancement of spawning habitat. The Network requests that the Commission require YCWA to complete the Tech Memo to answer the following questions:

1. What is the distribution and extent of shot rock in the Englebright Dam reach?
2. What are the sources of the shot rock?
3. How are project operations contributing to the shot rock deposition of mobility?
4. What are the impacts of the shot rock on fisheries habitat?

The Network believes that this analysis can be conducted with existing information.

(Pages 3 and 4 of FWN’s January 30, 2014 letter.)

FWN does not describe the methods it proposes to perform its requested analysis or estimate the cost to perform the analysis.

Given that the substantial overlap of FWN’s requested study modification with NMFS’ requested new study, YCWA has addressed the two requests together here.

2.2.6.2 YCWA’s Analysis

2.2.6.2.1 Criterion 1 – Material Changes in Laws and Regulations

NMFS does not base its request on any material changes in applicable law or regulations, or the implementation of those laws and regulations. YCWA is unaware of any laws or regulations that have changed since FERC’s Determination that would support NMFS’ request.

2.2.6.2.2 Criterion 2 – Goals and Objectives Could Not Be Met with Approved Study

On page 8 of its comment letter on the Updated Study Report, NMFS states:

Shot rock deposits are not quantified or discussed in any of the existing technical memoranda for the Project or in the USR or DLA, nor are any of the Project-related effects involving the shot rock deposits on channel morphology or aquatic habitat (including spawning). As was discussed in our comments on Study 7.11 and Study 7.13, NMFS is requesting more information about Project flow operations in this area and fish stranding that is inter-related with shot rock/Project effects.

YCWA agrees that shot rock deposits were not quantified or discussed in the Updated Study Report or DLA. Evaluation of shot rock deposits was not identified in any FERC-approved studies, or identified as an issue. Consequently, this request for new information is not in response to any goals or objectives in previous FERC-approved studies.

2.2.6.2.3 Criterion 3 – Why Request Was Not Made Earlier

On page 8 of its comment letter on the Updated Study Report NMFS states that it:

...previously made a similar study request to the Commission in its Information Request #1 “Effects of the Project and Related Activities on Fish Passage for Anadromous Fish” filed with FERC on March 7, 2011:

Tailrace Barrier Protection Requirements

“This request involves an engineering study of the facility designs and review of prevailing operational conditions at the tailrace/outfall of the Narrows 2 and New Colgate powerhouses, and bypass outfalls. The objective is to understand the historical incidence, or potential future likelihood, of fish stranding, mortality or injury - resulting from “false attraction” into the power plant structures.” (p. 10). [Underline emphasis added].

NMFS’ Request #1 was denied by the Licensee and not adopted by FERC. Since that time NMFS has orally expressed to both YCWA and FERC that the shot rock deposit opposite the full-bypass could pose a stranding risk. This includes discussions during a field visit to Narrows 2 (February 14, 2012) when FERC staff were present. The specificity, breadth, and reiteration of this request is further informed by the documented stranding of adult salmon on October 11, 2013.

YCWA disagrees that NMFS made a similar study request to FERC previously. The study request that NMFS refers to was not related to quantification or evaluation of shot rock – in fact, it does not mention shot rock - but was related to potential entrainment of fish...“*resulting from*

“false attraction” into the power plant structures.” NMFS has not demonstrated why it did not make this new study request earlier.

2.2.6.2.4 Criterion 4 – Significant Changes in Proposed Project or New Information

On pages 7-9 of its comment letter on the Updated Study Report, NMFS states that:

Significant new information material to the study objectives has become available, in the form of the documented stranding of adult Chinook salmon in a pool feature created by shot rock deposits and erosion from Project facilities/operations. Additional new information is the subsequent proposal by YCWA to remove the shot rock to reduce the stranding hazard.

...

Significant new information material to the study objectives has become available. On October 11, 2013, six live adult Chinook salmon were observed stranded following changes in operation of the Project’s full-bypass valve at Narrows 2, in a pool formed by shot rock deposits directly opposite the full-bypass discharge. Review of historical aerial photography suggests this shot rock deposit was either created during construction of the full-bypass valve or was formed by high flows jetting out of the full-bypass that scour the area directly in front of the bypass jet and push shot rock into a pile directly downstream, on the opposite side of the channel. In addition, YCWA has proposed in their response to FERC Compliance (December 26, 2013) to excavate this shot rock deposit from the channel as a potential remedy for the stranding hazard. Additional information requested in this study would be used to evaluate the merit of YCWA’s proposal, and develop other potential strategies to help: 1) mitigate for the existing shot rock stranding hazard; 2) minimize the potential development of future hazards; and 3) assess the need for potential similar remedies in other areas in the Englebright Dam Reach.

Besides information regarding the October 11, 2013 incident, other significant new information regarding the potential for stranding of fish in the Bypass Pool has been available since the Study 7.11 was proposed. As discussed in NMFS’s letter, YCWA has proposed to excavate the gravel bar forming the Bypass Pool to minimize the potential for stranding in this area. YCWA is not aware of any other potential adult Chinook salmon stranding hazards in the Englebright Dam Reach.

To assure that ESA-listed fishes do not become isolated in the pool that forms on the gravel bar across from the Full Bypass, YCWA proposes to remove the gravel bar. Specifically, within 3 months of the Commission’s approval of the gravel bar removal concept, YCWA will submit applications for permits and approvals to remove the bar. When YCWA has received all necessary permits and approvals, YCWA will file them with FERC, and will remove the gravel

bar as soon as reasonably practicable after receiving FERC's final approval. Because of this YCWA proposal, NMFS's requested new study is not appropriate.

2.2.6.2.5 Criterion 5 – Study Criteria in Section 5.9(b)

NMFS's letter discusses the study criteria in 18 C.F.R. Section 5.9(b). (NMFS Jan. 30, 2014 letter, encl. B, p. 11.) However, YCWA does not agree with NMFS's arguments about the alleged nexus between Project operations and effects. This nexus is required by 18 C.F.R. Section 5.9(b)(5). Although NMFS's letter asserts that the shot rock deposits were created during construction of Narrows 2 facilities (NMFS Jan. 30, 2014 letter, encl. B, p. 11), it actually was the construction of USACE's Englebright Dam and subsequent high flow events, with substantial uncontrolled spills of water over the dam, both of which were outside of the control of the Project, that likely mobilized the shot rock that created the Bypass Pool. As NMFS's letter states, shot rock...*"is thought to be derived mostly from Dam construction activities in the area (e.g. blasting of the local bedrock) but also from the erosion of bedrock, hillside walls, that is exacerbated during extreme high spills over Englebright Dam."* (NMFS Jan. 30, 2014 letter, encl. B, p. 6)

2.2.6.2.6 Demonstration of Extraordinary Circumstances

NMFS has not demonstrated extraordinary circumstances such that a new study is warranted to evaluate Project effects on shot rock. YCWA agrees that new information has become available regarding the stranding of fish in the Bypass Pool. However, YCWA has proposed, under the existing license, to remove the material that has created the pool, which would minimize any potential for fish stranding in this area potentially associated with Project operations.

2.2.6.2.7 Other Showings of Good Cause

NMFS states that it proposes this study for good cause because *"significant new information material to the study objectives has become available, in the form of the documented stranding of adult Chinook salmon in a pool feature created by shot rock deposits and erosion from Project facilities/operations. Additional new information is the subsequent proposal by YCWA to remove the shot rock to reduce the stranding hazard."* (NMFS Jan. 30, 2014 letter, encl. B, p. 7) YCWA agrees that new information has become available since development of the study plan. However, YCWA disagrees with NMFS that the Bypass Pool was necessarily created by Project facilities or operations. Moreover, YCWA has proposed to remove the material that created the Bypass Pool.

2.2.6.3 YCWA's Recommendation

FERC should not adopt NMFS' request for a new study regarding shot rock in the Englebright Dam Reach of the Yuba River. The shot rock deposits were not created by project construction or operations, and potential for fish stranding in the Bypass Pool will be eliminated after YCWA removes the material that has created the pool. Therefore, the information that would be developed by NMFS's requested new study would not inform license requirements.

2.2.7 Fish Passage Assessment for Spring-run Chinook Salmon and Central Valley Steelhead

2.2.7.1 Description of Request

The SWRCB requests that YCWA complete a new study that would collate information contained in any documents related to the evaluation of fish passage, habitat availability, water quality impacts, and fish population changes associated with the seven fish passage alternatives presented in the March 2013 Yuba Salmon Forum (YSF) Fish Passage Infrastructure Report.

As stated by the SWRCB on page 6 of its comment letter on the Updated Study Report:

The YSF Report examined seven fish passage alternatives to establish federally listed fish species above Englebright Dam. Evaluation of the potential alternatives included engineering assessment of the facilities, appurtenances, costs, permitting, and changes to the infrastructure and operations of existing facilities required for implementation, operation, and maintenance of an anadromous fish passage program.

On page 9 of its letter, the SWRCB states that:

The requested information can be obtained by using desktop models and current data available through the YSF and YCWA relicensing process. The State Water Board anticipates staff time as the main cost associated with the request. Qualified staff can likely gather the needed information within one to two months of work. The level of effort, including time required, and cost to perform the Study is dependent on the staff assigned to the task. The cost of the proposed Study is estimated to be \$55,000 - \$80,000.

2.2.7.2 YCWA's Analysis

2.2.7.2.1 Criterion 1 – Material Changes in Laws and Regulations

The SWRCB did not base its request on material changes in applicable law and regulations, or the implementation of those laws and regulations. YCWA is unaware of any laws or regulations that have changed since FERC's Determination that would support the SWRCB's request.

2.2.7.2.2 Criterion 2 – Goals and Objectives Could Not Be Met with Approved Study

According to the SWRCB, no studies were previously approved by FERC that assess methods to improve habitat and populations of anadromous fish species affected by YCWA's Project operations and the facilities it uses upstream of Englebright Dam. The SWRCB further states that no available FERC studies contain the requested information.

2.2.7.2.3 Criterion 3 – Why Request Was Not Made Earlier

Requests similar to the SWRCB's request have been made numerous times during the relicensing - and rejected each time by FERC. The most direct determination was made by FERC in its December 2011 Determination, when it concluded:

The Panel agreed with the Study Plan Determination that there is no nexus between project effects and anadromous fish upstream of Englebright dam because anadromous fish are not present above the dam and therefore there is no need to study fish passage at facilities above Englebright dam.

The SWRCB has not provided any additional information regarding Project nexus.

2.2.7.2.4 Criterion 4 – Significant Changes in Proposed Project or New Information

The SWRCB asserts that new information has become available since the Initial Study Report comment period ended on January 2013. Specifically, the SWRCB refers to the YSF Fish Passage Infrastructure Report (YSF Report) and the Draft Summary Habitat Analysis (SHA) to YSF participants.

As stated on page 1 of the September 2013 YSF Draft SHA Report:

The YSF is a collaborative effort of a diverse group of stakeholders that represent water and power purveyors, resource agencies and regulators, and non-governmental organizations (NGO). The purpose of the YSF is to identify, evaluate, recommend, and seek to achieve implementation of effective near-term and long-term actions to achieve viable anadromous salmonid populations in the Yuba River watershed that contribute to recovery goals, while also considering other beneficial uses of water resources and habitat values in neighboring watersheds, as part of Central Valley anadromous salmonid recovery actions.

The Draft YSF SHA Report was “*designed to provide the Yuba Salmon Forum (YSF) with habitat information that can be used to review potential options that warrant further investigation regarding introduction of Central Valley spring-run Chinook salmon and Central Valley steelhead into the North, Middle, and/or South Yuba rivers and/or portions of the Yuba River*” (p. 1).

The information developed through the YSF process to date is primarily related to investigations of introductions of anadromous salmonids upstream of Englebright Dam. YCWA disagrees that this information, which relates to the potential for introductions of anadromous fish upstream of Englebright Dam, is relevant to the Project relicensing process. As previously stated, FERC already determined that there is no nexus between the Project and anadromous fish upstream of Englebright Dam since anadromous fish do not occur upstream of the dam.

2.2.7.2.5 Criterion 5 – Study Criteria in Section 5.9(b)

The SWRCB's request for a new study does not satisfy the criteria in 18 C.F.R. Section 5.9(b)(s) because, as discussed above, there is a nexus between Project effects and anadromous fish upstream of Englebright Dam.

2.2.7.2.6 Demonstration of Extraordinary Circumstances

According to the SWRCB, *"the amount of available new information as well as the circumstances surrounding NMFS Biological Opinion on the Corps' Englebright and Daguerre Point dams are extraordinary and warrant approval"*.

NMFS issued the February 29, 2012 Yuba River Biological Opinion (BO), including a Reasonable and Prudent Alternative (RPA), which required analysis of methods for fish passage at Englebright and Daguerre Point dams. However, the United States District Court Eastern District of California issued an order staying the litigation surrounding the BO, and required reinitiation of consultation.

The SWRCB contends that the RPA described in NMFS 2012 Final Biological Opinion would have addressed SWRCB informational needs. It is unknown if the revised Biological Opinion, which is anticipated to be issued in May 2014, will address fish passage. Therefore, FERC's determination that implementation of the Biological Opinion was uncertain when it denied NMFS' request in its January 28, 2013 comment letter on the Initial Study Report, remains valid.

2.2.7.2.7 Other Showings of Good Cause

The SWRCB states that the basis for its study request is twofold: 1) new information is available that directly relates to the operations and management of the Project; and 2) it is for the protection of beneficial uses. The SWRCB contends that there is a nexus between water quality certification and anadromous fish upstream of Englebright Dam. However, the Basin Plan does not include migratory anadromous salmonids as a Designated Beneficial Use, either existing or potential, in the Yuba River Basin upstream of Englebright Dam.

2.2.7.3 YCWA's Recommendation

FERC should not adopt the SWRCB's request for a new study regarding anadromous fish passage upstream of Englebright Dam. FERC has already made a formal determination on numerous occasions, that, because of the lack of any Project nexus, studies related to effects of Project facilities located upstream of Englebright Dam on anadromous fish are not warranted. Moreover, Englebright Dam, a federal dam owned and maintained by the USACE, has physically blocked upstream passage of anadromous fish since 1941 when it was constructed – over 20 years prior to the time FERC granted an initial license to YCWA for the Yuba River Development Project.

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SECTION 3.0

RESPONSE TO NON-STUDY REQUEST COMMENTS

Based on YCWA’s careful review of the comment letters, non-study request comments can be divided into two categories:

- Comments on Technical Memoranda. These comments express general or specific dissatisfaction with the presentation, organization, format and/or tone of a technical memorandum, and request specific changes to be included in a revised final technical memorandum, or in a final technical memorandum, if YCWA has posted a final or an interim technical memorandum. YCWA responds to those comments in this section, unless a modification to the related study was requested. In that case, YCWA addresses both the study modification and comments on the technical memorandum in Section 2.1.
- Comments, But No Requested Action. These comments express general dissatisfaction with a technical memorandum or performance of a study or provided general commentary on a subject, but do not request a related specific action. Generally, YCWA has not responded to those comments in this section, but YCWA will certainly consider all comments when drafting or revising technical memoranda and preparing its license application.

YCWA made a good faith effort to identify all of the requests that fell into the first category above. Table 3.0-1 lists studies on which comments were filed only on the technical memorandum. YCWA apologizes if it inadvertently misunderstood, mischaracterized or overlooked a comment that falls into one of those two categories. If YCWA has not specifically addressed a comment in this response document, one should not infer that YCWA agrees or disagrees with that comment. YCWA reserves its right to address any comments if and when appropriate.

Table 3.0-1. Studies on which comments were filed only on the technical memorandum.

Study		Commenter ¹							
#	Name	Forest Service	BLM	NPS	USFWS	NMFS	CDFW	SWRCB	FWN
3.1	Aquatic Macroinvertebrates Upstream of Englebright Reservoir						X		
3.9	Non-ESA-Listed Fish Populations Downstream of Englebright Dam				X				
6.2	Riparian Habitat Downstream of Englebright Dam				X		X		
7.3	ESA-Listed Amphibians: California Red-legged Frog				X				
8.1	Recreation Use and Visitor Survey	X		X					

Table 3.0-1. (continued)

Study		Commenter ¹							
#	Name	Forest Service	BLM	NPS	USFWS	NMFS	CDFW	SWRCB	FWN
10.1	Visual Quality	X							
	<i>Subtotal</i>	2	0	1	3	0	2	0	0
	Total	6							

¹ NPS comments were part of a July 26, 2013 letter filed with FERC and not part of the NPS Updated Study Report comment later filed with FERC on January 30, 2014.

YCWA’s responses to the comments on the technical memoranda are provided below.

3.1 Aquatic Macroinvertebrates Upstream of Englebright Reservoir (Technical Memorandum 3-1)

Cal Fish and Wildlife commented on the rating assessment at three study sites in the Technical Memorandum 3-1. Specifically, Cal Fish and Wildlife said it felt as though the site ratings for the following sites were not justified: 1) Oregon Creek below Log Cabin Diversion Dam (condition rated as ‘fair’); 2) Middle Yuba River above Oregon Creek (condition rated as ‘fair’ approaching a rating of ‘good’); and 3) Middle Yuba River below Oregon Creek (condition rated as ‘fair’ approaching a rating of ‘good’). Cal Fish and Wildlife’s concern was that the sites represented above had fewer than 500 organisms collected, which is generally the standard count for other studies.

Study 3.1 was conducted according to the SWAMP protocol as outlined in the FERC-approved study. This included the number and duration of kick net samples that went into the aggregated final sample. That these samples yielded less than the preferred 500 individuals is unfortunate, but only anecdotally implies impairment to overall abundance. The ratings of “poor,” “fair,” and “good” are based on indices of which abundance is one of many factors. Factors such as diversity, presence of rare taxa, water quality, and habitat are to be considered in addition to abundance. YCWA calculated these indices with the numbers available and applied the ratings accordingly and without subjectivity. Indices either fell into a rating or they did not, and these ratings were reported.

3.2 Non-ESA-Listed Fish Populations Downstream of Englebright Dam (Technical Memorandum 3-9)

USFWS provided comments on Technical Memorandum 3-9. YCWA’s responses to the comments received on Technical Memorandum 3-9 are provided in Table 3.2-1.

Table 3.2-1. YCWA’s responses to comments on Technical Memorandum 3-9.

Comment	Commenter & Reference Page in Comment Letter	YCWA’s Response
<p><i>“The USFWS participates on the River Management Team (RMT) under the Fisheries Agreement of the Lower Yuba River Accord (Yuba Accord) and has been actively involved in several River Management Fund (RMF) supported studies...</i></p> <p><i>... USFWS’s Comments on Initial Study Report Interim Technical Memoranda for the Yuba River Hydroelectric Project (dated January 28,2013) and FERC’s Determination on Requests for Modifications to the Yuba River Hydroelectric Project Study Plan (dated March 29,2013) were filed prior to the release of the RMT Draft Interim Report and concerned only the TM 3-9. The RMT Draft Interim Report was not released to the public until April 8, 2013, and is a public-review draft that is subject to revision. The USFWS will be submitting comments on the RMT Draft Interim Report separately at a later date.”</i></p>	<p>USFWS, p. 2</p>	<p>This comment is contradictory because USFWS first admits that it is a member of the RMT and participates in the RMT and has been actively involved in several studies, and then claims that the RMT Draft Interim Report came out after USFWS submitted comments to FERC. However, because USFWS was one of the RMT contributors, they were involved in the preparation of the administrative draft and draft versions of the interim report, were provided an administrative draft review copy, and have had nearly a year to provide additional comments on the public-review draft interim report since its release in April 2013.</p>
<p><i>“In RMT meetings, the USFWS has repeatedly raised the concern that better conditions during wetter water year types may have masked adverse Project effects that may occur even under the Yuba Accord, and we reiterated this concern in our January 28, 2013, Initial Study Report comment letter related to this Project.</i></p> <p><i>The USFWS raises these concerns with the Yuba RMT Draft Interim Report because the study analytical methods and results for Study 3.9 are reported both in the Study 3.9 Technical Memorandum and in the RMT Draft Interim Report. The two documents are very dissimilar (see below).”</i></p>	<p>USFWS, p. 2</p>	<p>Technical Memorandum 3-9 represented the best available information available at the time that it was issued. Any updated or new information that is now available, particularly related to more recent studies and evaluations conducted by the RMT, will be presented in the FLA.</p>
<p><i>“There is a discussion entitled “Fish Community Structure” on pages 5-1 through 5-14, which cites some of the same fish studies summarized in the TM 3-9. At a minimum, the Applicant must indicate what information in the RMT Draft Interim Report is intended to fulfill the purpose and objectives of Study 3-9, and if any of the information in the TM 3-9 now should be ignored. For example, the TM 3-9 states on page 8 that the Yuba RMT “identified methods and metrics to be used to characterize species diversity in the Yuba River downstream of Englebright Dam that include applying the Shannon Diversity Index to results of the various RMT studies. No diversity index was calculated for this study owing to the absence of appropriate data.” The RMT Draft Interim Report does include calculations of several fish community metrics, including the Shannon Diversity Index, for not only the RMT studies, but for two of the studies addressed in the Study TM 3-9. The applicant must indicate how the information in the two documents is to be reconciled.”</i></p>	<p>USFWS, p. 3</p>	<p>Technical Memorandum 3-9 represented the best available information available at the time that it was issued. Any updated or new information that is now available, particularly related to more recent studies and evaluations conducted by the RMT, will be presented in the FLA.</p>

Table 3.2-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<p><i>"We stand by our January 28, 2013 comments on Study 3-9, which were described in FERC's March 29, 2013 Determination on Requests/or Modifications to the Yuba River Hydroelectric Project Study Plan as "premature" but deemed "appropriate when providing comments on the applicant's PLPIDLA [sic], and FLA." As we stated previously: "The Applicant summarized temporal and spatial distributions for each study, but they should also summarize these cumulatively to evaluate any potential fish assemblage changes over time and inter-annual variation that may be due to Project operational changes (i.e., Lower Yuba River Accord), water year types (i.e., dry vs. wet), water diversions, and changes in base flows (i.e., minimum instream flows) (Layzer and Scott 2006)." The new analysis contained in the RMT Draft Interim Report does make some comparisons between data from pre-Accord and Accord years, and compares data over short time scales (e.g., over 4 seasons in 2012, and from 1999-2009). In general, the link between data trends and the Yuba Accord flows remains unclear in essentially all investigations. Patterns can be interpreted only subjectively and are not testable statistically."</i></p>	<p>USFWS, p. 3</p>	<p>It is unclear what the comment <i>"should also summarize these cumulatively to evaluate any potential fish assemblage changes over time and inter-annual variation"</i> is specifically requesting beyond what is already provided in the technical memorandum and attachments. The attached RMT (2013) report summarizes available information on fish assemblage using previously conducted studies and studies conducted by the RMT. Fisheries data that were collected consistently both prior to the implementation of the Yuba Accord and subsequent to implementation of the Yuba Accord are shown and compared in RMT (2013).</p> <p>Any updated or new information that has become available since the issuance of Technical Memorandum 3-9, particularly related to more recent studies and evaluations conducted by the RMT, will be presented in the FLA.</p>

3.3 Riparian Habitat Downstream of Englebright Dam (Technical Memorandum 6-2)

Both the USFWS and Cal Fish and Wildlife made two specific comments that express dissatisfaction with Technical Memorandum 6-2, and that suggest modification to a revised technical memorandum. Neither agency suggests that YCWA did not perform the study in conformance with the FERC-approved study or requested a modification to Study 6.2.

The USFWS and the Cal Fish and Wildlife suggested that on page 51 of Technical Memorandum 6-2 incorrect conclusions are made regarding flows and riparian establishment, because the wrong type of statistic was used. The USFWS suggested using a nonparametric statistic in place of the ANCOVA covariance analysis that was used, because neither the river flows nor the establishment years of cottonwoods follow a normal distribution and do not meet the assumptions for the analysis used. The use of this information is further contested in its application to the two figures that illustrate the relationship between cottonwood establishment year, age of cottonwoods (*Populus fremontii*), streamflow, and the hydrograph of record (Figures 3.3-4 and 3.3-5 on pages 53 and 54 of Technical Memorandum 6-2).

YCWA used the ANCOVA to test for the equality among slopes. The location x slope interaction effect tests for this equality. There is nothing in Figures 3.3-2 and 3.3-3 to indicate that an ordinary least squares regression for diameter at breast height (dbh) and height is inappropriate. Non-normality of establishment year or flow does not enter into this. Because no difference was found among slopes, the residuals were then compared. The small sample size and the fact that Figure 3.3-3 appears relatively normal suggests that a normality test would not be particularly reliable. The conclusion was that variability was so high that estimates of establishment date were not useful. If a non-parametric estimate had been used, the confidence interval around the establishment date would be even broader, therefore the conclusion would remain unchanged.

The USFWS and the Cal Fish and Wildlife contest the use of the term “Large Woody Material” (LWM) to multiple size-classes (i.e., small and medium pieces), and provide suggested revisions to size classes. However, YCWA developed the terminology and size classes in collaboration with Relicensing Participants, including USFWS and Cal Fish and Wildlife, during the design of Study 6.2. Labeling is consistent with methods developed for the study and followed the FERC-approved study.

3.4 ESA-Listed Amphibians: California Red-legged Frog Riparian Habitat Downstream of Englebright Dam (Technical Memorandum 7-3)

USFWS’s non-study request comments did not include a new request to modify the study, but referenced earlier recommendations for study changes in its January 28, 2013 comments on the Initial Study Report, which stated that YCWA should conduct California red-legged frog (CRLF) presence surveys at up to 89 sites, and on 3 to 4 miles of the Middle Yuba River, North

Yuba River, Yuba River, and Oregon Creek downstream of Project facilities. The USFWS comments on the Updated Study Report state, “*none of these locations have been surveyed; therefore, the USFWS will assume they are occupied for the purpose of section 7 consultation under the ESA.*” YCWA understands that USFWS is obligated to assume presence of CRLF in the absence of surveys. However, because USFWS will consider CRLF to be present in the vicinity of the Project regardless of survey results, it is unclear how additional information would be used to inform license requirements. YCWA also notes that Forest Service biologists on the PNF have been intermittently monitoring the two locations with historical observations of CRLF since the species was initially found, with additional monitoring of other locations within Critical Habitat Unit YUB-1 for the past 2 years, during which time there have been no CRLF sightings (M. Cisneros, pers. comm. 2013).

USFWS also cites two sources, Finkle (2012) and Fuller et al. (2010), stating these are “*for further consideration by the Commission of Project effects on CRLF from operations that support bullfrog habitat and dispersal.*” However, YCWA is perplexed by this choice of citations. Neither source is informative of possible Project effects on CRLF. Finkle’s paper is an undergraduate student class project report (Environmental Science 196, University of California, Berkeley), posted online on the university’s website, and does not meet the standards of a peer-reviewed, scientific publication. Finkle (2012) associated the presence of American bullfrogs with lower larval numbers of one native amphibian species (i.e., Pacific treefrog [now Sierran chorus frog, *Pseudacris sierra*]), with no significant effect on the other species, but he nonetheless made sweeping conclusions regarding the effects of bullfrogs. Although unpublished articles or anecdotal observations can be valid sources of information, few conclusions should be drawn from Finkle’s study because of substantial flaws, including the small number of study sites, insufficient sampling, incomplete data presentation, invalid statistical design (i.e., repeated samples and measurements at each pond treated as independent observations), and unsupported and inaccurate statements. Interestingly, Finkle’s visual surveys for CRLF consisted of two qualitative, daytime surveys per site between July and October, a methodology that would not be accepted by USFWS as evidence for absence of CRLF.

The other citation, Fuller et al. (2010), is a published scientific paper, but has limited application to the Project. The paper reports findings regarding the presence of American bullfrogs and native herpetofauna along the Trinity River floodplain in northwest California. The study found that American bullfrogs bred only in perennial aquatic habitats, all but one of which was unconnected to the Trinity River, and the majority of the sites with bullfrog breeding were highly modified habitats (i.e., dredge tailing ponds and disconnected side channels) and “*tended to have still, deep water habitat with rooted floating vegetation and open shoreline vegetation.*” In the Trinity River system, modified off-channel habitats happened to be located along the upper part of the river below Lewiston Dam. The study concluded that native amphibians would benefit most from management to make these modified, off-channel habitats less suitable for bullfrogs “*by decreasing depth or reducing hydroperiod and increasing connection with the active river channel.*” YCWA found nothing in this paper contradictory to its earlier response to USFWS comments on the Initial Study Report.

3.5 Recreation Use and Visitor Survey (Technical Memorandum 8-1)

The Forest Service states that YCWA and the Forest Service have been collaboratively working on some redlines to Technical Memorandum 8-1. YCWA agrees with this statement. The Forest Service does not contend that YCWA did not perform the study in conformance with the FERC-approved study or requests a modification to Study 6.2.

NPS provides one specific comment on Technical Memorandum 8-1 in its letter dated January 30, 2014 with the rest of the comments related to PM&E development and process, which YCWA does not reply to in this document. Most of NPS’ comments relate to a July 26, 2013 letter NPS filed with FERC. YCWA has addressed comments in both NPS comment letters in Table 3.5-1 below.

Table 3.5-1. YCWA’s responses to NPS’ non-study requests in the two letters NPS filed with FERC that provide comments on YCWA’s Technical Memorandum 8-1, Recreation Use and Visitor Survey.

Comment	Commenter & Reference Page in Comment Letter	YCWA’s Response
<i>“Little detail is offered in either the TMs or USRs relative to the future of the Project’s recreational water system. We feel that the condition of this system is central to the recreation facility rehabilitation measures described in the study reports”.</i>	NPS, January 30, 2014, p. 1-2	The study plan methods did not include an assessment of the underground water distribution system, but rather only of the above-ground elements of the system (e.g., water hydrants). However, in the technical memorandum, YCWA did include a statement that the water system facilities will need major rehabilitation in the near future (Section 3.1.9 of the technical memorandum).
<i>“We made clear in our previous comments that we feel that very little is currently known about dispersed recreation use on this project. USFS, NPS, and others made it clear during study plan development that we expected the visitor survey program to remedy that shortcoming. Unfortunately, due to limited visitation at the diversion dams and a fairly tepid response by survey respondents regarding dispersed recreation in general, we still lack a substantive view of dispersed recreational use on the Project.”</i>	NPS, July 26, 2013, p. 2	First, YCWA followed the collaboratively developed study methods in the FERC-approved study plan. Second, YCWA disagrees that “we still lack a substantive view of dispersed recreational use on the Project.” As part of the FERC-approved study plan, YCWA assessed the dispersed recreation use at both New Bullards Bar Reservoir (dispersed shoreline camping) and the Project diversion dams. At both areas, YCWA received visitor surveys and also conducted recreation use impact evaluations. YCWA believes the study results, including what the NPS references as “limited visitation at diversion dams” and “fairly tepid response by survey respondents regarding dispersed recreation in general” is an indication that dispersed recreation use is not significant outside of the dispersed shoreline camping use at New Bullards Bar Reservoir.
<i>“The Licensee did not collect the targeted number of surveys at the boat-in campsites or at dispersed sites. As previously noted, boat-in and dispersed sites were not surveyed. We would have liked a discussion based on observations of use on the shoreline or reservoir surface including type of predominant vessels, types of watercraft that were observed and unexpected (e.g., paddle boards, hobiecats, canoes), and whether or not flotation devices were found some distance away from the shoreline.”</i>	NPS, July 26, 2013, p. 2	First, YCWA did collect the targeted number of surveys at the boat-in campgrounds. However, if NPS is referring to the dispersed shoreline campers (by permit) along the shoreline, the study methods required YCWA to collect use information via surveys at the boat launch, which YCWA did. As a result, the surveys are not clearly identified as “dispersed shoreline campers” but YCWA was able to query the surveys to identify respondents who camped at dispersed shoreline campsites and also provided a summary of these results in Section 3.5.9 - <u>Dispersed Shoreline Campers at New Bullards Bar Reservoir</u> . Second, the FERC-approved study plan did not include a water surface observation component or a method to evaluate whether flotation devices were found away from the shoreline.

Table 3.5-1. (continued)

Comment	Commenter & Reference Page in Comment Letter	YCWA's Response
<p><i>"We noted previously that YCWA worked in concert with the USFS during study plan development in an effort to adopt mutually acceptable facility inventory and condition standards. The reported results of the inspection of project's recreation facilities in the TM indicated that most of the campground and day-use facilities were determined to be "good to excellent". (Table 3.1-8) We continue to feel that these condition ratings are overly generous. It seems that the baseline for the inspection results was facility condition, given their age. Again, it should be noted that most of these facilities (especially the restrooms) have received heavy use for <u>decades</u>, with a minimum of major maintenance and/or upgrading during that period. These facilities are outdated and, in many cases, out-of-code according to current standards. We feel that many of these facilities more appropriately fall into "fair" condition under USFS standards. Notably, the TM indicates that for overnight visitors "new facility improvements" focused on the condition of bathroom facilities. This should be addressed during preliminary Protection, Mitigation, and Enhancement (PM&E) discussions which are now ongoing."</i></p>	<p>NPS, July 26, 2013, p. 2</p>	<p>YCWA followed the facility condition rating methods in the FERC-approved study; and, spent a day in the field with Forest Service staff walking through these evaluations at Schoolhouse and Hornswoggle Group campgrounds. Second, the "overall facility condition ratings" summarized in the main text of Section 3.1 of the technical memorandum are summaries or averages of a large number of amenities found within each facility. YCWA notes that more detail is provided in two areas: 1) the sections and paragraphs preceding the "overall facility condition rating" section for each type of facility within Section 3.1; and 2) in Attachment 8-1C where the highly detailed, amenity-by-amenity inventory data is provided. These details are necessary for addressing rehabilitation and replacement in YCWA's proposed Recreation Facilities Plan. YCWA has and will continue to utilize the detailed condition evaluations of all the site elements and amenities (as is found in Attachment 8-1C) to identify facility needs and implementation timeframes, rather than an overall condition category.</p>

3.6 Visual Quality (Study 10.1)

The Forest Service did not request a specific modification to Study 10.1, *Visual Quality*. Instead, the Forest Service stated: *"we plan to provide specific comments with our DLA comments [on the tech memo for Study 10.1] in early March 2014."* (Page 2 of Attachment 1 to the Forest Service's January 30, 2014 letter.) YCWA looks forward to seeing the Forest Service comments and will address them appropriately in its FLA.

SECTION 4.0

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