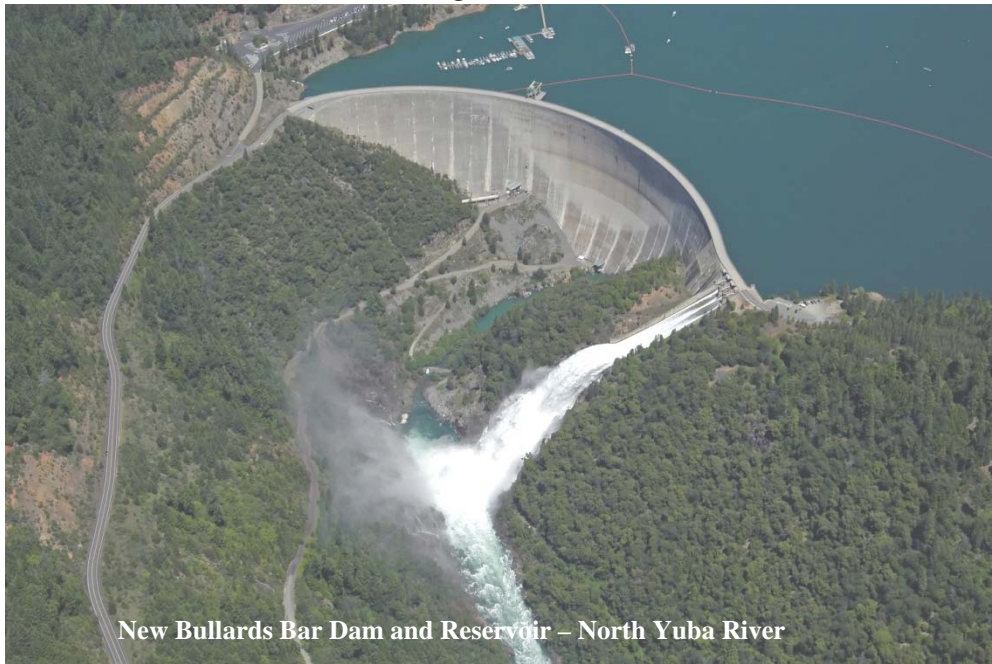


YUBA COUNTY WATER AGENCY

**Yuba River Development Project
FERC Project No. 2246**



**Response to Comments on Initial Study Report
and Initial Study Report Meeting Summary**

[SECURITY LEVEL: PUBLIC]

February 2013



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YUBA COUNTY WATER AGENCY

Yuba River Development Project
FERC Project No. 2246

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Initial Study Report Meeting Summary

[SECURITY LEVEL: PUBLIC]

February 2013



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RESPONSE TO COMMENTS ON INITIAL STUDY REPORT

EXECUTIVE SUMMARY

On December 3, 2012, the Yuba County Water Agency (YCWA) filed with the Federal Energy Regulatory Commission (FERC or Commission) an Initial Study Report in support of YCWA’s relicensing of its Yuba River Development Project, FERC Project Number 2246. On December 27, 2012, YCWA filed with FERC a summary of a December 12, 2012 Initial Study Report meeting. The Initial Study Report and Initial Study Report meeting summary described YCWA’s progress in performing 44 FERC-approved studies, proposed two study modifications and two new studies, and provided an updated schedule for the completion of studies.

Seven letters were filed with FERC in response to YCWA’s Initial Study Report and Initial Study Report meeting summary. The letters were from: 1) the United States Department of Agriculture, Forest Service (Forest Service); 2) the United States Department of Interior, National Park Service (NPS); 3) USDO, 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 (CDFW); and 7) the Foothills Water Network (FWN).

Collectively, the seven commenters requested modifications to 15 FERC-approved studies and at least eight new studies.¹ YCWA estimated that implementation of the 15 study modifications would cost between \$1,211,500 and \$1,779,000, and implementation of the eight new studies would cost between \$1,165,000 and \$2,352,000 for a combined total of between \$2,376,500 and \$4,131,000. Table ES-1 lists the requested study modifications and new studies by commenter.

Table ES-1. Summary of requests for modifications of FERC-approved studies and requests for new studies.

Study		Commenter ¹						
#	Name	Forest Service	NPS	USFWS	NMFS	SWRCB	CDFW	FWN
REQUEST FOR MODIFICATIONS TO FERC-APPROVED STUDIES								
1.1	Channel Morphology Upstream of Englebright Reservoir	X						
1.2	Channel Morphology Downstream of Englebright Dam				X			
2.1	Hydrologic Alteration	X			X			
2.2	Water Balance/Operations Model	X				X		
3.5	Special-Status Amphibians – Foothill-Yellow Legged Frog Modeling	X					X	
3.9	Non-ESA Listed Fish Populations Downstream of Englebright Dam			X				
3.11	Entrainment	X					X	X

¹ While YCWA treated NMFS’ request in its January 28, 2013 letter as a single new study request, for the reasons stated in Section 2.2.8.2.3, in actuality NMFS’ request could result in up to 43 new studies.

Table ES-1. (continued)

#	Study Name	Commenter ¹						
		Forest Service	NPS	USFWS	NMFS	SWRCB	CDFW	FWN
REQUEST FOR MODIFICATIONS TO FERC-APPROVED STUDIES (continued)								
6.1	Riparian Habitat Upstream of Englebright Reservoir	X			X			X
6.2	Riparian Habitat Downstream of Englebright Reservoir				X			X
7.2	Narrows 2 Powerhouse Extension				X			X
7.3	ESA-Listed Amphibians – California Red-legged Frog				X			
7.11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse				X			
8.1	Recreational Use and Visitor Surveys	X						
8.2	Recreation Flow					X		
9.1	Primary Project Roads and Trails	X	X					
<i>Requested Study Modifications</i>		8	1	1	7	2	2	4
Total		15						
REQUESTS FOR NEW STUDIES								
1	Mercury						X	
2	Mercury Transport and Speciation							X
3	American Peregrine Falcon Nesting	X						
4	Bullfrog Presence in FERC Project Boundary			X				
5	Narrows 2 Powerhouse Entrainment			X				
6	Analyze Rotary Screw Trap and Vaki Data Using Yuba River Index Water Year Types			X				
7	Engineering Structural Inspection of Slope Near Dark Day Boat Launch	X						
8	Project Effects on Anadromous Fish Habitat and Passage Upstream of Englebright Dam				X			
<i>Requested New Studies</i>		2	--	3	1	--	1	1
Total		8						

¹ Commenters who stated they supported another commenter's study request but did not provide any additional specific information other than what was provided by the commenter whose request it was supporting are not listed in Table 2.0-1, but are mentioned by study in Sections 2.1 and 2.2.

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

YCWA recommends that FERC adopt the modification to Study 8.2, *Recreation Flow*, requested by the Forest Service, NPS and FWN; YCWA's proposed modifications to Study 2.5, *Water Temperature Monitoring* and Study 7.11, *Fish Behavior and Hydraulics Near Narrows 2 Powerhouse*; and YCWA's proposed new Study 3.13, *Special-Status Amphibians – Focused 2013 Foothill Yellow-Legged Frog Surveys*, and Study 3.14, *Special-Status Turtles – Focused 2013 Western Pond Turtle Surveys*.² YCWA recommends that FERC not adopt the remaining

² YCWA's proposed modification to Study 2.5 and YCWA's proposed new Study 3.13 and 3.14 are included in YCWA's Initial Study Report. YCWA's proposed modification to Study 7.11 is included in YCWA's Initial Study Report meeting summary.

requested study modifications and new studies for the reasons described by YCWA in this document.

In addition, the seven comment letters provided non-study request comments on 25 of YCWA’s technical memoranda and performance of studies. Table ES-2 lists the comments by comment letter.

Table ES-2. Summary of comments on technical memorandum or performance of studies.

Study or Technical Memorandum		Commenter ¹						
#	Name	Forest Service	NPS	USFWS	NMFS	SWRCB	CDFW	FWN
1-1	Channel Morphology Upstream of Englebright Reservoir				X			
1-2	Channel Morphology Downstream of Englebright Dam				X			
2-1	Hydrologic Alteration	X						
2-2	Water Balance/Operations Model	X						X
2-5	Water Temperature Monitoring	X		X	X		X	X
3-1	Aquatic Macroinvertebrates Upstream of Englebright Reservoir	X					X	X
3-4	Special-Status Amphibians – Foothill Yellow-Legged Frog Surveys	X		X			X	
3-7	Reservoir Fish Populations	X					X	
3-8	Stream Fish Populations	X		X			X	X
3-9	Non-ESA Fish Populations Downstream of Englebright Dam			X				
3-11	Entrainment	X		X		X	X	X
3-12	New Colgate Powerhouse Ramping				X			
4-1	Special-Status Wildlife – California Wildlife Habitat Relationships	X						
5-1	Special-Status Plants	X						
6-1	Riparian Habitat Upstream of Englebright Reservoir	X						
6-2	Riparian Habitat Downstream of Englebright Dam							X
7-6	CESA-Listed and Fully Protected Wildlife – California Wildlife Habitat Relationships	X					X	
7-7	CESA-Listed and Fully Protected Wildlife – Bald Eagle	X		X			X	
7-8	ESA and CESA-Listed Salmonids Downstream of Englebright Dam			X	X			
7-9	Green Sturgeon Downstream of Englebright Dam				X		X	
7-10	Instream Flow Downstream of Englebright Dam			X				
7-11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse				X			
8-1	Recreational Use and Visitor Surveys	X	X					
8-2	Recreation Flow	X	X					X
12-1	Historic Properties	X						
<i>Non-Study Requests by Commenter</i>		16	2	8	7	1	9	7
Total		25						

YCWA replied specifically to each comment in Section 3 of this document.

Commenters did not provide any specific study requests or comments on the following 15 FERC-approved studies, though they may have stated they reserve their right to comment at a later time:

- Studies YCWA Considers Complete:
 - Study 2.3, Water Quality
 - Study 2.4, Bioaccumulation
 - Study 3.2, Aquatic Macroinvertebrates Downstream of Englebright Dam
 - Study 3.3, Special-Status Mollusks
 - Study 3-6, Special-Status Turtles – Western Pond Turtle
 - Study 4.2, Special-Status Wildlife - Bats
 - Study 6.3, Wetlands
 - Study 7.1, ESA-Listed Plants
 - Study 7.4, ESA-Listed Wildlife – Valley Elderberry Longhorn Beetle
 - Study 7.5, CESA-Listed Plants
 - Study 10.1, Visual Quality
 - Study 13.1, Native American Traditional Cultural Properties
- Studies YCWA Considers in Progress:
 - Study 2.6, Water Temperature Model
 - Study 3.10, Instream Flow Study Upstream of Englebright Reservoir
 - Study 7.12, Evaluation of Project Effects on Daguerre Point Dam Fish Facilities

Table ES-3 provides a revised schedule for completion of all relicensing studies that are recommended by YCWA or in progress.

Table ES-3. Studies in progress and the date, in chronological order, that YCWA expects each study will be complete.

Study Number	Study Name	Date of Scheduled Study-specific Consultation, If Required by FERC-approved Study	Date YCWA Forecasts the Study Will be Complete
STUDY MODIFICATIONS AND NEW STUDIES RECOMMENDED BY YCWA			
2.5	Water Temperature Monitoring	July 23, 2013	August 31, 2013 ¹
8.2	Recreational Flow	July 23, 2013	September 30, 2013 ³
3.13	Special-Status Amphibians – Focused 2013 Foothill Yellow-Legged Frog Surveys	None Required	October 31, 2013
3.14	Special-Status Turtles – Focused 2013 Western Pond Turtle Surveys	None Required	November 30, 2013
7.11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse	None Required	November 30, 2013 ¹

Table ES-3. (continued)

Study Number	Study Name	Date of Scheduled Study-specific Consultation, If Required by FERC-approved Study	Date YCWA Forecasts the Study Will be Complete
FERC-APPROVED IN PROGRESS STUDIES			
2.6	Water Temperature Model	No Additional Consultation Required	March 31, 2013 ¹
8.1	Recreation Use and Visitor Surveys	None Required	March 31, 2013 ²
7.12	Project Effects on Fish Facilities Associated with Daguerre Point Dam	March 11, 2013	March 31, 2013 ¹
1.1	Channel Morphology Upstream of Englebright Reservoir	No Additional Consultation Required	April 15, 2013 ¹
3.10	Instream Flow Upstream of Englebright Reservoir	Anticipated to Occur in March 2013	April 15, 2013 ¹
7.8	ESA/CESA-Listed Salmonids Downstream of Englebright Dam	March 11, 2013	April, 30, 2013 ¹
7.9	Green Sturgeon Downstream of Englebright Dam	March 11, 2013	April, 30, 2013 ¹
7.10	Instream Flow Downstream of Englebright Dam	March 11, 2013	April, 30, 2013 ¹
12.1	Historic Properties	March 15, 2013 – April 15, 2013	April, 30, 2013 ¹
6.1	Riparian Habitat Upstream of Englebright Reservoir	Anticipated to Occur in Early May 2013	May 30, 2013 ¹
6.2	Riparian Habitat Downstream of Englebright Dam	Anticipated to Occur in May 2013	August 31, 2013 ²
3.5	Special-Status Amphibians – Foothill Yellow-Legged Frog Habitat Modeling	Anticipated to Occur in June, July and August 2013	September 30, 2013 ²
3.8	Stream Fish Populations Upstream of Englebright Reservoir	None Required	September 30, 2013 ²
7.2	Narrows 2 Powerhouse Intake Extension	March 11, 2013	September 30, 2013 ²
3.11	Entrainment	None Required	October 31, 2013 ²
Total			20

¹ This date is later than the completion date in the FERC-approved study.

² This date is the same as the completion date in the FERC-approved study.

³ Assuming all information regarding the whitewater boating reach downstream of Our House Diversion Dam is obtained opportunistically in 2013; otherwise, a controlled whitewater boating flow may be needed in spring 2014.

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SECTION 1

INTRODUCTION

In accordance with 18 CFR § 5.15(c)(5) of the Federal Energy Regulatory Commission's (FERC or Commission) regulations, the Yuba County Water Agency (YCWA) provides this response to comments on YCWA's Initial Study Report and Initial Study Report meeting summary for 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 CFR 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

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, 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 2,049 feet (ft) to 280 ft.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 2
- 7 recreation areas - Emerald Cove Marina and Day Use Area, Hornswoggle Group Camp, Schoolhouse Family Camp, Dark Day Campground, Dark Day Boat Ramp, Garden Point Campground, and Madrone Cove Campground, all of which are located at New Bullards Bar Reservoir
- Associated stream flow and reservoir gages
- Associated streamflow gages and roads

The Project does not include any aboveground water conduits (e.g., canals or flumes) or transmission lines.^{5,6} 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.

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

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 Exhibits 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 1983 (NAVD 83).

⁵ 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.

⁶ 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.

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.⁷

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 PG&E's dispatching 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.

New Colgate and New Bullards Minimum Flow powerhouses, part of the existing Project release water to the federally-owned Englebright Reservoir, which is located on the Yuba River near the City of Marysville and managed by the USACE. 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, utilize water stored in Englebright Reservoir, but 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 does not pass through the dam).⁸

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 detailed fisheries monitoring and evaluation program; 2) the Water Purchase Agreement, under which the California Department of Water Resources (CDWR) purchases water, some of which is provided by the Yuba Accord's minimum

⁷ The USACE contributed \$12 million to the construction of New Bullards Bar Dam in exchange for flood control space the reservoir would provide.

⁸ Englebright Dam, which is about 260 ft 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 acre-feet (ac-ft); however, due to sediment capture, the gross storage capacity today is approximately 50,000 ac-ft (USGS 2003).

streamflows, from YCWA for CALFED's Environmental Water Account⁹ 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.¹⁰

The Yuba Accord was developed by a multi-agency resource team, including representatives from United States Department of Interior, 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 Game (CDFG); and a group of non-governmental organizations (NGO) consisting of American Rivers, the South Yuba River Citizens League, The Bay Institute, and Trout Unlimited.

The Yuba Accord flow schedules were developed to essentially optimize fisheries habitat conditions during a majority¹¹ 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. 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, USFWS, NMFS, CDFG, PG&E, CDWR, South Yuba River Citizens League (SYRCL), Trout Unlimited, Friends of the River, and The Bay Institute - all of whom are signatories to the Lower Yuba River Fisheries Agreement. 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 (M&E) Program 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, specific monitoring and study activities, and restoration actions.

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

⁹ The purchase of water through the Yuba Accord Water Purchase Agreement was the first long-term acquisition of water by the CDWR that protects San Francisco Bay/Delta fish and wildlife.

¹⁰ 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.

¹¹ The Yuba Accord establishes minimum streamflows in the Yuba River downstream of Englebright Dam for six water year types ranging from wet water years (Schedule 1) to dry water years (Schedule 6). Conferences with agencies are scheduled in very dry years to set minimum streamflows. Water years in Schedule 1 and 2 were designed to optimize fisheries habitat and are expected to occur approximately 78 percent of the time.

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 provides data upon request to various other study efforts including those of RMT member entities. The RMT routinely presents annual symposia open to the public, 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 CDFG monitoring programs, and research projects based at UC Davis, University of South Carolina, State University of New York, and the University of Idaho.

The results of the ongoing RMT Protocols 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.

The RMT is compiling an Interim Monitoring and Evaluation (M&E) Report that is expected to be available in March 2013. The Interim M&E Report will summarize, synthesize and present results of the first 6 years of the RMT's studies.

YCWA has been operating the Project in conformance with the Yuba Accord since 2006.¹² On May 20, 2008, the SWRCB adopted its Corrected Order WR 2008-0014, which approved long-term amendments to YCWA's water-right permits that were necessary so that YCWA may continue to implement the Yuba Accord.

1.3 Initial Study Report and Initial Study Report Meeting Summary

The Initial Study Report, which was filed by YCWA with the FERC on December 3, 2012, 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.¹³ The report covered the period from initiation of the various relicensing studies through November 30, 2012, 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 to the FERC-approved study.

YCWA held an Initial Study Report meeting on December 12, 2012 and filed with FERC an Initial Study Report meeting summary on December 27, 2012. The meeting summary stated that YCWA had completed 26 of the 44 FERC-approved studies. For each of these studies, a final technical memorandum, which included the study goals and objectives, methods, results, discussion and any variances to the FERC-approved study, was posted to YCWA's Relicensing Website (www.ycwa-relicensing.com).

YCWA's Initial Study Report meeting summary stated the remaining 18 FERC-approved studies were in progress. For each of these studies, YCWA posted to the Relicensing Website an interim technical memorandum that provided key findings and any variances to the FERC-approved study through November 30, 2012. Ten of the in-progress studies are on schedule, and eight of the in-progress studies are expected to be completed later than the date anticipated in the FERC-approved study. For each of the latter studies, YCWA explained why the expected completion date was later than that in the FERC-approved study, and when YCWA expected the study would be completed.

In addition, in the Initial Study Report and Initial Study Report meeting summary YCWA proposed modifications to two ongoing studies. For Study 2.5, *Water Temperature Monitoring*, YCWA proposed to extend continuous water temperature monitoring through July 2013 at four locations where margin water temperature monitors were installed in July 2012. For Study 7-11, *Fish Behavior and Hydraulics Near Narrows 2 Powerhouse*, YCWA proposed to monitor fish using a DIDSON™ sonar device during operational changes in 2013 at Narrows 2 Powerhouse

¹² The 2006, 2007, and early 2008 operations were under 1-year pilot programs that were approved by the SWRCB.

¹³ 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.

(i.e., essentially the same scope of work for 2012 that was included in the FERC-approved study).

YCWA also proposed two new studies. YCWA’s proposed new Study 3.13, *Special-Status Amphibians – Focused 2013 Foothill Yellow-Legged Frog Surveys*, would require YCWA to perform five additional visual encounter surveys for foothill yellow-legged frog (FYLF). YCWA’s proposed new Study 3.14, *Special-Status Turtles – Focused 2013 Western Pond Turtle Surveys*, would require YCWA to conduct two additional surveys for western pond turtle (WPT).

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

Seven letters, which provided comments on YCWA’s Initial Study Report and Initial Study Report meeting summary, were filed with the FERC by the filing date deadline of January 28, 2013. Table 1.4-1 lists each 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
United States Department of Interior, National Park Service (NPS)	January 25, 2013	January 25, 2013 ¹
United States Department of Agriculture, Forest Service (Forest Service)	January 25, 2013	January 28, 2013
State Water Resources Control Board (SWRCB)	January 25, 2011	January 28, 2013
Foothills Water Network (FWN) ²	January 27, 2013	January 28, 2013
United States Department of Commerce, National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NMFS)	January 28, 2013 ³	January 28, 2013
United States Department of Interior, Fish and Wildlife Service (USFWS)	January 28, 2013	January 28, 2013
California Department of Fish and Wildlife (CDFW) ⁴	January 28, 2013	January 28, 2013
Total		7

¹ The NPS’ letter was initially filed with FERC on December 27, 2012 and refilled without modification, including the date of the letter, on January 25, 2013.

² Individual stakeholders that signed FWN’s January 27, 2013 letter included FWN, California Sportfishing Protection Alliance, Trout Unlimited, American Whitewater, American Rivers, South Yuba River Citizens League, Sierra Club (Mother Lode Chapter), and Northern California Federation of Fly Fishers.

³ In a letter dated and filed with FERC on February 14, 2013, the NMFS filed errata to its January 28, 2013 letter.

⁴ Individual stakeholders that signed FWN’s January 27, 2013 letter included FWN, California Sportfishing Protection Alliance, Trout Unlimited, American Whitewater, American Rivers, South Yuba River Citizens League, Sierra Club (Mother Lode Chapter), and Northern California Federation of Fly Fishers.

YCWA would like to express its appreciation to Relicensing Participants for taking the time and effort to review the Initial Study Report, the meeting summary, and the 44 technical memoranda posted by YCWA to the Relicensing Website, and for attending over 100 relicensing meetings to date.

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

- Study Requests. These comments requested significant modifications to existing FERC-approved studies or new studies.¹⁴ In some cases, study requests were clearly called out in the comment letters, while in others the requests may have been less clearly identified.
- Non-Study Requests. These comments encompassed a broad range of items, including requested changes to final and interim technical memorandum or performance of studies.

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

Section 2 provides YCWA's responses to study requests, and Section 3 provides YCWA's responses to non-study requests.

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.

1.5 Content of This Document

This document provides YCWA's responses to comments made on the Initial Study Report and Initial 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 requests for modifications to ongoing studies or for new studies.
- Section 3. Responses to Non-Study Requests. This section provides YCWA's responses to non-study requests.
- Section 4. Schedule for Completion of In-Progress Studies. This section provides YCWA's updated schedule for completion of studies that are in progress.
- Section 5. References Cited. This section includes a list of references cited in this document.

¹⁴ In this document, requests for modifications to ongoing FERC-approved studies and requests for new studies are collectively referred to as "study requests."

SECTION 2

RESPONSE TO STUDY REQUESTS

YCWA’s review of the seven letters filed with FERC in response to YCWA’s Initial Study Report and Initial Study Report meeting summary found that, combined, the letters requested modifications to 15 FERC-approved studies and requested at least eight¹⁵ new studies, three of which had been previously requested and not adopted by YCWA or ordered by FERC. Table 2.0-1 lists the commenters that requested study modifications and new studies.

Table 2.0-1. Summary of requests for modifications of FERC-approved studies or requests for new studies by comment letter.

Study		Commenter ¹						
#	Name	Forest Service	NPS	USFWS	NMFS	SWRCB	CDFW	FWN
REQUESTS FOR MODIFICATIONS TO FERC-APPROVED STUDIES								
1.1	Channel Morphology Upstream of Englebright Reservoir ²	X						
1.2	Channel Morphology Downstream of Englebright Dam ³				X			
2.1	Hydrologic Alteration ³	X			X			
2.2	Water Balance/Operations Model ³	X				X		
3.5	Special-Status Amphibians – Foothill-Yellow Legged Frog Modeling ²	X					X	
3.9	Non-ESA Listed Fish Populations Downstream of Englebright Dam ³			X				
3.11	Entrainment ²	X					X	X
6.1	Riparian Habitat Upstream of Englebright Reservoir ²	X			X			X
6.2	Riparian Habitat Downstream of Englebright Reservoir ²				X			X
7.2	Narrows 2 Powerhouse Extension ²				X			X
7.3	ESA-Listed Amphibians – California Red-legged Frog ³				X			
7.11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse ²				X			
8.1	Recreational Use and Visitor Surveys ²	X						
8.2	Recreation Flow ²					X		
9.1	Primary Project Roads and Trails ³	X	X					
	<i>FERC-approved Studies for which Modifications Are Requested</i>	8	1	1	7	2	2	4
	Total				15			

¹⁵ While YCWA treated NMFS’ request for a Project Effects on Anadromous Fish Habitat and Passage Upstream of Englebright Dam Study in its January 28, 2013 letter as a single new study request, for the reasons stated in Section 2.2.8.2.3, in actuality NMFS’ request could result in up to 43 new studies.

Table 2.0-1. (continued)

Study		Commenter ¹						
#	Name	Forest Service	NPS	USFWS	NMFS	SWRCB	CDFW	FWN
REQUESTS FOR NEW STUDIES								
1	Mercury						X	
2	Mercury Transport and Speciation ⁴							X
3	American Peregrine Falcon Nesting	X						
4	Bullfrog Presence in FERC Project Boundary			X				
5	Narrows 2 Powerhouse Entrainment ⁴			X				
6	Analyze Rotary Screw Trap and Vaki Data Using Yuba River Index Water Year Types			X				
7	Engineering Structural Inspection of Slope Near Dark Day Boat Launch	X						
8	Project Effects on Anadromous Fish Habitat and Passage Upstream of Englebright Dam ^{4,5}				X			
<i>Requested New Studies</i>		2	--	5	1	1	1	1
Total		8						

¹ Commenters who stated they supported another commenter’s study request(s) but did not provide any additional specific information other than what was provided by the commenter whose request it was supporting are not listed in Table 2.0-1, but are mentioned by study in Sections 2.1 and 2.2.

² YCWA stated in its Initial Study Report meeting summary that it considered this study to be in progress.

³ YCWA stated in its Initial Study Report meeting summary that it considered this study to be complete.

⁴ This “new ‘study’” was previously requested during the study development phase and not adopted by YCWA or ordered by FERC.

⁵ While YCWA treated NMFS’ request in its January 28, 2013 letter as a single new study request, for the reasons stated in Section 2.2.8.2.3, in actuality NMFS’ request could result in up to 43 new studies.

2.1 Requests for Modifications to Existing Studies

This section provides YCWA’s responses to requested modifications to FERC-approved studies.

YCWA organized each of its responses to address the two criteria identified by FERC at 18 CFR § 5.15(d) that must be addressed when a party requests a modification to a FERC-approved study. For reference, § 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 Section¹⁶ 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:

¹⁶ Section C1-4 of 18 CFR § 5.15 deals with the Initial Study Report (ISR), applicant’s ISR meeting, applicant’s filing of an ISR meeting summary, and Relicensing Participants and Commission staff’s filing disagreements regarding applicant’s ISR meeting summary.

- (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 Channel Morphology Upstream of Englebright Reservoir (Study 1.1)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of April 15, 2013.

2.1.1.1 Description of Request

The Forest Service requested the following modification to the FERC-approved Study 1.1, *Channel Morphology Upstream of Englebright Dam*:

The Forest Service would like to see the sediment transport analysis consider the effects of the change in the 1.5 to 5 year flow events on Oregon Creek and the Middle Yuba River below the diversion that were discussed in the Hydrologic Alteration Tech Memo (Study 2.1). (pp. 1 and 2 of Attachment 1 to Forest Service's January 25, 2013 letter.)

While the Forest Service included this request under "*Response to Initial Study Report and Comments on Technical Memorandum and/or Data Provided*" in its letter, YCWA considers this a requested study modification since the analysis is not required by the FERC-approved study.

The Forest Service did not specify the method, level of effort, or cost to perform the requested analysis. YCWA estimates the cost to perform the requested study modification is between \$1,000 and \$3,000.

2.1.1.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.1.2.1 Criterion 1 – Conformance to FERC-Approved Study

The Forest Service did not state that it based its request on the fact that the study was not conducted as provided for in the FERC-approved study plan. The study has been conducted in conformance to the FERC-approved study.

2.1.1.2.2 Criterion 2 – Anomalous Conditions

The Forest Service did not base its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

2.1.1.2.3 Other Showings of Good Cause

YCWA could not find in the Forest Service's letter any demonstration of good cause to justify its proposed study modification. Therefore, YCWA cannot address the Forest Service's reasoning for why the requested modification is needed (i.e., how the information developed by the requested modification would inform license requirements).

YCWA notes that data for the analyses requested by the Forest Service are available and part of the graph of discharge in cubic feet per second (cfs) versus sediment transport in tons per day as output from the Bedload Assessment for Gravel-Bed Streams (BAGS) sediment transport model used for the analysis. A draft of the output from the BAGS model was made available to Relicensing Participants on January 16, 2013, and discussed during a meeting with Relicensing Participants on January 30, 2013. The final output of the BAGS model will be included in the final technical memorandum. Synthesized flow return frequency was developed as part of Study 2.1, *Hydrologic Alterations*, and will be included in the final technical memorandum for Study 1.1.

2.1.1.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the Forest Service's requested modification to Study 1.1.

2.1.2 Channel Morphology Downstream of Englebright Dam (Study 1.2)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as complete.

2.1.2.1 Description of Requests

The NMFS requested the following modification to the FERC-approved Study 1.1:

NMFS proposes modifications to Tables 3.6-3, 3.6-4, 3.6-5, and Figures 3.6-1 and 3.6-2 to separate LWM survey results within the bankfull channel from those outside (i.e., floodway and valley width). (p. 2 of Enclosure A to NMFS' January 28, 2013 letter.)

The NMFS did not specify the method, level of effort, or cost to perform the requested study modification. The requested modification involves more than simply changing tables and

figures, but would require additional analysis and potentially data gathering. YCWA estimates the cost to perform the requested study modification is between \$45,000 and \$55,000.

2.1.2.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.2.2.1 Criterion 1 – Conformance to FERC-Approved Study

NMFS based its request on the claim that YCWA did not perform the study as approved in three specific areas. First, NMFS stated that the FERC-approved study plan identified the lateral boundary of the Large Woody Material (LWM) survey areas as bankfull (i.e., estimated at 5,000 cfs), while YCWA surveyed LWM to the valley walls. YCWA does not believe this is a variance to the FERC-approved study because the surveys were inclusive of the bankfull and floodways. Tables 3.6-1 and 3.6-2, and Attachment 1-2Q of the technical memorandum describe the location of the LWM both laterally and longitudinally in the channel, and Key Pieces of LWM are individually located and mapped (Attachment 1-2Q). YCWA believes that this information was collected in accordance with the FERC-approved study and provided the data necessary to inform license conditions.

Second, the NMFS stated that the FERC-approved study required YCWA to break down Key Pieces of LWM by species, or at least by conifer vs. hardwood, and YCWA did not do so. This information was collected during survey efforts and will be added to Table 3.6-7 of Technical Memorandum 1-2, *Channel Morphology Downstream of Englebright Dam*.

Third, NMFS stated that YCWA included in Key Pieces of LWM three pieces of LWM that did not meet the LWM size criteria. YCWA will correct and edit the information in Table 3.6-7 of the technical memorandum to show that pieces #1498, #1285 and #115 met the size criteria.

2.1.2.2.2 Criterion 2 – Anomalous Conditions

The NMFS did not base its request on anomalous conditions or that conditions have changed. The study was performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

2.1.2.2.3 Other Showings of Good Cause

NMFS claims that its proposed study modifications are necessary to properly understand the characteristics and caliber of LWM within the active channel and to compare lower Yuba River LWM data to other regional LWM studies to help develop potential Protection, Mitigation and Enhancement (PM&Es) (p. 2 of Enclosure A of NMFS' January 28, 2013 letter). It is unclear to YCWA why additional data or alternative breakdowns of results presented are necessary to develop PM&Es. Tables 3.6-1 and 3.6-2, and Attachment 1-2Q in the technical memorandum describe the location of the LWM both laterally and longitudinally in the channel, Key Pieces of

LWM are individually located and mapped (Attachment 1-2Q), and a qualitative description of the LWM distribution is included in the technical memorandum. Surveys indicated that 93 percent of the LWM data is outside of bankfull and the majority of what is in bankfull is trapped at the base of willow stands or is accumulated in piles with smaller woody material against willows. YCWA believes that this information is adequate to inform license requirements.

2.1.2.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the NMFS' requested modification to Study 1.2.

YCWA will correct Table 3.6-7 in Technical Memorandum 1-2, *Channel Morphology Downstream of Englebright Dam*, and reissue the technical memorandum by March 8, 2012.

2.1.3 Hydrologic Alteration (Study 2.1)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as complete.

2.1.3.1 Description of Request

The Forest Service requested the following modification to the FERC-approved Study 2.1, *Hydrologic Alteration*:

An analysis of the ramping rates (with and without project) for the flow levels equal to and below the 2-year flow events for these two sites [reaches below Oregon Creek and Middle Yuba diversions] would be useful to determine if the current operations allow for natural sediment transport and deposition pattern below these two diversions. (p. 2 of Attachment 1 to Forest Service's January 25, 2013 letter.)

While the Forest Service included this request under "*Comments on Technical Memorandum and/or Data Provided*," YCWA considers this a requested study modification since the analysis is not required by the FERC-approved study.

The Forest Service did not specify the method, level of effort, or cost to perform the requested analysis. YCWA estimates the cost to perform the requested study modification is between \$4,500 and \$7,500.

The NMFS requested the following modifications to Study 2.1:

The study plan should be modified to include rationale for determining the high and low pulse-flow events. (p. 3 of Enclosure A to NMFS' January 28, 2013 letter.)

NMFS proposes modifications to more accurately depict the LPIII analysis in section 3.4., by limiting the analysis at 50 or 100-year return interval flood events and including a Weibull plotting positions of all the observed flood data in the figures. (p. 3 of Enclosure A to NMFS' January 28, 2013 letter.)

NMFS recommends a study modification to set the threshold for season floods as the 30-day maximum flow for all water year types under without-Project hydrologic conditions (this value represents an average of the 30-day maximum flow for each year of record from WY 1970 to 2010). (p. 3 of Enclosure A to NMFS' January 28, 2013 letter.)

NMFS proposes a modification to the Study Plan to include annual statistics of seasonal floods (i.e., number of events, minimum, maximum, and average flood flow) as well as summary statistics. (p. 3 of Enclosure A to NMFS' January 28, 2013 letter.)

NMFS proposes a study modification to include these results [comparison of without—Project and with-Project used by YCWA to conclude that the Project results in lower peak flows] from actual historic data of pre- and post-Project hydrology data (i.e., using data from the periods use in the LPIII peak flow analysis at Smartsville and Marysville)... (pp. 3 & 4 of Enclosure A to NMFS' January 28, 2013 letter.)

NMFS proposes a study modification to the Study Plan that implements the Study Plan as originally approved by FERC to calculate: 1) the Julian data of the peak snowmelt period (if the same peak is maintained for multiple days, then the latest peak should be selected); 2) the duration of the snowmelt period (number of days from peak to baseflow) for both with and without-Project hydrology. (p. 6 of Enclosure A to NMFS' January 28, 2013 letter.)

NMFS proposes a modification to the Study Plan to include annual statistics of the snowmelt recession (i.e., Julian date of peak, duration of snowmelt, and recession rate), as well as summary statistics. (p. 6 of Enclosure A to NMFS' January 28, 2013 letter.)

The NMFS did not specify the level of effort or cost to perform the requested modifications. YCWA estimates the cost to perform the requested study modification is between \$11,000 and \$14,000.

2.1.3.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.3.2.1 Criterion 1 – Conformance to FERC-Approved Study

The Forest Service did not base its request on the claim that the study was not conducted as provided for in the FERC-approved study plan. Therefore, a response to the Forest Service's study modification regarding this criterion is not necessary.

On pages 3 through 5 of Enclosure A to NMFS' January 28, 2013 letter, the NMFS claims that YCWA did not conduct all of the analyses described in the FERC-approved study. Specifically, the NMFS disagreed with YCWA's methodology for selecting flood-defining thresholds in the seasonal flood frequency analysis. The FERC-approved study states, "*Flood peaks, as defined as significant storm or spring runoff events, will be characterized for three time periods, the fall, winter and spring seasons.*" No additional information is provided regarding how "*significant storm or spring runoff events*" were to be defined. YCWA's definition of what constituted a flood peak was based on a practical definition of a flood event from the perspective of the Project. The existing thresholds were selected based on minimum flow requirements below the two sites due to the operational nature of Our House and Log Cabin diversion dams; each of the dams only makes releases for the requirement -- any flow above the requirement, by design, would constitute an uncontrolled flood event and would only occur during high flow conditions. Rather than strictly limiting the analysis to all flows above the requirement, a buffer was built into each to eliminate relatively low flow events, yet capture all uncontrolled events. Using a different threshold for with-and without-Project flows would make comparison between the two scenarios less meaningful. Using the 30-day maximum flows as indicated in the NMFS comment would mute the effects of the Project on flood events.

On page 6 of Enclosure A to NMFS' January 28, 2013 letter, the NMFS claims that YCWA did not complete the study since it did not present the Julian date of peak snowmelt and the duration of snowmelt for the with-Project condition, but instead YCWA only presented that information for the without-Project condition. Additionally, the NMFS claims YCWA did not provide data regarding snowmelt recession according to the intent of NMFS' request for data and analysis of the effect of the Project on snowmelt recession on an annual basis. The FERC-approved Study Plan states:

For the snowmelt season the median of the Julian calendar date of the peak and an approximation of the seasonal duration of the snowmelt runoff season will be determined.

The average rate of change in flow during the snowmelt recession in cfs per day will be determined for the two hydrologic data sets as the average change in the flow rate on successive days within a defined time period of the start and end of the spring snowmelt recession for each year.

The NMFS does not describe what part of the FERC-approved study directs YCWA to compute the Julian date of the peak and an approximation of the seasonal duration of the snowmelt runoff season for the two hydrologic data sets; this characterization is only specified in regards to the computation of the average rate of change in flow during the snowmelt recession period.

Additionally, NMFS' assertion that the date and duration of snowmelt runoff should be computed for the with-Project condition ignores the fact that the Project does not affect the start date or end date of snowmelt runoff. Snowmelt is a natural phenomenon that generally occurs at higher elevations than Project facilities. The Project can, however, affect the average rate of change of flow below Project facilities during the snowmelt season.

NMFS is correct in assuming YCWA computed the peak flow and duration of each year's snowmelt season under the with-Project conditions and used that information to determine the rate of change of flow. However, that information was not included in the main body of the technical memorandum since the information is available in Attachment 2-1A for interested parties.

NMFS' additional claim that YCWA was required to provide annual statistics for the Project's effect on snowmelt recession is not supported by the FERC-approved study. Nowhere in the FERC-approved study is YCWA instructed to provide annual information regarding the Project's effects on snowmelt recession. Instead, the study directs YCWA to provide information about "*the average rate of change*," "*the median of the Julian date*" and "*an approximation of the seasonal duration*" for the snowmelt recession season.

As described above, the stated purpose of the Hydrologic Alteration Study is to "*characterize various metrics of hydrologic alteration due to Project O&M [Operations and Maintenance]*," not to characterize the effects of the Project for a specific year or season. NMFS' request to evaluate individually the Project's effects on snowmelt recession would only serve to characterize the unique hydrology of each individual year rather than characterizing the overall Project's effects. NMFS' request to evaluate annual statistics of snowmelt would only serve to characterize the unique hydrology of each historical year, which, individually are not likely to occur in the future exactly as in the historical record. An appropriate evaluation of historical data is, instead, to look at trends and long-term patterns, as was the intent of the FERC-approved study. For reference, annual information used to develop the analysis presented in the technical memorandum was included in Attachment 2-1A.

2.1.3.2.2 Criterion 2 – Anomalous Conditions

Neither the Forest Service nor NMFS based its request on anomalous conditions nor conditions that have significantly changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study. Therefore, a response regarding this criterion is not necessary.

2.1.3.2.3 Other Showings of Good Cause

On Page 2 of Attachment 1 to the Forest Service's January 25, 2013 letter, the Forest Service bases its request for study modification on the claim that "*a more complete analysis of when (what seasons) and by how much the flows are altered will be important for developing protection, mitigation and enhancement measures.*" YCWA believes that, while the discussion of Middle Yuba River and Oregon Creek flows is relatively brief compared to the discussion about Project effects on other river reaches, the study provides more than adequate information

in Sections 3.3.1, 3.3.2, 3.3.6, and 3.3.7 to characterize when and by how much flows are altered by the Project on the Middle Yuba River and Oregon Creek. For example, Tables 3.3-1 and 3.3-6 show with-Project and without-Project flows for both diversion reaches by month and also by Water Year Type.

On page 2 of Attachment 1 to Forest Service's January 25, 2013 letter, the Forest Service asserts its requested study modification regarding ramping rates is needed "...to determine if the current operations allow for natural sediment transport and deposition pattern below these two [Our House and Log Cabin] diversions." Evaluation of ramping rates for flow levels equal to and below the 2-year flow event level would not be useful for evaluating natural sediment transport and deposition patterns. These geomorphic effects are influenced by flow and duration, rather than ramping rates, and are discussed in Technical Memorandum 1-1, *Channel Morphology Above Englebright Dam*.¹⁷

On page 3 of Enclosure A to NMFS' January 28, 2013 letter, the NMFS asserts that no rationale or methodology was described for the determination of high and low pulse-flow events. NMFS would like the study to be modified to include the rationale and methodology for determining the high and low pulse-flow values. Page 5 of the technical memorandum clearly indicates the high and low pulse-flow events were determined using the Indicators of Hydrologic Alteration (IHA), Version 7.1 software specified in the Study Plan. The software selects the high and low pulse-flows based on its programming, and the model documentation describes the approach used to determine the high and low pulse-flows. It is unreasonable to expect YCWA to restate every assumption used by the IHA software to perform its analyses; the fact that YCWA does not restate the assumptions does not affect the use of this data.

On page 3 of Enclosure A to NMFS' January 28, 2013 letter, NMFS requests YCWA to re-do the flood frequency analysis by limiting the analysis to a 50- or 100-year return interval flood event due to the extrapolated nature of flood events greater than 100-year return period, and to include the Weibull plotting positions of observed data to demonstrate how well the extrapolated curves of flood frequency data fit the observed data. It is unnecessary and directly contradictory to the FERC-approved study to limit the analysis to flood events of less than a 100-year return period. Page 8 of the study specifically required reporting standard recurrence interval flows, "including 1.5, 2, 2.33, 5, 10, 25, 50, 100, 200, and 500 years." Each of the figures in Section 3.4.1 is accompanied by a table, providing NMFS with numerical values corresponding to the return periods indicated and shown in the figure. If NMFS wishes to ascertain the effect of the Project on return periods of less than 100 years, limiting the presentation of data to less-than-100-year-return period flood events will not change the computed values for those return periods. Additionally, providing Weibull plotting positions would not change the results of the study -- determining the effect of the Project on flood frequencies. The plots would merely provide an illustration of the historical flow distribution.

¹⁷ Changes in sediment transport capacity and sediment availability and current channel sediment storage will be discussed in the final Technical Memorandum 1.1, *Channel Morphology Upstream of Englebright Reservoir*, as required by that FERC-approved study.

On page 5 of Enclosure A to NMFS' January 28, 2013 letter, NMFS asserts the original intent of its request for information on seasonal floods was to evaluate the change in seasonal floods on an annual basis in addition to summary statistics to assess how seasonal floods changed year in and year out and under various hydrologic conditions. The NMFS requests the study be modified to provide annual statistics of seasonal floods in addition to the summary statistics. An evaluation of individual annual seasonal flood events would only serve to characterize the unique hydrology of each individual year and would be contrary to the purpose of the study. The stated purpose of the Hydrologic Alteration Study is to "*characterize various metrics of hydrologic alteration due to Project O&M,*" not to characterize the specific effects of the project for a specific year or season.

On page 5 of Enclosure A to NMFS' January 28, 2013 letter, the NMFS requests the study be modified to evaluate seasonal flood frequency using the historical peak flow data used in the flood frequency analysis rather than synthetic peak flow data to provide a more accurate depiction of seasonal floods than using the synthesized model data. Using historical data to conduct a seasonal flood frequency analysis in a similar methodology as was used in the flood frequency analysis is not possible. The historical data used to complete the flood frequency analysis was historically-measured, instantaneous, annual peak flow data compiled by the United States Geological Survey. These data do not exist on a seasonal basis; a single value is available for each year.

While it is not clear from their modification request, the other option potentially being proposed by the NMFS is to use historically-measured mean daily data for the period of record prior to the construction of the Project rather than simulated mean daily data, but this approach would not result in an improved understanding of the effects of the Project. Historical operations of the Project have changed substantially over the period since it was constructed. This renders an examination of historical seasonal flows since its construction irrelevant when assessing recent operations. Furthermore, the limited periods of record from prior to Project construction (i.e., 28 years in the case of the Yuba River at Smartsville and 25 years in the case of the Yuba River near Marysville as opposed to 41 years of both historically-measured and synthetic data after the construction of the Project) reflect a more limited snapshot of substantially different hydrology than the period after its construction, making a determination of Project effects a factor of differences in hydrology rather than Project operations. By using simulated mean daily data for both the with- and without-Project conditions, the actual effects of the Project on season flood flows can be determined and evaluated in a meaningful and practical manner.

2.1.3.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the Forest Service's or the NMFS's requested modifications to Study 2.1.

2.1.4 Water Balance/Operations Model (Study 2.2)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as complete.

2.1.4.1 Description of Request

The Forest Service and SWRCB requested modification to the FERC-approved Study 2.2, *Water Balance/Operations Model*. The Forest Service requested:

We note that the relicensing of the FERC-licensed project (Yuba-Bear, Nevada Irrigation District, FERC No. 2266) upstream of Our House Reservoir on the Middle Yuba River is nearing completion and that new minimum instream flows and spill cessation flows (mimicking snow-melt recession hydrology) will affect flows in the Yuba River Development project. We request that these new flow regimes be included in subsequent versions of the water balance/operations model. (p. 3 of Attachment 1 to Forest Service’s January 25, 2013 letter.)

While the Forest Service included this request under “*Response to Initial Study Report*,” YCWA considers this a requested study modification since the analysis is not required by the FERC-approved study.

The SWRCB requested:

Please note that the FERC relicensings for the Yuba-Bear and Drum-Spaulding Projects (FERC Nos. 2266 and 2310) will soon be complete. New minimum instream flows contained therein will affect the Yuba River Development Project. The State Water Board requests that the new Yuba-Bear and Drum-Spaulding Project flow regimes be included in subsequent versions of the Water balance/operations model (Study 2.2) for this Project, as appropriate. (p 4 of the SWRCB’s January 25, 2013 letter.)

Neither the Forest Service nor the SWRCB specified the specific flows it proposes, or how those flows would be developed.¹⁸

Neither the Forest Service nor the SWRCB specified the method, level of effort, or cost to perform the requested study modification. YCWA estimates the cost to perform the requested study modification is between \$6,000 and \$17,000.

2.1.4.2 YCWA’s Response

YCWA’s response to the request is provided below in context of FERC’s two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

¹⁸ While the FWN does not request a modification to Study 2.2, on page 3 of its January 27, 2013 comment letter, FWN requests “*The YRDP assessment of baseline should take into account new minimum instream flow and new spring snowmelt recession flows to be released from Nevada Irrigation District’s Milton Reservoir on the Middle Yuba River.*”

2.1.4.2.1 Criterion 1 – Conformance to FERC-Approved Study

Neither the Forest Service nor the SWRCB based its request on the claim that the study was not conducted as provided for in the approved study plan. The study was conducted in conformance to the FERC-approved study. Therefore, a response regarding this criterion is not necessary.

2.1.4.2.2 Criterion 2 – Anomalous Conditions

Neither the Forest Service nor the SWRCB based its request on anomalous conditions or that conditions have changed, but rather on the supposition that conditions will change at some undetermined point in the future. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study. Therefore, a response regarding this criterion is not necessary.

2.1.4.2.3 Other Showings of Good Cause

The Forest Service and SWRCB each based its request solely on a claim that relicensing of Nevada Irrigation District's Yuba-Bear Hydroelectric Project and Pacific Gas and Electric Company's Drum-Spaulding Project (i.e., the two upstream projects) are "nearing completion" or "will soon be complete."¹⁹ YCWA infers from this claim that the Forest Service and the SWRCB believe the baseline for flow into the Project relicensing should be changed from existing conditions to the flows that will occur under the new licenses for the two upstream projects, or that additional model runs should be included in the final technical memorandum.

YCWA disagrees with the Forest Service's and SWRCB's assertion. FERC's schedule for the relicensings of the two upstream projects states that the Final Environmental Impact Statements (FEIS) will be issued no sooner than late October 2013. It is highly likely that issuance of new licenses, which marks the completion of relicensing for these two projects will not occur for many months, if not years, after that. Therefore, the relicensings are certainly not "nearing completion" or "[will] soon [be] complete."

Nevertheless, YCWA agrees that if new licenses for both of the two upstream projects are issued in mid-2013 (i.e., with enough time for YCWA to include pertinent information in the Yuba River Development Project's Draft License Application (DLA), which is due to be filed by December 2013) and the new licenses include mean daily flows into the Our House Diversion Dam impoundment and Englebright Reservoir,²⁰ YCWA will include these flows into the Water Balance/Operations Model for the Project. Until then, the proper relicensing baseline for inflows

¹⁹ This claim is also made by the FWN.

²⁰ Unless the new licenses include mean daily flows in the Middle Yuba River upstream of Our House Diversion Dam and in the South Yuba River upstream of Englebright Dam for the period of record used by the Yuba River Development Project, YCWA would not have the inflow information to use in the model – just knowing the minimum flow releases at the upstream facilities does not provide inflow information into the Project.

into the Yuba River Development Project is the inflows that have occurred historically, and those flows are used in the Water Balance/Operations Model.²¹

2.1.4.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the Forest Service's or the SWRCB's requested modifications to Study 2.2.

2.1.5 Special-Status Amphibians – Foothill Yellow-Legged Frog Modeling (Study 3.5)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of September 30, 2013, which is the completion date specified in the FERC-approved study.

2.1.5.1 Description of Request

The Forest Service requested the following modification to the FERC-approved Study 3.5, *Special-Status Amphibians – Foothill Yellow-Legged Frog Modeling*:

We propose that the main efforts of the licensee be focused on producing these tools rather than doing the full set of analyses described in the study plan. Two 2D habitat modeling reaches have currently been agreed to: one in the Log Cabin Diversion Dam Reach and one in the Our House Diversion Dam Reach. For the Log Cabin Diversion Dam site, we propose that 2D model simulations be done for flow increments of 5cfs from the current minimum instream flow up to the mid calibration flow, 10 cfs increments from the mid to high calibration flow, and 50 cfs increments from the high calibration flow up to a typical unimpaired spring peak flow. For the Our House Diversion Dam site, we propose that 2D model simulations be done for flow increments of 10 cfs between the current minimum instream flow and mid calibration flow, 25 cfs increments from the mid to high calibration flow, 50 cfs increments from the high to the high-high calibration flow, and 100 cfs increments from the high-high calibration flow up to a typical unimpaired spring peak flow. Final agreement on flows to model for each reach should be determined by discussions among the relicensing participants. (p. 7 of Attachment 1 to Forest Service's January 25, 2013 letter.)

²¹ Outside of Study 2.2, whose goal was to develop a water balance/operations model, YCWA is open to making reasonable runs of the model for Relicensing Participants. For instance, should the Forest Service, SWRCB or FWN request a model run that includes specified daily inflows into the Project (i.e., replace the baseline inflows to the Project) for the period of record for which the Water Balance/Operation Model runs and Relicensing Participants and YCWA agree this is a reasonable and useful model run for the purpose of developing PM&Es, YCWA would make a model run using the inflows into the Project.

While the Forest Service included this request under “*Clarifications on Remaining Data Collection and/or Data Provided*,” YCWA considers this a requested study modification since the request is to modify the FERC-approved study.

The CDFW stated it supported the Forest Service’s requested study modification, and repeated most of the Forest Service’s request on page 7 of its January 28, 2013 letter.

Neither the Forest Service nor CDFW specified the method, level of effort, or cost to perform the requested analysis. However, YCWA notes that the Forest Service’s study modification would possibly result in over 40 runs of the two-dimensional (2D) model in the Middle Yuba River below Our House Diversion Dam and over 25 runs of the 2D model in Oregon Creek below Log Cabin Diversion Dam. The FERC-approved study currently states that five initial model runs will be performed at each site. YCWA estimates the cost to perform the requested study modification is between \$20,000 and \$25,000. The estimate does not include the subsequent habitat analyses for the additional requested model runs as the final analyses techniques have not been clarified.

2.1.5.2 YCWA’s Response

YCWA’s response to the request is provided below in context of FERC’s two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.5.2.1 Criterion 1 – Conformance to FERC-Approved Study

Neither the Forest Service nor CDFW based its request on the claim that the study was not conducted as provided for in the approved study plan. The study has been conducted in conformance to the FERC-approved study. Therefore, a response regarding this criterion is not necessary.

2.1.5.2.2 Criterion 2 – Anomalous Conditions

Neither the Forest Service nor CDFW based its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study. Therefore, a response regarding this criterion is not necessary.

2.1.5.2.3 Other Showings of Good Cause

YCWA appreciates the suggested range of simulation flows provided by the Forest Service as a starting point when collaborative discussions occur regarding modeling, as required by the FERC-approved study. YCWA discussed the Forest Service requests with the Forest Service (A. Lind, Pers. Comm., 2013) and the two parties agreed that the appropriate approach was to maintain the collaborative process outlined in the FERC-approved study. This approach would be used to have informed discussions with all Relicensing Participants to develop the range, magnitude and incremental steps of simulation flows. In addition, the parties recognized that

further information is required to determine what flow constitutes a “*typical unimpaired peak spring flow*,” as stated in the Forest Service’s request. YCWA notes that multiple Relicensing Participant meetings to discuss model calibration are stipulated in the FERC-approved study, and anticipates that the successful discussion of simulation flows and analysis methods will take place at that time.

2.1.5.3 YCWA’s Recommendation

Based on its discussion with the Forest Service, YCWA believes this requested study modification is no longer proposed by the Forest Service – the current FERC-approved study is adequate to address the Forest Service’s interests in this matter. Therefore, FERC should not adopt the Forest Service’s or CDFW’s requested modifications to Study 3.5.

2.1.6 Non-ESA Fish Populations Downstream of Englebright Dam (Study 3.9)

YCWA’s Initial Study Report and Initial Study Report meeting summary described this study as complete.

2.1.6.1 Description of Request

The USFWS requested the following modification to the FERC-approved Study 3.9, *Non-ESA Listed Fish Species Downstream of Englebright Dam*:

The Study Plan for Study 03-09 *Non-ESA Listed Fish Species Downstream of Englebright Dam* should be modified to include the appropriate fish assemblages analysis that will evaluate Project effects. (p. 7 of USFWS’s January 28, 2013 letter.)

The USFWS did not provide any details (e.g., methods, level of effort or cost) regarding its requested study modification. YCWA estimates the cost to perform the requested study modification is between \$50,000 and \$75,000.

2.1.6.2 YCWA’s Response

YCWA’s response to the request is provided below in context of FERC’s two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.6.2.1 Criterion 1 – Conformance to FERC-Approved Study

The USFWS based its request, at least in part, on the claim that the study was not conducted as provided for in the FERC-approved study. The USFWS states that the overall study goal was to evaluate Project-related effects on non- Federal Endangered Species Act (non-ESA) fishes in the Yuba River downstream of Englebright Dam, and the goal was not met. (p. 21 of USFWS’s

January 28, 2013 letter.) For this reason, the USFWS requested that FERC modify the study to require that YCWA:

- Calculate an Index of Biotic Integrity (IBI) or other similar modified index using appropriate metrics to evaluate temporal changes in the fish assemblage (Karr et. al. 1986; Layzer and Scott 2006; Kwak and Peterson 2007).
- Summarize temporal and spatial distributions for each study summarized in the technical memorandum 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).
- Compare species diversity/assemblage changes over time and evaluate the influence of Project operations (i.e., instream flows, timing, and magnitude) and site-specific stream characteristics on fish assemblages by fitting linear regression models (McCargo and Peterson 2010).
- Standardize Beak (1989) and Kozlowski (2004) survey results (i.e., total number of fish per unit length of stream) and adjust for differences in fish capture efficiency to address assumptions, such as equal availability of all species and lifestages to the survey methods.
- Correct survey data to ensure comparability in fish samples among sites, sample methods, and through time using techniques described in Thompson and Seber (1994), Williams et al. (2002), and McCargo and Peterson (2010).
- Use linear regression models or hierarchical models to examine the relations between seasonal flows and site-specific stream characteristics and fish assemblage metrics (McCargo and Peterson 2010).
- Further explain, in the Discussion section, the Project effects (direct, indirect, and/or cumulative) on fish assemblage downstream of Englebright Dam relative to altering the timing, magnitude, duration and thermal character of flow, as well as flow fluctuations and changes to sediment transport.

First and foremost, USFWS's claim that the study was not performed in accordance with the FERC-approved study is in error. The objectives of Study 3.9 were to: 1) characterize the fish community including species composition; 2) estimate species' relative abundance; 3) characterize species relative spatial distribution relating to project flows; and 4) characterize species-specific habitat utilization relating to Project flows by compiling and reporting historic information and information from ongoing studies. The study objectives did not include requirements for the particular quantitative analysis of the fish community structure, or a quantitative assessment of Project effects on particular fish assemblages described in USFWS' comments. The technical memorandum does, however, describe the fishes found and the various fish assemblages reported to occur in the Yuba River.

Existing and ongoing studies performed over a decade by various parties, including the Yuba Accord RMT, provide extensive and adequate information (i.e., over 54 references reviewed) to

characterize the relative abundance and spatial distribution of fishes in the Yuba River downstream of Englebright Dam, and species-specific habitat utilization. (see Section 3.2, beginning on page 52 of the technical memorandum.)

Second, as discussed throughout YCWA's technical memorandum (e.g., Section 3.2), due to the variation in study periods, study areas, and study methods, any attempt to "standardize" the data from the various existing and ongoing studies would include so many gross assumptions as to make the resulting conclusions useless – simply stated, this would be bad science. However, the technical memorandum describes the results of various studies and the different sampling methods used, and compares results where appropriate. The results for different sampling methods repeatedly confirm the dominant numbers of Chinook salmon (*Oncorhynchus tshawytscha*), *O. mykiss*, Sacramento sucker (*Catostomus occidentalis*), and Sacramento pikeminnow (*Ptychocheilus grandis*). The technical memorandum also evaluates conditions influencing distribution and relative abundance of fish species observed during snorkel and electrofishing surveys on the Yuba River downstream of Englebright Dam (see Section 3.2.7 of the technical memorandum).

2.1.6.2.2 Criterion 2 – Anomalous Conditions

The USFWS did not base its request on anomalous conditions or that conditions have changed. The study was performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study. Therefore, a response regarding this criterion is not necessary.

2.1.6.2.3 Other Showings of Good Cause

The USFWS did not base its requested study modification on any other claim other than the study was not performed as required by FERC. That issue is addressed above.

YCWA notes that USFWS did not request these quantitative analysis in its comments on YCWA's Proposed and Revised study plans. In fact, at page 6 of its September 1, 2011 letter to FERC commenting on the Revised Study Plan, the USFWS acknowledged that such analysis might not be supported by existing and ongoing studies:

The Service is concerned that data sources planned to be utilized from the Yuba Accord monitoring activities (i.e., redd, snorkel, rotary screw trapping, and angling surveys) are inherently limiting in their ability to accurately estimate population values for non-ESA listed fish species.

YCWA points out that the multiple sampling methodologies used and the number of studies performed tends to lend a reasonable assurance that the majority of fish found in these studies have been repeatedly confirmed in similar relative proportions, without having to resort to extensive mathematical manipulation. While fish populations may change seasonally and annually, a relatively accurate population estimate has been obtained for this technical memorandum which is adequate to develop appropriate new license requirements.

2.1.6.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the USFWS' requested modification to Study 3.9.

2.1.7 Entrainment (Study 3.11)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of October 31, 2013, which is the completion date specified in the FERC-approved study.

2.1.7.1 Description of Request

The Forest Service requested the following modification to the FERC-approved Study 3.11, *Entrainment*:

Because of a variance described below (i.e., and unknown number of hours/days when the antenna array was not functioning so that the licensee could clear trash racks at the diversions), we request that the antenna array be left in place until at least until November 2013 or until a consultation with the relicensing participants indicates that the study is complete. (p. 11 of Attachment 1 to Forest Service's January 25, 2013 letter.)

While the Forest Service included this request under "*Response to Initial Study Report*," YCWA considers this a requested study modification since the FERC-approved study does not require leaving the antenna array in place through November 2013, or consulting with Relicensing Participants for concurrence that the study is complete.

At page 9 of its January 28, 2013 letter, the CDFW essentially repeated the Forest Service's requested study modification, as did the FWN at page 22 of its January 27, 2013 letter.

Neither the Forest Service, CDFW nor FWN specified the level of effort or cost to perform the requested modification. YCWA estimates the cost to perform the requested study modification is between \$25,000 and \$35,000.

2.1.7.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.7.2.1 Criterion 1 – Conformance to FERC-Approved Study

The Forest Service, CDFW and FWN each base its request on the claim that YCWA is not performing the study as provided for in the FERC-approved study. Specifically, the two

agencies and the FWN say that YCWA's periodic removal of the antenna arrays for servicing (e.g., inspection, tightening bolts, and fixing any cracks) and to allow large material collected on the upstream trash rack to pass through the tunnel without damaging the antenna array are inconsistencies with the FERC-approved study, and that the solution is to leave the arrays in place until November 2013, or until such time as a consultation with Relicensing Participants indicates the study is complete.

YCWA agrees that periodic removal of the antenna arrays for debris clearing and maintenance is a study variance. However, the variance is necessary and has a *de minimis* effect on study results. The variance is necessary because YCWA cannot envision how to perform the study without periodically removing the arrays. The arrays cannot be serviced in place while the tunnels are diverting water due to safety concerns, and if the arrays were not removed to allow passage of material collected on the upstream trash racks, the arrays would be damaged by the material. So, periodic, short-term removal of the arrays is necessary and would still be necessary if the study were extended, repeated in whole or in part.

The short, periodic removal of the arrays has had a *de minimis* effect on the study results. As reported to Relicensing Participants on February 8, 2012, of the 2,518.3 hours from when the arrays were initially deployed²² through approximately 8 AM on February 3, 2013, the Lohman Ridge Diversion Tunnel antenna array was installed and monitoring for 2,493.7 hours and was inoperable (i.e., pulled for servicing or cleaning the upstream trash rack) for 24.6 hours (i.e., 0.99% of the sampling period to date). The array was pulled 15 times for between 4 minutes and 5.6 hours, depending on the amount of servicing and cleaning needed. To date, the array has detected 45 tagged rainbow trout, or 0.43 fish per day. Of the 2,520.7 hours from when the Camptonville Diversion Tunnel antenna arrays were initially turned on, the antenna array operated for 2,492.2 hours and was inoperable for 28.5 hours (i.e., 1.14% of the sampling period to date). The array was pulled 11 times for between 35 minutes and 5.6 hours, depending on the amount of servicing and cleaning needed. To date, the Camptonville Diversion Tunnel array has detected 33 tagged rainbow trout, or 0.32 fish per day. Twenty-six of the 33 fish that were detected by the Camptonville Diversion Tunnel antenna array were also detected by the Lohman Ridge Diversion Tunnel antenna array (i.e., passed though both tunnels). No brown trout or western pond turtles have been detected. As required by the FERC-approved study, YCWA will continue the Entrainment Study until diversions cease in spring/early summer 2013. The tunnels do not divert in summer, and operating the antenna array during this period would be pointless.

Based on the above results, the agencies and FWN have provided an insufficient rationale to justify either leaving the antenna arrays in place through November 2013, or consulting with Relicensing Participants for concurrence that the study is complete. The modification would not provide additional information to inform license requirements.

²² The antenna arrays were installed and operating at 10 AM on October 22, 2013, when diversion flows began through the tunnels.

Note that at the February 8, 2013 meeting, YCWA told Relicensing Participants that it would provide them as much advance notice as possible via e-mail prior to the pulling of the antenna arrays for servicing or cleaning of the upstream trash racks.

2.1.7.2.2 Criterion 2 – Anomalous Conditions

Neither the Forest Service, SWRCB nor FWN based its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study. Therefore, a response regarding this criterion is not necessary.

2.1.7.2.3 Other Showings of Good Cause

Neither the Forest Service, SWRCB, nor FWN provides additional justification for its requested study modification.

2.1.7.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the Forest Service's, CDFW's or FWN's requested modifications to Study 3.11.

2.1.8 Riparian Habitat Upstream of Englebright Reservoir (Study 6.1)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of February 28, 2013.

2.1.8.1 Description of Request

The Forest Service requested the following modification to the FERC-approved Study 3.6.1, *Riparian Habitat Upstream of Englebright Reservoir*:

Rationale for Germination and Hydrology Model - The recruitment box information (linked to flow information) is needed to assess the condition of the existing riparian vegetation and examine the relationships between the presence of dominant woody species and their placement in the channel. This information is necessary for understanding the potential for different river reaches to support riparian communities. Linking the stage (seed production, dispersal, germination, and establishment) in the life cycle of these four woody riparian species to the moisture (time of year, duration of inundation, and amount flow) available to them is needed to conduct a germination analysis. Cooper and Merritt (2012) describe these relationships more generally: "An understanding of the sources of flow to a stream, the magnitude and frequency of those flows, and the seasonal and inter-annual timing in those flows is important in understanding principal forces that govern species composition, turnover, and ecological

functioning of riparian areas and their potential responses to changing stream flow or ground water regimes”. Knowledge of the individual life history of a species relative to the physical environment is needed for developing cause-and-effect relationships between attributes of hydrology and life stages of that species (Cooper and Merritt 2012). Riparian vegetation requires suitable corridors for dispersal, suitable sites for seeds to be deposited and to germinate, conditions that allow seedlings to grow and survive, and sufficient time between significant disturbances for plants to reach reproductive age (D. Merritt pers. comm. 2012). The recruitment box model that exists for cottonwood (Rood and Mahoney 1998) has applications for other flow dependent species also and has been applied to willow in river management (D. Merritt pers. comm. 2012). For analyses relative to cottonwood seedling recruitment, river stage data should be used (Mahoney and Rood 1998). The recruitment box model provides a means of determining the discharge requirements of cottonwood and willow during seed germination to the seedling establishment stage (Mahoney and Rood 1998). (p. 15 of Attachment 1 of the Forest Service’s January 25, 2013 letter.)

The Forest Service did not provide a level of effort or cost for its requested study modification. YCWA estimates the cost to perform the requested study modification is between \$40,000 and \$60,000.

The NMFS requested the following modification to the FERC-approved study:

NMFS’ assessment of the available data and information is that inclusion of a 2nd year study that includes the analysis / modeling of the relationships between flows and germination of hardwood species is a necessary modification to the Study Plan in order to properly evaluate the Project’s effects to riparian habitat as a result of Project operations that impact hydrology and the supply and transport of sediment and large woody material (LWM). (p. 9 of Enclosure A to NMFS’ January 28, 2013 letter.)

The NMFS did not provide the level of effort or cost for the requested modification; the modeling methods were discussed during the January 8, 2013 consultation meeting and a common understanding was formed that the methods would generally follow the recruitment box model (Mahoney and Rood 1998, Stillwater 2006).

The NMFS did not provide a level of effort or cost for its requested study modification. YCWA estimates the cost to perform the requested study modification is between \$40,000 and \$60,000.

FWN stated its support for the Forest Service’s request and provided additional information regarding why the FWN believed the new study is warranted.

[Interim] Technical 6.1 (December 2012) and the recent relicensing participants meeting on Study 6.1 (January 2013) have revealed that data being collected and prepared is insufficient to provide a sound basis for FERC recommended license terms and conditions. The Licensee's study implementation deviates from the approved study plan in that the results and methodology will not produce the objective of assessing the condition of riparian habitat upstream of Englebright Reservoir. The study as implemented by the License so far has led to insufficient data acquisition to provide information necessary for the Commission to accurately characterize project impacts, develop reasonable alternatives for NEPA analysis, and ultimately adopt license conditions to address such impacts. The Project's flow management may be altering hydrologic conditions to a degree that successful germination and establishment (recruitment) has altered either frequency or channel location. The lack of seedlings and recruits of some expected species in some project reaches are evidence of these project effects on riparian condition. (pp. 4 & 5 of FWN's January 27, 2013 letter.)

The FWN provided specific functions to be included in the model and a reference to general methodologies (in the Study 6.2 study modification request, p. 7 of FWN's January 27, 2013 letter), and FWN provided an estimated additional study cost of \$10,000.

2.1.8.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.8.2.1 Criterion 1 – Conformance to FERC-Approved Study

Neither the Forest Service nor the NMFS based its request on a claim that the study was not conducted as provided for in the FERC-approved study.

The FWN based its request on the claim that YCWA's "study implementation" is a deviation from Study 6.1. The FWN's claim is unfounded. YCWA is conducting the study, including required fieldwork, in conformance to the FERC-approved study. Results on the location and frequency of woody riparian seedlings, which indicate germination, as well as various age-classes present, which indicate regeneration over time, and the lateral distribution of riparian vegetation in the channel were reported in *Interim Technical Memorandum 6-1, Riparian Habitat Upstream of Englebright Reservoir*. The interim technical memorandum confirmed that YCWA was in the process of developing stage/discharge and flow frequency analysis, and would provide those data to Relicensing Participants when available.

Further, YCWA initiated consultation regarding the need for second-year studies, holding meetings with Relicensing Participants to discuss data collected to date on October 30, 2012 and January 8, 2013.²³ YCWA advised Relicensing Participants at those meetings, and again at a meeting on February 15, 2013, that it would provide the stage/discharge and flow frequency analysis as soon as it was available, and after allowing Relicensing Participants adequate time to review the data, hold an additional consultation meeting regarding the need for, and scope of, second-year studies if needed. At this time, YCWA anticipates that meeting will occur in early April 2013.

2.1.8.2.2 Criterion 2 – Anomalous Conditions

Neither the Forest Service, the NMFS nor the FWN based its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

2.1.8.2.3 Other Showings of Good Cause

Neither the Forest Service nor the NMFS provided any additional claim or evidence to support its request for the study modification. The FWN did not provide any justification for its request other than its claim that the study has not been performed in accordance with the FERC-approved study, which is addressed above.

At this time, YCWA believes the FERC-approved study is adequate to develop license requirements for four reasons. First, the FERC-approved study requires that YCWA, once all information to be developed by the FERC-approved study is available, consult with Relicensing Participants regarding the need for a second-year study. If YCWA and Relicensing Participants agree, the parties would consult regarding the scope of the study and YCWA would file the new study with FERC for consideration. If the parties do not agree, YCWA would refer the matter to FERC for final determination. The FERC-approved study is in progress, and will adequately address the need for a second-year study when all data is available.

Second, the requested recruitment box model proposed as a study modification provides an illustration of the relationship between the temporal seed dispersal of riparian woody plants and the recession limb of flows. This tool is used in a limited capacity to examine when germination is likely to take place - providing that the temperature, amount of properly sized exposed substrate, and seed viability are all ideal. This tool is descriptive only, and is typically used to compare pre-project and post-project conditions (Mahoney and Rood 1998). Relicensing Participants have not described why the flow-frequency data that would be developed as part of the FERC-approved study would not be adequate to provide this information.

²³ During the January 8, 2013 meeting, Relicensing Participants expressed interest in the development of a germination and hydrology model, but did not provide a rationale in relation to the information collected by first-year study efforts. YCWA stated it believed the discussion should be delayed until the stage/discharge and flow frequency analysis information was available, but recognized Relicensing Participants may include a request for the model in their comments on YCWA's Initial Study Report.

Third, the FWN states the “*lack of seedlings and recruits of some expected species in some project reaches*” is cause for study modification, but does not cite which seedlings or recruits are estimated by the FWN to be deficient in what areas. Montane and foothill bedrock-controlled streams are unique; therefore reference sites or conditions are not applicable (Harris 1988).

Fourth, FWN’s estimated cost to conduct the modification is unreasonably low. The effort to develop the box model would require an entirely different set of study data than that included in the Study 6.2. YCWA estimates the cost of model development and application is between \$40,000 and \$60,000. The value and use of the information that would be developed by the study modification do not warrant this additional cost.

2.1.8.3 YCWA’s Recommendation

For the reasons stated above, FERC should not adopt the Forest Service’s, NMFS’s or FWN’s requested modifications to Study 6.1.

2.1.9 Riparian Habitat Downstream of Englebright Dam (Study 6.2)

YCWA’s Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of August 31, 2013.

2.1.9.1 Description of Request

The NMFS requested the following modification to the FERC-approved Study 3.6.2, *Riparian Habitat Downstream of Englebright Dam*:

NMFS proposes that FERC staff modify the study plan to include a recruitment box format analysis as proposed above for Study 6.1 [See New Study 4 in Section 2.2.4. of this document], but with sycamore added to the four woody plant species (Fremont cottonwood, white alder, red willow and Gooding’s willow) proposed above. This analytical approach should quantify the frequency of potential viable germination by channel elevation (stage) at representative cross-sections for with-Project and without-Project hydrology datasets, for all years available (e.g., WY 1970 to 2010). (p. 11 of Enclosure A of NMFS’ January 28, 2013 letter)

The NMFS did not provide level of effort or cost for the requested modification; the modeling methods are understood to be those discussed during the January 8, 2013 consultation meeting and generally follow the recruitment box model (Mahoony and Rood 1998, Stillwater 2006). The Forest Service did not provide a level of effort or cost for its requested study modification. YCWA estimates the cost to perform the requested study modification is between \$40,000 and \$70,000.

At page 7 of the FWN’s January 27, 2013 letter, FWN requested the following modifications to the FERC-approved study:

- 1) Develop a model for determining project-related viability of germination for riparian hardwood species.
- 2) Analyze the characteristics of major cottonwood stands, including age, vertical structure, and flood-prone location.

The FWN provided some recommendations of factors to be included in the model and referenced generalized methods outlined in by Mahoney and Rood (1998) and Stillwater Sciences (2006) discussed during the January 8, 2013 consultation meeting. The FWN estimates the cost of the study modification at \$10,000, but did not indicate a level of effort (e.g., number of cross-sections).

2.1.9.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.9.2.1 Criterion 1 – Conformance to FERC-Approved Study

Neither the NMFS nor the FWN based its requests on the claim that the study was not conducted as provided for in the FERC-approved study. The study is being conducted in conformance with the FERC-approved study.

However, YCWA points out that it met with Relicensing Participants on January 8, 2013 to discuss information including riparian vegetation age-class, distribution and structure, provided in the Interim Technical Memorandum 6-2, *Riparian Habitat Downstream of Englebright Dam*; and to discuss the need for second-year studies.²⁴ The interim technical memorandum confirmed that YCWA was in the process of developing analysis of existing riparian vegetation in relation to flows and would provide those data to Relicensing Participants when available, and then hold an additional consultation meeting regarding the need for, and scope of, second-year studies if needed. At this time, YCWA anticipates that meeting will occur in early April 2013.

2.1.9.2.2 Criterion 2 – Anomalous Conditions

Neither NMFS nor the FWN based its requests on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

²⁴ During the January 8, 2013 meeting, Relicensing Participants expressed interest in the development of a riparian hardwood recruitment model, but did not provide a rationale in relation to the information collected by first-year study efforts.

2.1.9.2.3 Other Showings of Good Cause

The NMFS has not provided any showing of good cause for the inclusion of the germination model as a study modification. The FWN claimed that the proposed study modification is designed to provide information to evaluate Project effects.

At this time, YCWA believes the FERC-approved study is adequate to develop license requirements for seven reasons. First, the FERC-approved study requires that YCWA, once all information to be developed by the FERC-approved study is available, consult with Relicensing Participants regarding the need for a second-year study. If YCWA and Relicensing Participants agree, the parties would consult regarding the scope of the study and YCWA would file the new study with FERC for consideration. If the parties do not agree, they would refer the matter to FERC for final determination. The FERC-approved study is in progress, and will adequately address the need for a second-year study when all data is available.

Second, the modeling effort would be purely theoretical and therefore would not provide additional information to inform license requirements - unless the modeling was combined with field-calibration efforts (Stillwater 2006). The recruitment box model proposed as a study modification provides an illustration of the relationship between the temporal seed dispersal of riparian woody plants and the recession limb of flows. This tool is used in a limited capacity to examine when germination is likely to take place -- providing that the temperature, amount of properly sized exposed substrate, and seed viability are all ideal. As described above, this tool is descriptive only, and is typically used to compare pre-project and post-project conditions (Mahoney and Rood 1998). Relicensing Participants have not described why the information developed as part of the FERC-approved study is not adequate to provide this information.

Third, the FWN based its second request for study modification for the analysis of cottonwood characteristics on the claim that YCWA “ceased to attempt to complete the Inventory and Aging of Existing Cottonwood Stands.” The FWN is incorrect. A complete inventory of cottonwoods in the downstream five reaches was completed by Watershed Sciences, Inc. and a complete census was performed in the upstream accessible study sites (Timbuctoo Bend and Englebright Dam). Coring was performed within each study site and an age/size class relationship was investigated. YCWA’s analysis determined that there is not a strong correlation between the age of cottonwoods and the canopy height. YCWA determined that using the correlation between cottonwood age and diameter at breast-height (dbh) provides for an imprecise estimation of age; YCWA did not believe that a 95 percent confidence interval of ± 3.9 years (i.e., this means that the estimated mean age is within nearly 8 years with 95% certainty) is sufficiently precise to determine the conditions under which the stands were established (e.g., correlate establishment year to flows). The information regarding cottonwood age and establishment years was included in the interim technical memorandum, but the age of the stands was not extrapolated due to the inexactness of the data.²⁵

²⁵ During the consultation meeting held on January 8, 2013, YCWA agreed to provide additional scatter plots in the final technical memorandum to show the ages of the cored cottonwood trees in relation to the years of establishment. YCWA believes that this is the most accurate way to depict the year of cottonwood establishment.

Fourth, the FWN also claimed that the cottonwood height should be correlated to flood frequency, but YCWA does not believe this information informs license requirements. The height of a cottonwood does not correlate with age, so the proposed analysis does not enhance the inventory or aging of cottonwood stands.

Fifth, the germination model described has not been a necessary tool to inform license conditions in previous licensings.

Sixth, the model does not include substrate type, which is a key consideration in the severely disturbed areas affected by historic hydraulic and dredge-mining in the Yuba River downstream of Engelbright Dam.

Seventh, FWN's estimated cost to conduct the modification is unreasonably low. YCWA estimates the cost of model development and application between \$40,000 and \$70,000. The value and use of the information that would be developed by the study modification do not warrant this additional cost.

2.1.9.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the NMFS's or FWN's requested modifications to Study 6.2.

2.1.10 Narrows 2 Powerhouse Extension (Study 7.2)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of September 30, 2013, which is the completion date specified in the FERC-approved study.

2.1.10.1 Description of Request

The NMFS requested the following modification to the FERC-approved Study 7.2, *Narrows 2 Powerhouse Extension*:

...NMFS recommends that Commission staff direct the Licensee to initiate and complete step 2 [of the study plan. (p. 12 of Enclosure A of NMFS' January 28, 2013 letter.)

The FWN requested the following modification to the FERC-approved study:

The Network recommends that this study be modified to require the Licensee to develop alternative conceptual designs for the Narrows 2 Powerhouse Intake whether or not water temperature targets are agreed to by relicensing participants.

Specifically, the Network recommends that the Licensee evaluate an alternative design that places the location of the intake at the lowest practical elevation. (pp. 10 & 11 of FWN’s January 27, 2013 letter.)

Neither the NMFS nor the FWN specified the method, level of effort, or cost to perform the requested study modification. The FWN did not provide a level of effort or cost for its requested study modification. YCWA estimates the cost to perform the requested study modification is between \$30,000 and \$60,000.

2.1.10.2 YCWA’s Response

YCWA’s response to the request is provided below in context of FERC’s two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.10.2.1 Criterion 1 – Conformance to FERC-Approved Study

The NMFS based its requested modification on its understanding that “...*the study has not been conducted as provided for in the Commission-approved Study Plan.*” (p. 12 of Enclosure A of NMFS’ January 28, 2013 letter). The NMFS’ claim is incorrect. As acknowledged in Section 5.2 of the interim technical memorandum for Study 7.2, the FERC-approved study requires that “*YCWA will collaborate with Relicensing Participants regarding the need for alternatives to the RMT water temperature targets. If YCWA and Relicensing Participants collaboratively agree that alternatives are needed, YCWA will collaborate with Relicensing Participants to develop the alternative water temperature targets (Step 1).*” As noted by NMFS at page 12 of Enclosure A in its January 28, 2013 letter, if YCWA and Relicensing Participants cannot reach a collaborative agreement, YCWA will file its proposal with FERC for the Commission’s review and approval. At the February 8, 2013 meeting, Relicensing Participants scheduled collaboration regarding the need for alternatives to the RMT water temperature targets for the March 11, 2013 Relicensing Participants meeting. YCWA is clearly performing the study as required by FERC.

The FWN did not base its request on the claim that the study was not conducted as provided for in the FERC-approved study.

2.1.10.2.2 Criterion 2 – Anomalous Conditions

Neither the NMFS nor the FWN based its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

2.1.10.2.3 Other Showings of Good Cause

Besides basing its requested study modification on conformance with the FERC-approved study, NMFS based its request on the claim that preparing alternative conceptual designs for extending the Narrows 2 Intake now is worthwhile because there could be other unknown benefits of extending the intake (e.g., reduce fish entrainment or modify downstream water temperatures) (p.

12 of NMFS' January 28, 2013 letter). Similarly, the FWN based its request on the claim that preparing a conceptual design for extending the Narrows 2 Intake now is worthwhile because "*it is unclear how temperature will be managed in the future.*" (p. 11 of FWN's January 27, 2013 letter). Neither NMFS nor FWN provided any evidence to support their claims.

YCWA agrees with the FERC-approved study approach--conceptual designs of a Narrows 2 Intake extension should only be required if and when there is a clear need for an extension of the intake. Developing conceptual designs for a myriad of unknown future needs is unnecessary and impractical at this time.

2.1.10.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the NMFS' or FWN's requested modifications to Study 7.2.

2.1.11 ESA-Listed Amphibians – California Red-legged Frog (Study 7.3)

YCWA's Initial Study Report meeting summary described this study as complete.

2.1.11.1 Description of Request

The USFWS requested California red-legged frog (CRLF) protocol-level studies at up to 91 sites²⁶ that were determined to meet minimum criterion for breeding habitat and in additional locations on stream reaches that may be affected by Project flows. Specifically, at page 11 of its January 28, 2013 letter, the USFWS stated:

Each of these [91] locations should be surveyed in accordance with the Service's California red-legged frog survey guidance (enclosed). The only exceptions to the survey need are: (1) sites LO21 and LO28, where California red-legged frogs have been reported in recent studies; and (2) and private property where access for surveys has been denied by the property owner.

In addition, at page 12 of its January 28, 2013 letter, the USFWS stated:

Stream and river reaches where bullfrogs were detected in Studies 03-04 and 03-06 should be surveyed for California red-legged frogs from 0.25 mile upstream of each bullfrog detection, or population, to 0.25 mile downstream of that bullfrog detection or population.

The USFWS broadly specified the methods and level of effort to perform the requested modification. Protocol-level survey methodology includes up to eight surveys per site, including

²⁶ In reviewing data for its response, YCWA discovered a tabulation error of sites that met the minimum criterion. The correct number is 87 sites, not 91 as reported in Technical Memorandum 7-3.

five night surveys. Surveys on the Middle Yuba River, North Yuba River, Yuba River, and Oregon Creek associated with previous bullfrog detections would encompass between 3 and 4 miles of these stream reaches. YCWA estimates the cost to perform the requested study modification is between \$500,000-750,000, or more.

The FWN supported USFWS' requested study modification, was in agreement with the rationale advanced by USFWS, and did not provide additional evidence (p. 11 of FWN's January 27, 2013 letter).

2.1.11.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.11.2.1 Criterion 1 – Conformance to FERC-Approved Study

The USFWS did not explicitly state that the study was not conducted according the FERC-approved study, but stated that the study is not complete and that CRLF surveys are required at sites determined by the study to meet the minimum criterion for CRLF breeding habitat. As such, YCWA concluded that USFWS is basing its request, in part, on Criterion 1. Step 2 of the FERC-approved study provided the following mechanism for decisions regarding the need for protocol-level surveys and methods for performing surveys:

Following submittal of the Site Assessment Report to USFWS, Licensee will consult with USFWS to determine if Protocol-level CRLF surveys are needed. The Site Assessment Report will provide a basis for discussions with USFWS regarding the potential for occurrence of CRLF within project-affected areas. For areas where surveys are required, Licensee will complete the surveys in accordance with the *Revised Guidance on Site Assessments and Field Surveys for the California Red-legged Frog, August 2005* (USFWS 2005).

YCWA consulted with the USFWS on October 22, November 8, and December 3, 2012 to review the results of the interim technical memorandum, and specifically to determine if additional data gathering (e.g., protocol-level surveys) was needed.

At the December 3 meeting, the USFWS said it was in the process of completing its internal reviews and consulting with other agencies. YCWA and the USFWS agreed that for the purpose of the FERC-approved study, consultation would be considered complete. However, YCWA and the USFWS agreed that consultation would continue under both FERC's ILP and Section 7 of the ESA. Under the ILP, consultation regarding additional data gathering could occur both formally (i.e., through the ILP Initial Study Report process), and informally (i.e., YCWA and USFWS could continue discussion of potential additional data gathering, if the parties believed there was benefit in doing so).

YCWA understands “consultation” to be a discussion, and that the consulting parties may disagree. Under informal consultation, decisions regarding the need for surveys should reflect determinations made in the site assessment, including but not limited to whether a site met the minimum criterion for breeding habitat, potential for Project effects, and need for additional information. YCWA does not believe there is, overall, a high potential for Project effects on CRLF. The USFWS’ requested modification does not explain why surveys are needed or how information from surveys would be used to inform license requirements. Because most of the sites are not within the FERC Project Boundary, are not on YCWA land, and are not managed or administered by YCWA, protocol-level surveys should be “*focused field surveys to determine whether CRLF are likely to be present [in aquatic habitats]*” (USFWS 2005). The USFWS (2005) recommends up to eight surveys at each location “*to determine the presence of CRLF at or near a project site.*” However, the USFWS already considers CRLF to be present near the Project (specifically, near New Bullards Bar Reservoir) at the two mine tailing pools (i.e., sites LO21 and LO28), where the USFWS states that further surveys are not needed. The USFWS also did not require surveys at locations where a private landowner denies access.²⁷ Therefore, information regarding the potential presence of CRLF at those locations not surveyed would not be obtained by implementation of the study modification. In that case, CRLF would have to be assumed present, regardless of negative findings elsewhere. Therefore, it is unclear how the additional information would be used to inform license requirements.

The USFWS makes no distinction between sites; it requested protocol surveys at any site that met the minimum criterion without apparently considering the other site-specific information provided by YCWA, including information pertinent to assessing the relative suitability of habitats for CRLF, distance from the Project, and distance from locations where CRLF has been observed previously. For example, the USFWS requests surveys at two sites where the only proximate Project feature is the New Colgate Power Tunnel, which is underground and has no foreseeable effect on CRLF, and eight sites within 1-mile of New Colgate Powerhouse, which has no clear nexus to effects on CRLF. YCWA believes that if additional information is needed, efforts should be focused at carefully selected sites in the Little Oregon Creek area (i.e., vicinity of previous observations of CRLF) to answer specific questions that would be useful for future management and development of appropriate license requirements. Because CRLF may be presumed by the USFWS to occur in the area regardless of survey results, YCWA considers full protocol surveys (i.e., up to 696 surveys based on up to eight surveys per site at 87 sites) to be unreasonable and unnecessary. The potential cost of such a survey effort cannot be precisely estimated at this time since the sites differ considerably in difficulty of access, including some sites that may not be safely accessible at night and would require overnight camping, permission to survey may not be granted at sites on private property, and eight survey visits would not be required at a site if CRLF was found there prior to the eighth survey. However, YCWA estimates that full survey effort at all 87 sites would cost between \$500,000-750,000 or more.

²⁷ Of the 87 sites that met the minimum criterion for CRLF breeding habitat within 1 mile of the FERC Project Boundary, 35 are entirely located on private land, 31 are entirely on NFS land, 12 are partly located on private land, 3 are on State of California land, 3 are entirely on YCWA land, 2 are on both YCWA and NFS land, and 1 is on BLM land.

In addition, YCWA believes that there is a low potential for Project O&M to affect CRLF, which does not warrant the study modification requested by USFWS. This low potential for effects is illustrated by USFWS's February 4, 2004 *Biological Opinion for the New Bullards Bar Reservoir Safety and Annual Maintenance Project* (BiOp).²⁸ The BiOp was prepared by the USFWS in response to a Forest Service October 21, 2002, request for informal consultation under Section 7 of the ESA regarding the following actions: 1) disposal of woody debris accumulated in the reservoir by piling and burning; 2) removal of hazard trees along the shoreline of the reservoir; and 3) reducing ladder fuels within administrative and recreation sites around New Bullards Bar Reservoir. Collectively, the BiOp referred to these activities as the Action addressed by the BiOp. The species of concern in the BiOp were CRLF, bald eagle (*Haliaeetus leucocephalus*), Lahonton cutthroat trout (*Oncorhynchus clarki*) and valley elderberry longhorn beetle (*Desmocerus californicus*), all of which were listed as threatened under the ESA in 2002. The BiOp determined the Action was not likely to adversely affect CRLF, Lahonton cutthroat trout and valley elderberry longhorn beetle.

2.1.11.2.2 Criterion 2 – Anomalous Conditions

The USFWS did not base its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

2.1.11.2.3 Other Showings of Good Cause

In addition to implying that the study was not conducted according the FERC-approved study, the USFWS based its request on a claim that YCWA mischaracterized Project-affected stream reaches as not representing potential CRLF breeding and, therefore, the study should be modified to include surveys in these stream reaches where bullfrogs occur. At page 12 and 13 of its January 28, 2013 letter, the USFWS stated:

Studies 03-04 and 03-06 provided new information to the Service, showing that stream reaches in Oregon Creek, Middle Yuba River, and the mainstem Yuba River are occupied by bullfrogs. Because their breeding habitat is similar, bullfrogs are excellent indicators of potential California red-legged frog habitat... Stream and river reaches where bullfrogs were detected in Studies 03-04 and 03-06 should be surveyed for California red-legged frogs from 0.25 mile upstream of each bullfrog detection, or population, to 0.25 mile downstream of that bullfrog detection or population. (p. 12)

Bullfrogs were detected in sufficient numbers to indicate both the presence of potential California red-legged habitat and the potential that those

²⁸ The USFWS's February 4, 2004 BiOp is included as Attachment 7-7C to YCWA's Technical Memorandum 7-7, *CESA-Listed Wildlife – Bald Eagle*.

bullfrogs are a significant stressor on the local California red-legged frog population(s). (p. 12)

Late spring and summer surveys for vocalizing bullfrogs, in riverine areas outside of the areas surveyed under Studies 03-04 and 03-06, will form a more complete picture of both the amount of habitat in these areas that could support breeding California red-legged frogs and the level of pressure that bullfrogs are likely to be putting on California red-legged frog populations. (p. 13)

The requirement that stream reaches be surveyed for CRLF 0.25 mile upstream to 0.25 downstream of each bullfrog detection is not in conformance with the FERC-approved study, and is not based on survey protocols or other guidance (USFWS 2005). Surveys on the Middle Yuba River, North Yuba River, Yuba River, and Oregon Creek associated with previous bullfrog detections would encompass between 3 and 4 miles of these stream reaches. YCWA fundamentally disagrees with the USFWS' contention that these areas are potential CRLF breeding habitat and therefore warrant surveys because of the reasons described below. Furthermore, YCWA does not believe that protocol CRLF surveys could be effectively performed over such large sections of streams, particularly at night.

YCWA is unaware of any study or report that shows that CRLF breeds in large, perennial streams comparable to those that may be affected by Project flows, and specifically in Sierra Nevada streams of this kind where the hydrology is governed by snowmelt runoff. The Tahoe National Forest defines potential CRLF breeding habitat as "*aquatic habitats that contain water through July 31 (such as lakes, ponds, and water holes, and low gradient [$<4\%$] stream habitats lacking spring flushing flows) located below 5000 feet*" (emphasis added) (Forest Service 2002). Under both unimpaired hydrology and current conditions, high spring flows often occur in streams downstream of the Project that are incompatible with CRLF breeding habitat. In addition, these streams do not exhibit the vegetation and substrate conditions characteristic of CRLF habitat, which usually include areas of dense emergent cattail or bulrush, and/or willows and soft substrates. Introduced predatory fish, including smallmouth bass, are well established. YCWA's conclusion that CRLF is unlikely to occur in stream reaches downstream of the Project is warranted.

Bullfrog presence is not an accurate indicator of potential CRLF habitat. Although the exotic bullfrog has occupied much of the historical range of CRLF, bullfrogs are also successful in habitats that are not suitable for CRLF, such as large reservoirs and large streams. The presence of predatory fish, particularly bass and sunfish, is a good indicator of bullfrog habitat suitability, but diminishes CRLF habitat suitability because bullfrogs enjoy an advantage from the presence of fish (Kruse and Francis 1977, Werner and McPeck 1994, Adams et al. 2003), whereas fish are deleterious to CRLF (Gilliland 2010). Bullfrogs also inhabit water bodies that are larger and deeper than used by CRLF (Moyle 1973). In addition, the two species do not breed in the same season and are exposed to different conditions when breeding. The spawning period for Sierra Nevada CRLF populations is unknown, but CRLF is an early breeder elsewhere in its range (Jones et al. 2005, Cook and Jennings 2007) and Barry (2002) suggested that breeding in the Sierra Nevada may begin in March or April. CRLF larvae usually complete metamorphosis by

late summer (Jones et al. 2005). In contrast, bullfrogs breed later and over a long period (Jones et al. 2005, Cook and Jennings 2007), female bullfrogs may “double-clutch” (i.e., breed again) later in the same year (Emlen 1977), and larvae usually overwinter before metamorphosing (Jones et al. 2005). As a result, bullfrog egg masses and small larvae are not exposed to high spring flows, providing a pre-adaptation for breeding on larger streams than CRLF.

The USFWS also claims that YCWA “*has the capacity to minimize the successful reproduction and dispersal of bullfrogs from Project waters*” (p. 13 of USFWS’ January 28, 2013 letter), and that this “bullfrog control” justifies the need for more information on potential CRLF and bullfrog occurrence on Project-affected stream reaches (see Section 2.2.8). The Project-affected reaches of Middle Yuba River downstream of Our House Diversion Dam, North Yuba River downstream of New Bullards Bar Dam, Yuba River to New Colgate Powerhouse, and Oregon Creek downstream of Log Cabin Diversion Dam represent more than 24 miles of streams, much of which is not regularly accessible. YCWA is unaware of successful efforts at bullfrog control in comparable settings. YCWA also notes that the Project does not usually divert water from the Middle Yuba River or Oregon Creek later than June, and only into July in wet Water Years. Summer flow conditions in these reaches are not usually affected by the Project and YCWA has no capability of providing higher summer flows that could affect suitability for bullfrogs.

2.1.11.3 YCWA’s Recommendation

For the reasons stated above, FERC should not adopt the USFWS’ or FWN’s requested modifications to Study 7.3.

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

YCWA’s Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of March 31, 2013, which is the completion date specified in the FERC-approved study. However, YCWA’s Initial Study Report meeting summary proposed a modification to the study, which if adopted would result in a study completion date of November 30, 2013.

2.1.12.1 Description of Request

The NMFS requested the following modification to the FERC-approved Study 7.11, *Fish Behavior and Hydraulics Near Narrows 2 Powerhouse*:

NMFS proposes that the Licensee provide continuous rating curves of discharge vs. velocity and pressure at the original four calculation nodes in the Project works as described in Study Plan 7.11. NMFS proposes that the Licensee provide all calculations used to develop these ratings curves in spreadsheet form. Both of these information elements will enable NMFS’ (and other licensing participants’) hydraulic engineers to conduct analyses related to the potential for injury to anadromous or resident fishes, as well

as develop potential PM&Es related to flows within Narrows 2. Velocities at the fourth node (the end of the concrete box / trapezoidal channel at the exit of the concrete channel into the Yuba River) should be calculated by assuming a river stage. Reasonable assumptions could include providing calculations at average, maximum, and minimum stages during the months when adult salmonids are likely in the vicinity of Narrows 2 (e.g., August through October). NMFS notes that the Licensee likely had to make assumptions about the elevation of Englebright Reservoir in order to determine head for velocity calculations at the three locations presented in the results (and may need to make similar assumptions when calculating continuous rating curves). (p. 18 of Enclosure A of NMFS' January 28, 2013 letter.)

NMFS requests that a trial run of the proposed sampling procedure be conducted prior to the week of the intended primary sampling. The trial run should intend to collect a full suite of velocity measurements, so that if it is successful the data can be used toward satisfying the study objectives and goals. The timing of the trial run will ultimately depend on the 2013 water year type, the Accord flow schedules, and the Project's flow releases and constraints. (p. 19 of Enclosure A of NMFS' January 28, 2013 letter.)

For all three years (2009, 2010, and 2011), the following information should be provided in a future, revised technical memorandum: the number of the total tagged fish that entered the Narrows 2 reach, the number of the adipose fin clipped vs. non-clipped fish that entered the reach, an analysis of each tagged fish that entered the reach, including the duration it stayed in the reach, adipose fin clipped or not, and any results of its genetic analysis and/or information from recovered coded wire tags. (p. 20 of Enclosure A of NMFS' January 28, 2013 letter.)

NMFS recommends that visual observations from the powerhouse deck and shoreline be conducted by fisheries biologists during all operational changes that include the termination of flow from either the powerhouse, partial-bypass or full-bypass for at least one hour, which could be conducted in tandem with potential additional DIDSON surveys (see discussion and recommendations below). (p. 21 of Enclosure A of NMFS' January 28, 2013 letter.)

NMFS requests that discharge data through the partial-bypass from WY 2009 through the present be provided as part of TM 7.11. This should include a data table of each time the partial-bypass was operated including the dates, duration, and discharge through the partial-bypass. (p. 22 of Enclosure A of NMFS' January 28, 2013 letter.)

NMFS proposes that as part of a second year study in 2013, during any use of the partial-bypass, that the right bank shoreline from Narrows 2 powerhouse extending downstream about 250 feet be surveyed by a trained fisheries biologist to check for stranded fish immediately after the partial-bypass is closed. NMFS has proposed other monitoring activities at Narrows 2 during operational changes (fish counts / observations in pools during and after operational changes, see above) and DIDSON surveys (see below), which could easily be incorporated into monitoring the right channel bank following use of the partial-bypass. (p. 23 of Enclosure A of NMFS' January 28, 2013 letter.)

During 2013, NMFS requests DIDSON monitoring during all operational changes during the months when adult salmonids are expected to be in the vicinity of Narrows 2 (i.e., mid-July through mid-November). Further, NMFS emphasizes the specifications in the Director's Determination that monitoring is to occur:

- 1) shortly before (1-2 days) a scheduled project shutdown period;
- 2) during the outage period; and
- 3) through the startup period.

(p. 24 of Enclosure A of NMFS' January 28, 2013 letter.)

If the Narrows 2 powerhouse is to go offline from about September 1 for a multi-week or month period, it is not likely feasible to capture video throughout this entire outage period, but a robust sampling of this period, consisting of multiple days at a time, should be conducted (with the sampling period determined in consultation with FERC, NMFS, and other interested ILP participants). If after full analysis of the 2012 DIDSON data, it is determined that the DIDSON is ineffective at capturing footage along the face (where discharge exits from the powerhouse to the Yuba River and the DIDSON was mounted in 2012) of Narrows 2 during generation, NMFS is supportive of limiting the amount of DIDSON footage captured during generation along the face of the powerplant; however, full video capture of the operational change intervals should occur along the face as this appears to be the best vantage point to observe if fish are entering the powerhouse during the operational change. For example, during an operational change that goes from generation to bypass and back to generation, it is unlikely necessary to capture footage for 1-2 days prior to the switch to bypass, but it would be necessary to have footage for a few hours prior to the switch to bypass. Similarly, at the end of the operational change back to generation it would be unnecessary to capture footage multiple days into the generation period, as long as footage is collected during the change back to generation. (pp. 24 & 25 of Enclosure A of NMFS' January 28, 2013 letter.)

NMFS recommends the Licensee implement an acoustic or radio tracking study specific to collecting information on the behavior and presence of fish at and in the vicinity of the Narrows 2 powerhouse. This study could potentially utilize much of the equipment from the discontinued RMT acoustic telemetry monitoring program (such as fixed receivers and mobile tracking receivers). While some components of the tracking program proposed here would be similar to the discontinued RMT program, such as the location and method of fish capture and deployment of tags, many of the aspects would likely differ. Unlike the RMT program that monitored fish location through the Lower Yuba River, the proposed tracking program for 7.11 would monitor fish from Narrows 1 through the Bypass Pool just upstream of Narrows 2 with a high density of receivers in this area. It would also likely be beneficial to transport fish from their original collection point (likely near Daguerre Dam) to the vicinity of Narrows 2, to insure that a much higher percentage of tagged fish could be monitored in the Narrows 2 vicinity. (p. 26 of Enclosure A of NMFS' January 28, 2013 letter.)

As a complement to developing and implementing an acoustic monitoring program, a much more robust DIDSON monitoring program could be implemented than is currently being deployed. This would likely need to include mounting multiple DIDSON cameras in the vicinity of Narrows 2. For example, an additional camera might be mounted to the upstream side of Narrows 2 powerhouse and directed downstream, with the intent that it could capture footage along the channel between the aerated discharge of Narrows 2 and the left channel bank. This angle could also likely monitor fish movement between Narrows 2 and the full-bypass pool. An additional DIDSON monitor could also be added from a mobile mount attached to a boat (similar in set-up to the ADV mounting rig proposed for the velocity measurements). The mobile DIDSON mount could also provide footage useful to identify additional fixed DIDSON mounting angles and locations that could reliably capture images during powerhouse generation. The feasibility of a robust, multi-camera DIDSON monitoring program to effectively capture and document fish behavior in the vicinity of Narrows 2 powerhouse will likely require a mobile DIDSON survey throughout the area to determine what angles and spatial areas will a DIDSON function. To date, NMFS is only aware of DIDSON testing directly at the face of the powerplant where it discharges into the Yuba River (and it appears this location does not work for video capture during generation). (pp. 26 & 27 of Enclosure A of NMFS' January 28, 2013 letter.)

The NMFS did not provide a level of effort or cost to perform the requested modification. YCWA estimates the cost to perform the requested study modification is between \$350,000 and \$400,000.

2.1.12.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.11.2.1 Criterion 1 – Conformance to FERC-Approved Study

The NMFS claimed Technical Memorandum 7-11, which is scheduled for issuance in fall 2013, would, "...not meet the study goals and objectives in the Director's Determination..." (pg 17-18, Enclosure A of NMFS' January 28, 2013 letter). NMFS provided a bulleted list of general study criteria included in the Director's Determination (pp. 16-17 of Enclosure A of NMFS' January 28, 2013 letter) and highlights five areas in which the study is deficient. Based on the claim of those deficiencies, NMFS requested a suite of study modifications. However, YCWA does not agree with the NMFS' claims of deficiencies or recommend studies. These five areas are addressed as follows.

Radio/Acoustic Tagged Chinook Salmon

The NMFS claims that the study did not, "...incorporate use of radio/acoustic tagged Chinook salmon to track movement in the vicinity of the Narrows 2 powerhouse..." (p. 16 of Enclosure A of NMFS' January 28, 2013 letter).

YCWA disagrees with this claim. In the final revised study plan determination issued by FERC on July 24, 2012, FERC stated:

YCWA should utilize all available RMT acoustic study data and concurrent project operations data to determine if there was any correlation between the movement and behavior of tagged fish and project operations. If so, YCWA should fully describe the observed correlation in its initial study report. If it is determined that the existing RMT data, and concurrent project operations data are incomplete, incompatible, or insufficient to support such an analysis, we will consider the need for additional telemetry study pursuant to section 5.15 of the Commission's regulations in our review of the initial study report. [Emphasis Added]

FERC allowed for YCWA to assess existing RMT acoustic telemetry data to address the movement and behavior of fish in the vicinity of Narrows 2 Powerhouse. YCWA provided an overview of the data in the interim technical memorandum (p. 16 of YCWA's Interim Technical Memorandum 7-11), and will further review the data in the final technical memorandum. YCWA has followed the FERC-approved study plan.

Adult Anadromous Fish Are Reaching Narrows 2 Facilities

The NMFS stated that YCWA did not, "...determine whether adult anadromous fish are reaching the Narrows 2 facilities, including observations by YCWA staff of anadromous fish

interactions with project and its operation (e.g., darting, jumping, stranding, etc.).” (p. 16 in YCWA’s Interim Technical Memorandum 7-11)

YCWA provided a complete summary of fish behavior from its bi-weekly snorkeling events relative to Project operations (p. 19 in YCWA’s Interim Technical Memorandum 7-11). The NMFS claims snorkeling offered limited utility and that observations from the land should be conducted. It is important to note, that YCWA did include in its snorkel descriptions any observations of fish activity from land prior to entering water. So these data were already collected. YCWA also provided a summary of observations made by YCWA facility operators (p 26 in YCWA’s Interim Technical Memorandum 7-11). YCWA provided summaries of these observations and does not see any further justification by NMFS to warrant additional effort.

The NMFS further claimed that an additional telemetry study is required (Item 9; p. 26 of Enclosure A of NMFS’ January 28, 2013 letter) to determine adult proximity to the Narrows 2 facilities. The requested study modification requires that fish be collected, tagged and transported into the vicinity of Narrows 2 Powerhouse and observed. The implications of the study modification suggest an unnatural scenario. Fish would be extensively handled and their behavior likely modified after collecting, tagging, moving, and releasing them. Further, YCWA does not understand how synthetically increasing the density of anadromous fish at Narrows 2 Powerhouse would be a realistic study, rather than an unrepresentative scenario. The three years of telemetry data already available did not show a high presence of adult anadromous fish at Narrows 2 Powerhouse and the study modification requested by NMFS, in recognition of this fact attempts to create a scenario that does not likely occur during normal conditions.

The NMFS also requested additional information from the 2009 through 2011 studies including origination, presence near Narrows 2, and genetic information (Item 3; p. 20 of Enclosure A of NMFS’ January 28, 2013 letter). YCWA will further investigate available data requested for the telemetry study. If the data are available, YCWA will include the information in the final technical memorandum.

Extent of Injury

The NMFS stated that YCWA did not, “...*determine to the extent possible whether project facilities or operations are causing injury or mortality to adult anadromous salmonids and/or delayed spawning activities.*” (p. 17 in YCWA’s Interim Technical Memorandum 7-11)

YCWA is currently processing DIDSON information to describe the findings of monitoring fish behavior and interaction near Narrows 2 facilities during operation. This assessment will address, to the extent possible, whether any observations of fish injury occurred. Further, no observations of injury were made during snorkeling events, as documented in Section 3.3.1 of the Interim Technical Memorandum 7-11. From all of these activities, spawning was not observed at the Narrows 2 facilities and therefore any delay could not be assumed. YCWA will provide the data to address this item in its final technical memorandum.

Behavior Activities

The NMFS states that YCWA did not, “...describe behavior activities by species at project operational conditions that occur during the study and during operational transition periods.” (p. 17 in YCWA’s Interim Technical Memorandum 7-11)

See the above response. YCWA will provide the data to address this item in its final technical memorandum.

Continuous Visual Monitoring

The NMFS states that YCWA did not, “...provide for continuous visual monitoring (using DIDSON or similar appropriate technology) of species behavioral activities at the Narrows 2 powerhouse discharge shortly before (1-2 days) a scheduled project shutdown period, during the outage period, and through the startup period.” (p. 17 in YCWA’s Interim Technical Memorandum 7-11)

See the above response. YCWA will provide the data to address this item in its final technical memorandum.

In addition, NMFS claims that YCWA did not sufficiently monitor the Narrows 2 facility during infrequent operational changes. NMFS suggests both additional DIDSON monitoring (Item 7; p. 24 of Enclosure A of NMFS’ January 28, 2013 letter) and also requests more DIDSON cameras (Item 10; pp. 26 & 27 of Enclosure A of NMFS’ January 28, 2013 letter). NMFS also requests that standard underwater video monitoring be conducted during outages (Item 8; pp. 24 & 25 of Enclosure A of NMFS’ January 28, 2013 letter).

YCWA acknowledges that there were technical challenges deploying the DIDSON during infrequent operational events. Nonetheless, a total 290 hours of DIDSON footage was collected during pre-, during, and post-operational change events. Every planned operational change event was attempted, even when it was cancelled, as noted by NMFS. YCWA is confident that 290 hours of DIDSON footage is sufficient to both assess the viability of the DIDSON footage and fully extract all pertinent information from using the camera.

NMFS claims that monitoring when the Narrows 2 Powerhouse was offline was a critical missed event, but many days of bypass operation were monitored after infrequent operational changes—which is effectively the same water release scenario. YCWA is confident that the data gathered met the goal of the study to the capability allowed by the DIDSON camera.

2.1.11.2.2 Criterion 2 – Anomalous Conditions

The NMFS did not base its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

2.1.11.2.3 Other Showings of Good Cause

The NMFS requested numerous additional activities as study modifications. Each of these requests is addressed below.

Velocity and Pressure Calculations

The NMFS requested that velocity and pressure calculations be provided in addition to existing results, and that the calculation at the end of the concrete channel of the draft tube be calculated based on assumed variables (p. 18 of Enclosure A of NMFS' January 28, 2013 letter). YCWA will complete the analyses and include it in the final technical memorandum. NMFS stated that the calculation could be made by applying assumptions of water surface elevations, but by taking YCWA's approach, it is more likely the calculation will be based on real-world measurements and not assumptions.

Trial Run

The NMFS requested that a single trial run of the velocity field activity be conducted (Item 2; p. 19 of Enclosure A of NMFS' January 28, 2013 letter). The NMFS stated that this modification to a pending study objective was needed to ensure that the survey can be done and not determined at the end of the season, due to the ILP timeline. As a reminder, YCWA is required to conduct flow measurements during three different flow scenarios. YCWA is prepared with equipment and staffing to complete the measurement that is required and now only waits until operations allow for all three flow scenarios to be available. Currently, YCWA cannot complete the surveys because the RMT has stated lowering flow significantly now could be detrimental to salmon in the lower river. YCWA does not see a benefit in deploying a large team of scientists and equipment to only accomplish a single survey during higher flow as a trial. YCWA is confident that the survey can be completed. The inefficiency of only conducting a single day of flow measurement is not merited or justified, as mobilization and set-up will represent a significant amount of effort. YCWA will deploy the team one time to address all three flow measurement scenarios.

Flow Operational Changes

The NMFS requested a modification to have a biologist present during flow operational changes (Item 4; p. 23 of Enclosure A of NMFS' January 28, 2013 letter). NMFS stated that this activity is needed to document additional fish behavior due to challenging conditions from snorkeling. YCWA had operators during 2012 identify any fish activity and that information is presented in the interim technical report. YCWA identified that the exact time of flow operational changes is not always predictable, as it occurs based on the coordination of operations from multiple facilities. For a biologist to view the event may require them to stay for the day to ensure they will be present. YCWA does not see the justification for this, as documented fish activity was completed as required by YCWA operators in 2012.

Stranding Surveys

The NMFS requested that stranding surveys occur following operational changes (Item 6; p. 23 of Enclosure A of NMFS' January 28, 2013 letter). A stranding survey was not part of the 2012 scope and is suggested as a modification. The likelihood of stranding by an adult salmonid is very low. NMFS suggests this item based on the occurrence of a single fish which appeared to leap onto shore when the partial bypass was operated in 2012. The partial bypass sends a large shower of water into the air during operation and covers a broad area that includes approximately 6 to 10 ft of shoreline. The fish that was found on the shoreline was likely not stranded (i.e., left unable to swim to the channel from receding water) from the operations, but naturally deceased after spawning. Carcasses of spawned-out Chinook salmon are commonly found in the lower Yuba River washed up in shallow water or transported onto shore by predators in mid-October when the NMFS made this observation. If spawning at this location were to occur frequently, other additional carcasses would be readily identified during frequent monitoring activities last year. This single observation and NMFS' unlikely explanation for it does not justify the effort proposed.

2.1.12.3 YCWA's Recommendation

YCWA did agree to include some of the requested detail into the final report; however, the NMFS requested a significant level of additional activity that is not well justified. For the reasons stated above, FERC should not adopt the additional study activity modifications the NMFS requested to Study 7.11, as detailed by YCWA.

2.1.13 Recreation Use and Visitor Surveys (Study 8.1)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of March 31, 2013, which is the completion date specified in the FERC-approved study.

2.1.13.1 Description of Request

The Forest Service requested the following modification to the FERC-approved Study 8.1, *Recreation Use and Visitor Surveys*:

The licensee was not able to collect the targeted number of surveys at the campgrounds, boat-in campsites, or at dispersed sites. Given an excellent recreation season in 2012, and the limited number of target surveys in campgrounds relative to the number of recreation visitor days, we do not understand why the target survey number was not reached. The number of target surveys was the least number needed for a statistically valid survey. We request the licensee conduct additional work in 2013 to reach 100% of the target. (p. 21 of Attachment 1 to Forest Service's January 25, 2013 letter.)

While the Forest Service included this request under the larger section of “*Requested Corrections or Edits to Technical Memorandum and Potential Modifications to This Study*” of its letter, YCWA considers this a requested study modification since the additional year of surveys is not required by the FERC-approved study.

The Forest Service did not provide a level of effort or cost to perform the requested modification. YCWA estimates the cost to perform the requested study modification is between \$80,000 and \$175,000 for additional surveys during the peak season (i.e., 20 days between Memorial Day and Labor Day holiday weekends). Note that the low cost assumes surveys at only the sites that did not meet the targets; and the high cost assumes surveys at all the Project study sites and not just the study sites where the targets were not met.

2.1.13.2 YCWA’s Response

YCWA’s response to the request is provided below in context of FERC’s two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.13.2.1 Criterion 1 – Conformance to FERC-Approved Study

The Forest Service based its request on the fact that the study was not conducted as provided for in the FERC-approved study. However, YCWA notes that data collection was not yet complete when the Initial Study Report was filed with FERC. As such, the final technical memorandum will include additional surveys received through November 2012, which has resulted in a higher total number of surveys received and higher target percentages. Table 2.1-1 shows the current number of visitor surveys received in comparison to targets in the FERC-approved study.

Table 2.1-1. Comparison of visitor surveys received to the target number of surveys required by the study plan.

Sample Population	Resource Area	Facility	Number of Completed Surveys Received	Percent of Target Number of Surveys
Overnight Use Facilities	Campgrounds	Schoolhouse Campground	159	96%
		Dark Day Campground	32	91%
		Cottage Creek Overflow Campground	NA ¹	NA ¹
		Hornswoggle Group Campground	60	91%
		Madrone Cove Boat-In Campground	23	153%
		Garden Point Boat-In Campground	40	100%
		Frenchy Point Boat-In Campground	9	90%
	Undeveloped Camping	Shoreline Camping Permits	NA ²	NA ²
	Houseboat Users ³	Owners	48	73%
		Renters	60	43%
	<i>Overnight Use Facilities - Subtotal</i>			<i>431</i>

Table 2.1-1. (continued)

Sample Population	Resource Area	Facility	Number of Completed Surveys Received	Percent of Target Number of Surveys
Day Use Facilities	Day Use Areas	Dark Day Picnic Area	25	125%
		Sunset Vista Point	21	210%
		Dam Overlook	21	210%
		Moran Road Day Use	19	190%
	Boat Launch Facilities	Cottage Creek Boat Launch	142	109%
		Dark Day Boat Launch	133	125%
	Recreational Trailheads	Sunset Vista Trailheads	18	51%
		Schoolhouse Trailhead		
		7 Ball Trailhead		
		8 Ball Trailheads		
		Rebel Ridge Trailhead		
	Diversion Dam Impoundments	Camptonville Road Trailhead	18	72%
		Our House Diversion Dam		
		Log Cabin Diversion Dam	2	13%
		<i>Day Use Facilities - Subtotal</i>		399
Total			830	108% (target = 762)

First, a statistically valid sample is not calculated by each individual facility but rather by the overall sample populations that you are surveying, which for this study was two distinct populations—overnight visitors and day visitors. To meet the statistically valid threshold, YCWA would need to receive 381 surveys from each sample population. In all, YCWA received enough completed surveys from each type of facility to achieve a statistically valid sample size, as follows:

- 431 surveys from overnight facilities
- 399 surveys from day use facilities

Since both populations had more than 381 surveys each, YCWA met the study plan requirements to achieve a statistically valid sample of both overnight and day users.

Second, the target number of surveys for each facility in the study plan is merely an estimate in order to develop a logical field survey protocol. Further, these estimated targets are based on questionable past use data that, in many cases were more 18 years old (1994) for Our House and Log Cabin diversion dam impoundments and developed using less rigorous sampling in comparison to the methods in this study. Thus, the target number of surveys for each individual facility is not intended to be a hard target but rather an approximate target as the use levels and patterns by facility in 2011-2012 are likely different than the various historical data used to estimate the targets.

YCWA believes it is clear that YCWA has met the study requirements of a statistically valid sample as described above; however, YCWA has nonetheless provided an explanation of why certain facilities did not meet the “targets” below.

YCWA met or exceeded the targets at 12 of the 19 study sites at the Project recreation facilities (Table 2.1-1). Of the seven sites where YCWA did not meet the targets, YCWA was in excess of 90 percent of the target at four of those sites, including:

- Schoolhouse Campground (96% or 159 out of the targeted 165 surveys);
- Dark Day Campground (91% or 32 out of the targeted 35 surveys);
- Hornswoggle Group Campground (91% or 60 out of the targeted 66 surveys); and
- Frenchy Point Boat-in Campground (90% or 9 out of the targeted 10 surveys) – YCWA notes that YCWA received 9 completed surveys from all 9 camping groups that it encountered during the number of study plan required survey days at the campground. YCWA visited more than was planned in an attempt to obtain the target number of surveys.

YCWA believes that the number of surveys received is more than adequate to characterize visitor uses and preferences at these sites for the purpose of informing license requirements, and that collecting six more surveys beyond the 158 at Schoolhouse Campground, three more surveys at Dark Day Campground; and one more survey at Frenchy Point Boat-in Campground would not have any significant impact on the data or results.

The three study sites where YCWA received significantly less than the targets were: 1) the trailheads (51% or 18 of the targeted 35 surveys); Our House Diversion Dam (72% or 18 of the targeted 25 surveys); and Log Cabin Diversion Dam (13% or 2 out of the targeted 15 surveys). For each of these study sites, YCWA has provided a rationale for not meeting the target.

Log Cabin Diversion Dam

YCWA only received two completed surveys at this site. However, the site is an extremely low use site (YCWA estimated use at 70 visitors spread over 365 days in 2011-2012) that also has restricted access due to a locked gate at Highway 49, which requires a 1.2-mile hike/walk to the diversion dam impoundment. Further, in 2011-2012, YCWA observed less than one shoreline user (i.e., 0.2 users), on average, when YCWA staff visited the actual diversion dam shoreline during each survey day. Based on this low level of use, YCWA believes it would not have been practical to obtain 15 visitor surveys. This site is an excellent example where the targets were developed based on unknown levels of current very low usage.

Our House Diversion Dam

YCWA only received 18 completed surveys compared to the targeted 25 surveys. This site also received low use in 2011-2012, though slightly higher than Log Cabin Diversion Dam impoundment (i.e., approximately 900 visitors over a 365 day period from 2011-2012). During the study season, YCWA rarely made actual visitor contact at this site and often administered a windshield survey, which is typically more difficult to get completed and returned. And, as this situation became apparent during the survey season, YCWA placed more surveys on vehicles

during each visit whenever YCWA encountered vehicles in an attempt to receive more surveys. Nonetheless, YCWA did not obtain the target number of surveys.

Further, in 2011-2012, YCWA observed less than two shoreline users and one vehicle, on average, when YCWA staff visited the diversion dam shoreline during each survey day. In addition, the number of average users and vehicles observed was significantly skewed due to one large group observed on July 15, 2012 (i.e., 14 vehicles and 30 shoreline users). The rest of the study season, the largest counts were five vehicles and shoreline users.

Overall, YCWA observed vehicles or users on only 27 of the 52 survey days and attempted to administer an on-site survey if visitors were present, but in the majority of cases, YCWA placed a windshield survey on the vehicles as visitors were not present. YCWA had no control over the response rate of the windshield surveys returned to YCWA.

For all of these reasons, YCWA believes it made a good faith effort to meet the study target and even modified/increased windshield survey administration to try to meet the targets, but low use overall and the inability to directly contact users made meeting the target impractical. YCWA believes the 18 surveys received are adequate to characterize the minimal use of visitors at Our House Diversion Dam impoundment.

Trailheads

YCWA only received 18 completed surveys compared to the targeted 35 surveys at a total of six trailhead locations. However, three of the trailheads are co-located at another facility and indistinct from that larger facility, which makes separating an actual trailhead survey from the larger facility survey very difficult. Thus, only three distinct trailhead study sites could be discerned as trailhead surveys. This “overlap” in study sites made it very difficult to meet the targets when some of the trailhead users may have been accounted for at the co-located facility (e.g., Sunset Vista Point where Bullards Bar Trailhead is co-located and not separated from Sunset Vista Point; Schoolhouse Campground where Schoolhouse Trailhead is located is also the overflow parking area for Schoolhouse Campground; and 8 Ball Trailhead is co-located with Rebel Ridge Trailhead). Note that windshield surveys on vehicles and not on-site visitor surveys were the primary survey administration method at trailheads since visitors were rarely present at any of the trailheads.

In addition, at the three distinct trailheads (i.e., Rebel Ridge, 7 Ball and Old Camptonville Road trailheads), YCWA observed very low use (i.e., approximately 0.5 vehicles, on average, or no vehicles as often as 1 or 2 vehicles were observed).

YCWA believes most of the recreational trail use occurs by users visiting the Project campgrounds, day use areas and boat launch parking areas and accessing the trails where the trails intersect or begin within these “non-trailhead” facilities. Due to the survey methodology overlap at half of the trailheads (co-located with other day use facilities), low use and very limited visitor contact (almost entirely vehicles), YCWA was not able to meet the survey targets.

YCWA notes that the visitors at the other facilities where trails intersect with the facility have the opportunity to provide feedback on the trails (both existing conditions and preferences for improvements) despite not being surveyed at the specific trailheads. When these data are combined with the limited surveys received directly at the trailheads, YCWA believes ample data is available to characterize existing use and preferences for trailheads and trails.

2.1.13.2.2 Criterion 2 – Anomalous Conditions

The Forest Service did not base its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

2.1.13.2.3 Other Showings of Good Cause

The Forest Service did not provide any other showings of good cause to support its requested study modification.

2.1.13.3 YCWA's Recommendation

FERC should not adopt the Forest Service's requested modification to Study 8.1, since low use at these particular sites is the reason why the target numbers of responses were not obtained.

2.1.14 Recreation Flow (Study 8.2)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as in progress, with an anticipated completion date of September 30, 2013, which is the completion date specified in the FERC-approved study.

2.1.14.1 Description of Request

The Forest Service requested the following modification to the FERC-approved Study 8.2, *Recreation Flow*:

If the flows indicated in the recreation flow study are not achieved opportunistically in 2013, we will work with the licensee and other relicensing participants to determine a plan for meeting the objectives of the Recreational Flow study in the late fall of 2013 or winter of 2014. (p. 23 of Attachment 1 of the Forest Service's January 25, 2013 letter.)

The Forest Service did not provide a level of effort or cost to perform the requested modification. YCWA estimates the cost to perform the requested study modification is between \$15,000 and \$25,000 (i.e., costs to add another year of opportunistic boating flow coordination).

The NPS and SWRCB supported the Forest Service's requested modification.

2.1.14.2 YCWA's Response

YCWA agrees with the Forest Service's proposed modification to Study 8.2, for the reasons provided by the Forest Service.

2.1.14.3 YCWA's Recommendation

For the reasons stated above, FERC should adopt the Forest Service's, NPS' and SWRCB's requested modification to Study 8.2.

2.1.15 Primary Project Roads and Trails (Study 9.1)

YCWA's Initial Study Report and Initial Study Report meeting summary described this study as complete.

2.1.15.1 Description of Request

The Forest Service requested modifications to the FERC-approved Study 9.1, *Primary Project Roads and Trails*. Specifically, at page 26 of Attachment 1 to the Forest Service's January 25, 2013 letter, the Forest Service requested:

Proposed Modifications to This Study

Collect the same data as in Study 9.1 Primary Project Roads and Trails and present it in an updated Tech Memo 9.1 for the following roads/road segments. These roads/road segments lead directly to project facilities and/or recreation sites or they have historically provided access to the reservoir for recreational use as described above:

- Access to boat-in campground – from E21 road to east shore (Willow Creek arm)
- Cottage Creek Campground Loop – from Yuba County Road 169 into Section 24
- Moran Cove – end of County Road to Day Use Area
- Moran Cove Spur – short road from Day Use Improvements up into drainage
- All entrances to the Schoolhouse Campground, Hornswoggle Campground and Sunset Vista Point.
- Yuba County Road 157 - access to Dark Day Facilities
- Yuba County Road 169 - access to Cottage Creek Facilities
- Any agreed to roads in Table 1. Historic Use and Potential Future Recreation Access Roads

YCWA and the Forest Service had additional productive discussions regarding the Forest Service's request. In response to a February 13, 2013, YCWA e-mail requesting clarification regarding county roads the Forest Service maintains, the Forest Service provided to YCWA an agreement entitled *Forest Development Road Cooperative Agreement* between the Forest Service (i.e., Plumas National Forest) and Yuba County dated June 13, 1972, which addressed County Roads 129, 111, 130, 135, 136, 110, 137, 106, 107, 3, 2, 105 and 169. The agreement allows the Forest Service to work on these roads in order to facilitate Forest Service projects. The Forest Service said it was its understanding that there are no formal "cost shares" on these roads. The Forest Service has performed general maintenance on occasion such as brushing and filling potholes when asked to do so by the county, but for the most part these are county maintained roads. The Forest Service said it was not aware of any similar agreements between the Tahoe National Forest and Yuba County.²⁹

The NPS requested modifications to the FERC-approved Study 9.1 at page 5 of the NPS' January 25, 2013 letter:

At the December 12, 2012 stakeholders meeting, the USFS presented a list of roads they would like to have considered as primary project roads and reflected in the Studies 08-01 and 09-01. These two roads were at the top of the list. In view of the importance of resolving this expeditiously, we believe that these two road segments should be specifically included in the Study Plan 9.1. We understand that this may be considered a modification of the study.

The two road segments referred to by the NPS were identified at page 4 the NPS' January 25, 2013 letter:

- 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.

²⁹ YCWA plans to consult with the Forest Service regarding a Transportation Management Plan on NFS Land, which would be included in the Draft License Application. YCWA is optimistic that it and the Forest Service will reach a mutually acceptable agreement on roads.

Neither the Forest Service nor the NPS provided estimates of level of effort or cost to conduct the requested study modification. YCWA estimates the cost to perform the requested study modification is between \$25,000 and \$35,000.

2.1.15.2 YCWA's Response

YCWA's response to the request is provided below in context of FERC's two criteria for requesting a study modification, and any other showing of good cause for why the requested modification is warranted.

2.1.15.2.1 Criterion 1 – Conformance to FERC-Approved Study

Neither the Forest Service nor the NPS based its request on the claim that the study was not conducted as provided for in the FERC-approved study. All roads and trails listed in the FERC-approved study were inventoried, assessed and discussed in Technical Memorandum 9-1. In addition, eight recreation roads identified in Study 8.1, *Recreation Use and Visitor Survey*, were assessed using the methods of Study 9.1, and the results were included in Technical Memorandum 9-1. Also, Moran Road Day Use and Boat Ramp located on National Forest System (NFS) land were added to the study based on consultation in the field with the Forest Service on April 11, 2012; the assessment includes Moran Road from the NFS boundary to the boat ramp. The results of YCWA's inventory and assessment are included in Technical Memorandum 9-1. Another road used for Project operation, the Colgate Tunnel Muck Road located on private land, was added to the study based on additional information from YCWA staff. The results are included in Technical Memorandum 9-1.

2.1.15.2.2 Criterion 2 – Anomalous Conditions

Neither the Forest Service nor the NPS based its request on anomalous conditions or that conditions have changed. The study has been performed under typical conditions and conditions have not changed since FERC directed YCWA to perform the study.

2.1.15.2.3 Other Showings of Good Cause

While the Forest Service's letter discusses numerous roads, the Forest Service ultimately requests that 15 road segments with a total length of approximately 12.2 miles be added to the study. The Forest Service claims the current primary use of each of these 15 road segments is to provide public access to a Project recreation facility or staff access to maintain the facility, or that these roads will provide access to potential future Project recreation use areas. The NPS's justification for adding two roads to the study is that the roads connect to Project-related recreation facilities. The NPS-requested roads are the same as two of the roads requested by the Forest Service.

YCWA responds to the claim for each of the 15 roads below.

Access to boat-in campground – from E21 road to east shore (Willow Creek arm)

The Forest Service proposes adding a road that would provide access to an unidentified boat-in campground. This unnamed road segment begins at the intersection of Road E-21 and extends westerly, terminating near the normal maximum water surface elevation (NMWSE) at the east shore of New Bullards Bar Reservoir. YCWA is not aware of an existing road or boat-in campground at this location. The Forest Service provides no information regarding whether a road or boat-in campgrounds currently exists at this location, or whether an existing road is currently blocked off.

The proposed road segment, as shown on the Forest Service Attachment 2 map, is approximately 0.80 mile long, with about 40 percent of the road on NFS land and about 60 percent on private land. The road begins on NFS land for about 0.1 mile, continues across private lands for about 0.5 mile, and then back to NFS land for about the final 0.2 mile. The Forest Service provided no information on the type of road (i.e., Forest System Level Type I, II, III, IV, or V) or the road's condition.

As mentioned above, YCWA is not aware of a road or boat-in campground at this location, hence the reason why it was not included as a Primary Project Road in the FERC-approved study, and the Forest Service has provided no specific rationale for why it should be included in the study now.

Cottage Creek Campground Loop – from Yuba County Road 169 into Section 24

YCWA does not understand why this road segment was included in the Forest Service's requested modification since it was included in the FERC-approved study and YCWA performed a condition inventory on the road segment. Refer to Table 2.1-2 and Figure 2.1-4 (Map 4 of 6) on pages 6 and 10, respectively, of Technical Memorandum 9-1. The road section is further described in Technical Memorandum 9-1 on page 19, and results of the inventory are summarized in Table 3.1-1 on page 29 of the technical memorandum.

Moran Cove – end of County Road to Day Use Area

This segment of Moran Road begins at the end of County Road 163 and extends 0.15 mile from the "End of Yuba County Road" sign to the NFS boundary. Starting from the road sign, the road crosses about 0.1 mi of private land, then about 0.05 mi of YCWA lands, with no portion of the segment on NFS lands. No part of the road is on NFS land.

Given that this road leads to NFS lands for access to the Moran Road day use and boat launch areas, YCWA agrees to add this road segment as a primary Project road if the current landowner over which the road passes consents. If so, YCWA will conduct an assessment of the road condition and provide results in an amended Technical Memorandum 9-1. YCWA will approach the landowner and advise FERC and the Forest Service regarding the landowner's decision.

Moran Cove Spur – short road from Day Use Improvements up into drainage

The Forest Service has requested adding this segment to the study, stating that it leads “directly to Project facilities and/or recreation sites or they have historically provided access to the reservoir for recreational use.” However, the Forest Service has not provided information regarding the historical or current use of this segment.

The segment is located entirely on NFS lands, beginning at the Moran Road Day Use Area and extending 0.14 mile up the drainage along the New Bullards Bar shoreline, including a gravel section for about the first 0.08 mile; the remaining 0.06 mile extends below the New Bullards Bar Reservoir NMWSE.³⁰ The entire segment is currently blocked by boulders placed by the Forest Service to prohibit vehicle traffic and to encourage use of the corridor as a trail, hence it was added as a trail segment for assessment as part of Study 8.1, *Recreation Use and Visitor Survey*, as described on pages 9 of Technical Memorandum 8-1.

YCWA does not believe that good cause has been shown by the Forest Service to include this road segment as a study modification. As discussed, the Forest Service currently has this segment blocked off from vehicle use, and the trail has been inventoried and the condition assessed.

All entrances to the Schoolhouse Campground, Hornswoggle Campground and Sunset Vista Point

Each of these road segments is discussed separately below.

Entrance off County Road 8 to Schoolhouse Campground Road

This is a very short (i.e., approximately 100-ft) segment of road on NFS land that has an asphalt surface. It extends from the paved portion of County Road 8 to the paved portion of the Schoolhouse Campground Road. It appears from YCWA’s investigation of Yuba County Road data that the segment is entirely within the right-of-way (ROW) of County Road 8, which has an overall ROW that varies from about 100 to 150 ft (i.e., 50 to 75 ft each side of centerline).

During consultation meetings, the Forest Service expressed a concern about this road segment and explained that the Forest Service did not have the authority to modify or maintain the road since it was a part of the Yuba County road system. YCWA said it also did not have the authority to modify the road segment for the same reasons stated by the Forest Service.

Entrance off County Road 8 to Hornswoggle Campground Road

This asphalt surfaced segment extends about 100 ft from the paved portion of County Road 8 to the paved portion of the Hornswoggle Campground Road. The segment is located entirely on NFS land. As above, the segment of road in question is located entirely within the County Road 8 ROW.

³⁰ At a December 12, 2012 meeting, the Forest Service said it formally used the road for Forest Service debris gathering, and it would advise YCWA of any restricted use (i.e., closure due to potential effects on ESA-listed species) of the existing trail.

Entrance off County Road 8 to Sunset Vista Point

This is about a 100-ft segment of road on NFS land that has an asphalt surface. It extends from the paved portion of County Road 8 to the paved portion of Sunset Vista Point. As above, the segment of road in question is located entirely within with the County Road 8 ROW.

Yuba County Road 157 - access to Dark Day Facilities

The Forest Service requested adding this segment to the study stating that it leads “*directly to project facilities and/or recreation sites.*” This segment of County Road 157 begins at the intersection of County Road 8 and extends 0.56 mile to the entrance of the Dark Day facilities (campground, boat ramp and day use areas). The road segment is asphalt paved and located entirely on NFS lands.

As a County Road, YCWA cannot maintain this road segment without an agreement with the County, as discussed above.

Yuba County Road 169 - access to Cottage Creek Facilities

The Forest Service requested this road segment in its list of road segments that “*lead directly to project facilities and/or recreation sites or they have historically provided access to the reservoir for recreational use.*”

This segment of County Road 169 begins at the intersection of County Road 8 and extends 1.23 miles to the entrance of the Cottage Creek Campground Loop Road. The road segment is paved asphalt and traverses approximately 0.7 mile of YCWA land and about 0.5 mile of NFS land, and provides access along the way to a YCWA kiosk and the Cottage Creek Marina and Boat Ramp.

As a County Road, YCWA cannot maintain the road without an agreement between Yuba County and YCWA, as discussed above regarding County roads.

Any agreed to roads in Table 1. Historic Use and Potential Future Recreation Access Roads

The Forest Service identified eight road segments (Table 1, page 25 of Attachment 1 of the Forest Service’s January 25, 2013 letter) as “*historic use and potential future recreation access roads identified by the Forest Service.*” The road segments range in length from 0.59 to 1.84 miles, with a combined length of 9.19 miles. Of the eight segments, two are located on a combination of private and YCWA land, three are entirely on NFS land, and the remaining three are located on a combination of private, NFS and YCWA land. The eight segments are shown as purple roads in the Forest Service’ Attachment 2 map.

The Forest Service did not provide any description of the condition of the roads, or the historical or future use. Preliminary discussions between YCWA and the Forest Service regarding these road segments occurred during a meeting on December 12, 2013; the primary focus of the meeting was to discuss additional roads that the Forest Service would like added to the Project. The Forest Service commented in the meeting that it was interested in increasing public access to

the reservoir and trails. The Forest Service's Attachment 2 map provides the only indication of the Forest Service's intent for each segment, as follows:

- 18N08 – road to future recreation development
- 18N09 – road to future recreation development
- 18N10 – road access to west shore trail
- 18N15 – road for lake and trail access
- 19N05 – access road to Madrone Cove and whitewater takeout
- 19N26 – road and trail access
- 19N28 – road for trail and shoreline access
- Unnumbered – off County Road 108 – YCWA access to north shore

Other than the labels shown on its map, the Forest Service offered no details regarding the historic or potential future recreation uses associated with these roads segments. Four of the segments - 18N08, 18N09, 18N10 and 19N26 - terminate on NFS land a significant distance from New Bullards Bar Reservoir, which may indicate these were formerly timber harvest roads.

YCWA and the Forest Service did not reach agreement on any of the above eight road segments during the December 12, 2012 meeting.

In consideration of the Forest Service's Table 1 title, ("historic use and potential future recreation access roads identified by the Forest Service"), the Forest Service implies that some of the road segments have been used historically for Project-related recreation, but the Forest Service provided no data or information to support this claim or even which roads were associated with historical recreation, and YCWA is not aware of Project recreation related to these roads.

Likewise, the Forest Service provided no information on which of the eight road segments are proposed for potential future recreation activities. Any road segments proposed for development of future recreation uses are outside the scope of Study 9.1, but could be part of future PM&E discussions. If YCWA and the Forest Service are able to reach agreement that any of the eight road segments should currently be Primary Project Roads, YCWA will perform a condition assessment on the road segment. Should any of the road segments be agreed upon during PM&E discussions regarding future development or redevelopment of recreation areas, condition assessments of such road segments would presumably be evaluated as part of an implementation plan.

The segment of County Road 169 between Marysville Road (County Road 8) and the Cottage Creek Overflow Campground

This road segment proposed as a study modification by the NPS is the same segment requested by the Forest Service, described above as “Yuba County Road 169 - access to Cottage Creek Facilities,” and has been addressed by YCWA above.

The NPS also stated (p. 5 of the NPS’s January 25, 2013 letter) *“resolution on the Dark Day and Cottage Creek access roads should also be pursued by the two key Yuba County agencies (Roads and YCWA) and that they should agree on a definitive determination of where the County’s maintenance responsibility begins and ends. This could happen now, outside of the relicensing proceeding.”*

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 road segment proposed as a study modification by the NPS is the same segment requested by the Forest Service, described above as “Yuba County Road 157 - access to Dark Day Facilities”, and has been addressed by YCWA above.

The NPS also stated (p. 5 of the NPS’s January 25, 2013 letter) *“resolution on the Dark Day and Cottage Creek access roads should also be pursued by the two key Yuba County agencies (Roads and YCWA) and that they should agree on a definitive determination of where the County’s maintenance responsibility begins and ends. This could happen now, outside of the relicensing proceeding.”*

2.1.15.3 YCWA’s Recommendation

For the reasons stated above, YCWA recommends the following with regards to the Forest Service’s and NPS’ requested modifications to Study 9.1:

- Not Adopt the Forest Service’s Request Because this Segment Was Inventoried and Assessed in YCWA’s technical memoranda:
 - Cottage Creek Campground Loop – from Yuba County Road 169 into Section 24
- Not Adopt the Forest Service’s Request Because the Forest Service Has Not Shown Good Cause:
 - Moran Cove Spur – short road from Day Use Improvements up into drainage
 - Access to boat-in campground – from E21 road to east shore (Willow Creek arm)
 - Any agreed to roads in Table 1. Historic Use and Potential Future Recreation Access Roads
- Not Adopt the Forest Service’s Request Unless the Private Landowner Specifically Agrees that YCWA Can Maintain the Road for Public Access:

- Moran Cove – end of County Road to Day Use Area
- Not Adopt the Forest Service’s and NPS’s Request Unless the Yuba County Department of Transportation and YCWA Reach an Agreement that YCWA Can Maintain the Road Segments in a Manner Approved by the County:
 - All entrances to the Schoolhouse Campground, Hornswoggle Campground and Sunset Vista Point
 - Yuba County Road 157 - access to Dark Day Facilities
 - Yuba County Road 169 - access to Cottage Creek Facilities

2.2 Requests for New Studies

This section provides YCWA’s response to requests for new studies.

YCWA organized each of its responses to address the five criteria identified by FERC in 18 CFR § 5.15(e) that must be addressed when a party requests a new study at this stage of the relicensing. For reference, § 5.15(e) states:

e) Criteria for new study. Any proposal for new information gathering or studies pursuant to paragraphs (c)(1)-(4) of this Section³¹ 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 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 CFR § 5.9(b) are:

1. Describe the goals and objectives of each study proposal and the information to be obtained;

³¹ Section C1-4 of 18 CFR § 5.15 deals with the Initial Study Report (ISR), applicant’s ISR meeting, applicant’s filing of an ISR meeting summary, and Relicensing Participants and Commission staff’s filing disagreements regarding applicant’s ISR meeting summary.

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 filed 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.

2.2.1 Mercury (New Study 1)

2.2.1.1 Description of Request

CDFW requested YCWA complete a new Mercury Study. Specifically, CDFW stated:

The Department requests that a new study be developed with the objective of this study to collect information to determine project effects on the transport and speciation of mercury. The goal is to provide the basis for developing project mitigations or enhancements, if warranted, based on study results. (p. 3 of CDFW's January 28, 2013 letter)

CDFW did not provide study methods, level of effort or cost.

2.2.1.2 YCWA's Response

YCWA's response to the requested study is provided below in context of FERC's five criteria for requesting a new study.

2.2.1.2.1 Criterion 1 – Material Changes in Laws and Regulations

The CDFW 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 CDFW's request.

Two weeks after FERC's September 30, 2011 Determination, the United States Environmental Protection Agency (USEPA) did issue its final decision regarding the water bodies and pollutants to be added to California's 2010 Clean Water Act (CWA) § 303(d) List, which included Project water bodies and environs impaired due to mercury. However, USEPA's decision included no new information - its decision included all of the water bodies and associated pollutants identified in the SWRCB's November 12, 2010, submission to the USEPA, and was known to the Relicensing Participants, and was acknowledged in YCWA's Proposed and Revised study plans.

In addition, while YCWA believes bioaccumulation does not have a nexus to the Project, YCWA is aware that since FERC's September 2011 Determination, the SWRCB has initiated a process to develop a regulatory program that addresses mercury contamination in California's water bodies and is considering a separate policy devoted to reservoirs.³² YCWA notes that one of the options under consideration is the no action alternative, wherein the SWRCB continues to address mercury through the individual water body § 303(d) listing and total maximum daily load (TMDL) process. Clearly, the State is pursuing mercury contamination through other processes.

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

The CDFW did not base its request on the claim that the goals and objectives of its requested study could not be met with an already FERC-approved study.

However, YCWA notes that the FERC-approved Studies 2.3, *Water Quality*, and 2.4, *Bioaccumulation*,³³ each developed information regarding mercury in Project waters. Study 2.3 measured mercury and methylmercury levels in Project reservoirs and in stream reaches affected by the Project. Study 2.4 employed the SWRCB's Surface Water Ambient Monitoring Program's methodologies. Data were collected that are sufficient for the California Office of Environmental Health Hazard Assessment (OEHHA) to develop consumption recommendations, if it chooses to do so, for targeted fish species in the three Project impoundments (i.e., New Bullards Bar Reservoir, Our House Diversion Dam Impoundment and Log Cabin Diversion Dam Impoundment).

³² http://www.waterboards.ca.gov/water_issues/programs/mercury/

³³ On February 7, 2013, YCWA posted to its Relicensing Website a final Technical Memorandum 2-3, *Water Quality*. On September 15, 2012, YCWA posted to its Relicensing Website a final Technical Memorandum 2-4, *Bioaccumulation*.

2.2.1.2.3 Criterion 3 – Why Request Was Not Made Earlier

The CDFW did not say why its request was not made earlier. Therefore, CDFW's request fails to satisfy this criterion.

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

The CDFW did not base its request on the claim that YCWA has proposed significant changes in the Project or that new information become available since FERC issued its Study Determination. Therefore, this criterion does not justify the new study.

2.2.1.2.5 Criterion 5 – Address Seven Study Criteria at 18 CFR § 5.9(b)

The CDFW did not provide details regarding its requested new study. Consequently, CDFW failed to meet the requirement of FERC's regulations that the seven study request criteria be met.

Based on the information provided in YCWA's Pre-application Document, as well as YCWA's Technical Memoranda 2-3, *Water Quality*, and 2-4, *Bioaccumulation*, YCWA believes the study request specifically does not meet criteria 4, 5, 6 and 7. For criterion 4, YCWA believes the CDFW has not adequately described the need for the information that would be developed by its requested study.

With regards to criterion 5, the CDFW has not described the nexus to the Project or how the study results would inform the development of license requirements. Mercury is a legacy of California's Gold Rush and, although New Bullards Bar and Englebright reservoirs do sequester sediment, protecting downstream resources, there is no evidence that Project operations enhance the bioavailability of the smaller quantity that may pass downstream. Therefore, the information that would be developed by the requested study would not inform the development of license requirements.

With regards to criterion 6, the CDFW has not provided methods, schedule, or other relicensings where the study has been conducted. It appears to be a research request.

With regards to criterion 7, the CDFW has not described why existing information is not adequate for relicensing and does not provide a cost estimate.

Given the scant information provided by CDFW, any cost estimate for data collection by YCWA would merely be speculation.

2.2.1.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the CDFW's request for a new Mercury Study.

2.2.2 Mercury Transport and Speciation (New Study 2)

2.2.2.1 Description of Request

The FWN requested that YCWA complete a new Mercury Transport and Speciation Study. The study's hypothesis is "*when reservoirs are turbid, hydropower facilities may increase the yield of methylated mercury to downstream reaches by converting elemental or particulated mercury into an oxygenated form subject to increased rates of methylation.*" The study methods would consist of: 1) sampling unmixed tailrace water below Narrows 2 Powerhouse at three times of high suspended sediment transport through the powerhouse; and 2) testing samples for temperature, pH, total dissolved solids, total suspended solids, total mercury, dissolved mercury, and reactive mercury. Reactive mercury is new metric for evaluating methylated mercury in surface water. Mercury's water quality objectives are expressed as fish tissue concentrations. The FWN estimate to perform the requested study is \$7,000. (pp. 13 through 16 of FWN's January 27, 2013 letter.)

2.2.2.2 YCWA's Response

YCWA's response to the requested study is provided below in context of FERC's five criteria for requesting a new study.

2.2.2.2.1 Criterion 1 – Material Changes in Laws and Regulations

The FWN supported its request based on a claim that material changes in applicable law and regulations, and the implementation of those laws and regulations occurred after FERC's Study Determination. The FWN stated:

New regulations have taken effect pertaining to mercury in the lower Yuba River. The North Yuba, Middle Yuba, South Yuba, Englebright Reservoir, and the lower Yuba River are all listed as an impaired water body under the Clean Water Act section 303(d) because of mercury contamination. Some of these water bodies, including the lower Yuba River, were added to the official list of polluted water bodies and dates for establishing Total Maximum Daily Load limits, approved by the U.S. Environmental Protection Agency, following initial study plan development. (p. 15 of FWN's January 27, 2013 letter)

The FWN's claim is without merit. As described in Section 2.2.1.2.1, in October 2011 the USEPA issued its final decision regarding the water bodies and pollutants to be added to California's 2010 CWA § 303(d) List. However, USEPA's decision included no new information; its decision included all of the water bodies and associated pollutants identified in the SWRCB's November 2010, submission to the USEPA, and was known to the Relicensing Participants, including the FWN, and cited in YCWA's Pre-Application Document, Proposed Study Plan, and Revised Study Plan.

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

The FWN supported its request based on a claim that current FERC-approved studies could not provide the needed information that would be provided by the FWN's requested study. Specifically, FWN stated:

YCWA's bioaccumulation study contributed data on mercury toxicity in fish tissues, but does not evaluate the effects of the project on transport or chemical changes in mercury that influence biological uptake. Resulting data ... is not useful in understanding project effects on bioaccumulation of mercury. YCWA's Water Quality study collected data on total mercury and methylmercury during low flow conditions, but because most mercury is transported in association with high concentrations of suspended sediment (Fleck et al. 2011), the study results are not useful in understanding project effects on the availability of this toxin. (p.14 of FWN's January 27, 2013 letter)

YCWA's bioaccumulation study augmented a considerable amount of peer-reviewed research performed in the Yuba River watershed, upstream, downstream and within the Project area. In fact, when YCWA was compiling information for its Pre-Application Document, YCWA found 17 different locations where fish tissue was collected and analyzed for mercury (See PAD Section 7.2.9.3, Table 7.2.9-5).

YCWA believes that the FWN's use of Fleck et. al. (2011) to support its contention that mercury is transported in association with high concentrations of suspended sediment is misleading. In Fleck et al. (2011), USDO, Bureau of Land Management investigated mercury in the water column resulting from a project that involved suction dredging of bottom sediment in the South Yuba River and Humbug Creek that was highly contaminated with mercury. In comparison, the Yuba River Development Project does not involve suction dredging. Furthermore, turbidity in Project reservoirs and affected reaches is due to higher turbidity of inflows from upstream tributaries during high runoff conditions, not due to Project operations.

2.2.2.2.3 Criterion 3 – Why Request Was Not Made Earlier

YCWA is somewhat puzzled by this study request, since the FWN's request is virtually identical to a study that FWN requested in its March 5, 2011, comments on the Pre-Application Document and that was discussed during relicensing meetings held on August 10 and 11, 2011. In response to that request and in the spirit of collaboration, on August 24, 2011, YCWA held a conference call with the SWRCB and SYRCL, a member of the FWN. As a result of the call, on August 25, 2011, YCWA e-mailed FERC a proposed modification to its proposed Study 2.3, *Water Quality*, which included sampling for mercury downstream of New Colgate Powerhouse during high turbidity periods (Lynch, pers. comm. 2011). Subsequently, FERC approved the study plan in its September 30, 2011, Determination, without modification. In FWN's April 2012 comments on YCWA's Revised Study Plan, which included the modified Water Quality Study, FWN stated:

The Network understands that the changes submitted in YCWA's August 25, 2011 email to FERC with regard the Water Quality Study plan will satisfy both the SWRCB's and Foothills Water Network's concerns regarding the powerhouse mercury sampling and analysis portion of the study.

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

The FWN supported its request based on a claim that new information has become available since FERC's Study Determination. Specifically, FWN stated:

New information has emerged since the study plan determinations. Recent studies on the South Yuba River (Fleck et al 2011, Marvin-DiPasquale et al. 2011) have demonstrated that mechanics similar to turbines increase the methylation and transport of mercury downstream, and the rate of entrance to the biotic environment. Also, new methods for measuring "reactive mercury" and "dissolved mercury" have become standardized (Huffman et al. 2012, Brooks Rand Labs 2012) and these parameters provide a direct means of evaluating the potential effect of project powerhouses on the chemical structure of mercury. (p. 14 of FWN's January 27, 2103 letter)

The new information referenced by the FWN is not relevant to the Project. First, Fleck et al. (2011) and Marvin-DiPasquale et al. (2011) report mostly laboratory research on the increase in downstream mercury concentrations when buried layers of deep-sediments, which are heavily contaminated with mercury, are introduced into the water column using a suction dredge. Neither Fleck et al. (2011) and Marvin-DiPasquale et al. (2011) investigated the effect of hydroelectric projects, including turbines, on mercury in the water column, nor did the authors extrapolate their findings to hydroelectric projects, including turbines, or identify how license conditions would be informed.

Second, the FWN's claim that the method to measure "reactive mercury" has become standard since FERC issued its Determination is misleading. Brooks Rand Laboratories, a commercial laboratory, has recently standardized a method whereby the reactive fractions of methylmercury can be isolated and measured; the reactive fractions no longer are only identifiable in a laboratory setting and the cost is presumably competitive with other mercury analysis. YCWA is unaware of any other commercial laboratory that performs this method and YCWA is unaware of any other relicensing where this method was employed.

Third, YCWA does not understand how further speciation of mercury would inform license requirements more than the information currently available. Methylmercury at part-per-trillion levels is found throughout the watershed, including sites upstream of the Project from samples that have not been through a powerhouse or downstream of a reservoir; methylmercury is ubiquitous. Study 2.3, in spring 2012, detected methylmercury (total) in 17 of 31 samples at concentrations that ranged between 0.029 J and 1.08 µg/L, while methylmercury (dissolved) was detected in 31 of 31 samples at concentrations between 0.033 J and 0.091 ng/L. In summer

2012, methylmercury (total) was detected in 16 of 31 samples at concentrations that ranged between the reporting limit of 0.05 ND and 0.37 µg/L, while methylmercury (dissolved) was detected in 12 of 31 samples at concentrations between 0.032 J and 0.522 nanogram per liter (µg/L). When four samples were collected during a period of high-turbidity in March 2012, methylmercury was detected downstream Narrows 2 powerhouse at 0.04 J and 0.072 µg/L. Only a single sample was collected downstream of New Bullards Bar in fall 2012; methylmercury was not detected at a reporting limit of 0.05 µg/L. In Study 2.4, fish tissue similarly exhibited detectable mercury concentrations.

Fourth, at FWN's request, YCWA added a third element to the FERC-approved Study 2.3, by which water was sampled downstream of the powerhouses during a high turbidity storm-related event. Results from downstream of Colgate were non-detected for methylmercury and results from downstream of Narrows 1 and 2 were 0.04 J and 0.072 µg/L. The concentrations downstream of Narrows 1 and 2 were greater than results of samples collected during non-storm related events. FWN does not explain why these data are insufficient for relicensing.

Last, Brooks Rand Laboratories' method identifies reactive fractions of mercury, but not the source of the reactive mercury. FWN's claim that these "new methods" provide a direct means of evaluating the potential effect of project powerhouses on the chemical structure of mercury is speculative. YCWA is unaware of any studies to document such a claim or any relicensing that used the research methods of Huffman et al 2012 and Brooks Rand Labs 2012 to measure "reactive mercury."

2.2.2.2.5 Criterion 5 – Address Seven Study Criteria at 18 CFR § 5.9(b)

FWN's text is formatted to address FERC's seven study criteria.

However, in general and based on the information provided in YCWA's Pre-application Document, as well as YCWA's Technical Memoranda 2-3, *Water Quality*, and 2-4, *Bioaccumulation*, YCWA believes the study request does not meet criteria 4, 5, 6 and 7. With regards to criterion 4, YCWA believes FWN has not adequately described the need for the information that would be developed by its requested study - this information has not been developed for any relicensing of which YCWA is aware.

With regards to criterion 5, FWN has not described the nexus to the Project. Under FERC policy and regulations, a study requestor must demonstrate a reasonable connection between Project operations and potential effects on a studied resource. This "nexus" between the Project's operation and a resource impact must not amount to mere speculation, but have a basis in fact and/or be informed by professional judgment. Project reservoirs and USACE's Englebright Reservoir have prevented and continue to prevent vast quantities of mercury-laded sediment from being transported downstream; some fine sediment in turbid water from upstream settles in the upper end of each impoundment. In the Project Area, Slotton et al. (1997) observed notably lower invertebrate mercury concentrations below many of the foothill reservoirs, as compared to concentrations in similar biota upstream. Specifically, the invertebrates below New Bullards Bar Dam were considerably lower in mercury than those collected upstream of the reservoir on the North Yuba River. Similarly, the invertebrates collected below the USACE's Englebright

Reservoir were consistently far lower in mercury than samples collected upstream of the reservoir on the Middle and South Yuba River.

With regards to criterion 6, YCWA believes that the methods described by FWN are "research-type" methods, and because of that, would have questionable use in the relicensing.

With regards to criterion 7, YCWA believes FWN's estimate of level of effort and cost is an underestimate. Without more information, the potential cost of the requested new study cannot be precisely estimated at this time, but the nine days of water quality staffs' time alone would be \$10,000 - \$12,000, with laboratory and sample shipping costs likely doubling the cost.

2.2.2.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the FWN's request for a new Mercury Transport and Speciation Study.

2.2.3 American Peregrine Falcon Nesting (New Study 3)

2.2.3.1 Description of Request

The Forest Service requested that YCWA complete a new American peregrine falcon nesting study. The study area would include suitable habitat near New Bullards Bar Dam and the nearby quarry, which is located on NFS land. The study would require two field visits, and the methods would follow those described by J. Linthicum at the Santa Cruz Predatory Bird Research Group website, which was provided by the Forest Service in its letter. The Forest Service estimates the cost to conduct the study is \$10,000. (pp. 28 – 30 of Attachment 1 to the Forest Service's January 25, 2013 letter.)

2.2.3.2 YCWA's Response

YCWA's response to the requested study is provided below in context of FERC's five criteria for requesting a new study.

2.2.3.2.1 Criterion 1 – Material Changes in Laws and Regulations

The Forest Service 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 Forest Service's request.

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

According to the Forest Service, the FERC-approved Study 7.6, *CESA-Listed and Fully Protected Wildlife – CWHR*, does not meet the goals and objectives of the Forest Service's proposed American Peregrine Falcon Study. The Forest Service states that Study 7.6 was not

designed to determine whether active American peregrine falcon nests are present within the Project.

While the presence of active nests was not determined by Study 7.6, the study successfully identified nesting habitat for American peregrine falcon in the study area defined by the Forest Service's proposed study. Further, the recent report of American peregrine falcon referred to by the Forest Service validates the results of Study 7.6. YCWA implemented Study 7.6 to identify important wildlife habitats that overlap with Project O&M activities, without performing numerous and costly species-specific surveys. The information from Study 7.6 will be used to inform the development of appropriate protection measures for the new license.

At this time, YCWA does not propose any activities in the New Bullards Bar Dam area that would disturb nesting American peregrine falcons. If YCWA proposed such activities sometime during the new license, YCWA is certain it would need to either assume nesting falcons occurred in the area and adhere to the appropriate Limited Operating Periods (LOPs) in effect for falcon at that time or, prior to the disturbance, perform studies to determine if nesting was occurring. The results of the new study requested by the Forest Service would not avoid or affect these license requirements in any way. Therefore, the requested study would not inform license requirements.

2.2.3.2.3 Criterion 3 – Why Request Was Not Made Earlier

The Forest Service does not specifically address this study criterion. However, YCWA believes that the reason for not requesting this study earlier is explained, in part, in the Forest Service's response to criterion 4. The Forest Service's response suggests that due to the historical absence of American peregrine falcon in the Project, area nesting surveys were not requested.

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

The Forest Service based this study request on what the Forest Service calls new 2010 and 2013 sightings of American peregrine falcon in the vicinity of New Bullards Bar Dam. YCWA notes that the 2010 sightings are not new – the Forest Service had this information in its possession prior to the time that FERC issued its September 30, 2011 Determination.

No significant changes are proposed for the Project.

2.2.3.2.5 Criterion 5 – Address Seven Study Criteria at 18 CFR § 5.9(b)

The Forest Service adequately addressed all seven study criteria, except criterion 4, the need for additional information to inform license requirements. The Forest Service does not explain how performance of nesting surveys would better inform development of protection measures than the FERC-approved Study 7.6. As described above, YCWA maintains that identification of suitable nesting habitat, combined with recent reports of American peregrine falcon nesting behavior, is evidence enough to initiate development of sound and reasonable license requirements.

The Forest Service provided a level of effort and cost to perform the requested new study. The Forest Service's estimation of effort may be found in their description of methods that include two nesting surveys at four hours per visit. The Forest Service estimated the cost to complete the study to be \$10,000. YCWA has reviewed the proposed methodology for this study and determined that the study would cost between \$10,000, and \$15,000 to complete.

2.2.3.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the Forest Service's request for a new American Peregrine Falcon Nesting Study.

2.2.4 Bullfrog Presence in FERC Project Boundary (New Study 4)

2.2.4.1 Description of Request

At pages 21 and 22 of its January 28, 2013 letter, the USFWS requested a Bullfrog Presence in FERC Project Boundary Study. The geographic scope of the study is unclear, but almost certainly is not limited to the FERC Project Boundary, despite the name of the new requested study. Based on the USFWS' comments, YCWA must assume that the geographic scope includes the FERC Project Boundary, which primarily includes the Project reservoir and the two diversion impoundments, as well as stream reaches that may be affected by Project flows, even though these areas are mostly not inside the Project Boundary. Specifically, the USFWS stated:

The goals of this study request are to: (a) determine the extent of predatory bullfrog occupancy in Project waters and (b) estimate the amount of suitable California red-legged frog habitat within the FERC Project Boundary where California red-legged frogs have been displaced. The methodology used under Studies 03-04 [Special-Status Amphibians-Foothill Yellow-legged Frog Surveys] and 03-06 [Special-Status Turtles – Western Pond Turtle] may be appropriate in content but not scope, because they only cover a subcomponent of Project waters where bullfrogs are likely to occur. Existing information on the extent of bullfrog colonization of California red-legged frog and foothill yellow-legged frog habitat was compiled as a result of Studies 03-04 and 03-06. The area covered by these studies encompasses what appears to be approximately one-quarter to one-third of the potential river or stream reaches affected by the project and potentially colonized by bullfrogs.

The study method would include auditory surveys for adult male bullfrogs to be performed by boat on New Bullards Bar Reservoir and by walking along streams during mid summer. USFWS estimates the level of effort as two biologists for 1 week, and the costs as \$10,000.

The FWN supported USFWS' requested new study, saying only "*surveys for vocalizing bullfrogs, in riverine areas outside of the areas surveyed under Studies 3-4 and 3-6 should be conducted in late spring and summer*" (p. 11 of FWN's January 27, 2013 letter).

2.2.4.2 YCWA's Response

YCWA's response to the requested study is provided below in context of FERC's five criteria for requesting a new study.

2.2.4.2.1 Criterion 1 – Material Changes in Laws and Regulations

Neither the USFWS nor the FWN based their request on the claim that material changes in laws or regulations have occurred. YCWA is unaware of any laws or regulations that have changed since FERC's Determination that would support the request.

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

The USFWS partly based its request on a perceived inability of approved studies 3.4 (*Special-Status Amphibians – Foothill Yellow-legged Frog Surveys*), 3.6 (*Special-Status Turtles – Western Pond Turtle*), and 7.3 (*ESA-Listed Amphibians – California Red-legged Frog*) to meet the goals and objectives of the requested new study. Specifically, the request entails a greatly expanded geographic scope compared to approved Studies 3.4 and 3.6 and a change in survey timing compared to Study 7.3. USFWS states as follows in its January 28, 2013 letter:

The methodology used under Studies 03-04 and 03-06 may be appropriate in content but not scope, because they only cover a subcomponent of Project waters where bullfrogs are likely to occur. The methodology used under Study 07-03 is inadequate, because they surveyed at the wrong time of year (late fall and late winter, as opposed to late spring and summer). (p. 13 of USFWS's January 28, 2013 letter)

The goals of this study request are to: (a) determine the extent of predatory bullfrog occupancy in Project waters and (b) estimate the amount of suitable California red-legged frog habitat within the FERC Project Boundary where California red-legged frogs have been displaced. The objective is to have a good understanding of where bullfrog breeding occurs, so that bullfrog control measures can ultimately be implemented in those areas where bullfrogs are likely to predate upon or extirpate California red-legged frogs or foothill yellow-legged frogs. (p. 21 of USFWS's January 28, 2013 letter)

In fact, YCWA believes that substantial information on the extent of bullfrog distribution in the Project Boundary and on Project-affected streams (goal 'a') has already been compiled and summarized in YCWA's Technical Memorandum 3-4. Bullfrogs were not heard or observed at Log Cabin Diversion Dam Impoundment, despite considerable field efforts by YCWA, including work in the summer. One adult bullfrog was found during fish collection at Our House Diversion Dam Impoundment; no tadpoles were found and bullfrogs were not heard during other field studies at the impoundment. Bullfrogs have been heard at Moran Cove on New Bullards Bar Reservoir.

Within Project-affected stream reaches, there were numerous detections of bullfrogs in the Middle Yuba River, North Yuba River, and Yuba River. These detections, although mostly first- and second-year larvae are probably generally indicative of bullfrog breeding habitats because most detections were in pools and other low-gradient habitats, habitats where bullfrogs are likely to occur.

YCWA also believes that sufficient information exists to conclude that suitable CRLF breeding habitat does not occur at New Bullards Bar Reservoir or the two diversion impoundments or in Project-affected stream reaches, and as such, CRLF has not been displaced in those areas (goal 'b').

2.2.4.2.3 Criterion 3 – Why Request Was Not Made Earlier

The USFWS partly based its request on the claim that it recently became aware that bullfrogs occur in the Project area. FWN did not make a similar statement. It is true that only limited information on patterns of bullfrog occurrence in the Project area was available prior to YCWA's studies. However, the presence of bullfrogs should not have been a surprise to USFWS given existing information from other comparable streams and reservoirs in the Sierra Nevada. Neither USFWS nor FWN identified a need to document the presence of bullfrogs throughout the Project and in Project-affected streams during study development, including on Study 7.3, *ESA-Listed Amphibians – California Red-legged Frog*. Neither USFWS nor FWN made comments on Study 3.4 in the Proposed or Revised study plans, and specifically did not comment on the proposed survey site locations for that study.

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

There have been no significant changes in the proposed Project. As stated above, only limited information on bullfrog occurrence was available previously. However, USFWS and FWN had opportunities to identify bullfrog occurrence as an issue during study development, but did not do so.

2.2.4.2.5 Criterion 5 – Address Seven Study Criteria at 18 CFR § 5.9(b)

YCWA believes the USFWS has not adequately addressed FERC's study criteria 5, 6, and 7. With regards to study criterion 5, USFWS has not accurately identified the Project nexus for this study. USFWS describes the project nexus as follows:

The nexus between Project operations and bullfrog occupancy is in two forms. The first is that man-made impoundments, such as the two Project reservoirs and two diversion impoundments, create the open water conditions that attract bullfrogs and support residency. The second is that low flows downstream of the diversion impoundments (i.e., Our House Dam Diversion and Log Cabin Dam Diversion) create warm water aquatic conditions that support bullfrog breeding. (pp. 21 & 22 of USFWS' January 28, 2013 letter)

As a statement of fact, bullfrogs are known to occur at New Bullards Bar Reservoir, the only Project reservoir (i.e., Englebright Reservoir is not part of the Yuba River Development Project), but bullfrogs have not been observed or heard at Log Cabin Diversion Dam Impoundment and there was only one adult observation at Our House Diversion Dam Impoundment, despite considerable field efforts during relicensing studies, including work in summer.

Secondly, the Project does not usually divert water from the Middle Yuba River or Oregon Creek later than mid June. Summer flow conditions in these reaches are not affected by the Project (i.e., inflow equals outflow until fall), and YCWA has no capability of providing higher summer flows that could affect suitability for bullfrogs. Bullfrogs breed under summer flow and temperature conditions that would exist even in the absence of the Project.

USFWS has not adequately addressed study criterion 6, which requires the proponent to present scientifically valid and accepted methods for the study. USFWS describes the study method as an auditory survey for vocalizing male bullfrogs, but provides no other details. Anuran auditory surveys are an effective means of demonstrating the presence of species at a discrete site, such as a pond or lake, although they do not provide a reliable index of abundance, since not all of the males in a population may be vocalizing at any one time. However, USFWS proposed that auditory surveys be used to identify specific locations where bullfrogs may breed at New Bullards Bar Reservoir and on miles of stream reaches. Male bullfrog vocalizations are an advertisement to attract females to territories to breed and as territorial defense to other males. Breeding occurs within male bullfrog territories; however, the locations of vocalizing males may not indicate precise locations where egg masses will be laid and some vocalizing males may not successfully breed. Bullfrogs may vocalize in the daytime, but vocalize more reliably and intensely at night. YCWA is unaware of specific methods for auditory surveys along stream reaches, particularly where surveyors are likely to disturb vocalizing frogs ahead of them as they wade or clamber along rocky banks. The utility of auditory surveys in locating individual male bullfrogs is untested, as is the presumption that meaningful results could be obtained in a single pass through an area. Furthermore, daytime surveys may not be effective and it may not be possible to safely perform night surveys along most of the stream reaches.

Finally, the USFWS has not provided a realistic time and cost estimate for implementation of the study, which is required for study criterion 7. The USFWS indicates the study could be completed in one week for \$10,000. However, this is inconsistent with the stated goal of the study (“to determine the extent of predatory bullfrog occupancy in Project waters”) and the clear implication that the study should encompass more area than surveyed for Study 3.4 and 3.6, and potentially entire stream reaches of more than 24 river miles. Surveys could not possibly be completed in one week on New Bullards Bar Reservoir and along more than 24 miles of streams. Much of the area cannot be traversed by walking or wading, and it is unclear whether other means (e.g., inflatable boats) could be safely and effectively used to increase accessibility because there are very few entry and egress points. These limitations might require the surveyors to be on some stream reaches for days and nights at a time. As suggested above, effective surveys would also likely require multiple visits to an area and surveys at night. Given these uncertainties, the potential cost of the requested new study cannot be precisely estimated at this time. However, the requested new study is likely to cost between \$30,000 and \$40,000, and possibly much more.

2.2.4.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the USFWS' and FWN's request for a new Bullfrog Presence in FERC Project Boundary Study.

2.2.5 Narrows 2 Powerhouse Entrainment (New Study 5)

2.2.5.1 Description of Request

The USFWS reiterated its prior request for a Narrows 2 Powerhouse Entrainment Study. As described by the USFWS at page 10:

The Service has suggested an existing methodology and detection array that could be utilized to test the effects of the Project on outmigrating *O. mykiss*; however FERC staff determined that the Service-recommend[ed] methodology of using existing detection arrays should be considered as research. The Service continues to consider that using the existing detection arrays is a suitable and cost effective methodology for determining Project effects on salmonid outmigration; however, the Service is available to collaborate with the Applicant on methodologies that could be used to detect *O. mykiss* outmigration through the Narrows 2 Powerhouse.

In addition, at page 11 of its letter, the USFWS requested the new study address the "...effects to *O. mykiss* passage be analyzed as an effect of the proposed Narrows 2 Extension."

The FWN supported USFWS' requested new study (p. 11 of FWN's January 27, 2013 letter).

2.2.5.2 YCWA's Response

YCWA's response to the requested study is provided below in context of FERC's five criteria for requesting a new study.

2.2.5.2.1 Criterion 1 – Material Changes in Laws and Regulations

Neither the USFWS nor the FWN based 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 USFWS' or FWN's request.

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

Neither the USFWS nor the FWN based its request on the claim that the goals and objectives of its requested new study could not be met with approved studies. In fact, FERC has not approved any studies to examine the effects of Project facilities located upstream of Englebright Dam on

anadromous fish because anadromous fish do not occur upstream of the dam. Englebright Dam, a federal dam managed 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.

2.2.5.2.3 Criterion 3 – Why Request Was Not Made Earlier

USFWS requested a similar study during study development, and FERC did not adopt the request in its determination on September 30, 2011. In its September 30, 2011 Study Determination, FERC stated that data from the Reservoir Fish Population Study would fulfill the data need. The result of the Reservoir Fish Study indicated minimal presence (i.e., two rainbow trout and one brown trout) in deep water near the intakes.

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

Neither the USFWS nor the FWN based its request on the claim that YCWA has proposed significant changes in the Project or that new information has become available since FERC issued its Study Determination. YCWA has not proposed to change the Project and no new information has become available.

2.2.5.2.5 Criterion 5 – Address Seven Study Criteria at 18 CFR § 5.9(b)

The USFWS and FWN stated their position has not changed since they requested this study early in the proceeding, and mention that study methods and equipment are available to conduct the work. YCWA disagrees that equipment is readily available, as several technical challenges would need to be adapted to the site and would have to be resolved. This does not address the more important need to readdress the seven study criteria and how the current request is any different. Specifically, USFWS did not identify any valid nexus to the Project (Criteria 5). Secondly, the USFWS infers that landlocked *O. mykiss*, many of which originated from hatchery planting from decades of planting activity, exhibit the natural tendencies of an anadromous steelhead trout. This is not an accepted fact in the scientific community (criteria 6) and conducting the study would be researching its validity - not addressing a potential Project-related effects.

The USFWS did not provide an estimated level of effort or cost to perform the requested new study. YCWA's estimates the cost to perform the requested new study is between \$150,000 and \$200,000.

2.2.5.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the USFWS' and FWN's request for a new Narrows 2 Powerhouse Entrainment Study.

2.2.6 Analyze Rotary Screw Trap and Vaki Date Using Yuba River Index Water Year Types (New Study 6)

2.2.6.1 Description of Request

The USFWS requested YCWA analyze rotary screw trap (RST) and Vaki Riverwatcher date using the Yuba River Index (YRI) water year types (WRT). Specifically, at page 17 of its January 28, 2013 letter, USFWS requested:

We request that the data depicted in the following figures and tables [in Technical Memorandum 7-8] be re-analyzed after accounting for WYT:

Figure 3.2-14
Figure 3.2-15
Figure 3.2-17 through 3.2-22
Figure 3.2-24
Figure 3.2-27
Figure 3.2-28
Figure 3.2-42 through 3.2-46
Table 3.2-11
Table 3.2-13
Table 3.2-28 through 3.2-32

2.2.6.2 YCWA's Response

YCWA's response to the requested study is provided below in context of FERC's five criteria for requesting a new study.

2.2.6.2.1 Criterion 1 – Material Changes in Laws and Regulations

The USFWS 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 USFWS' request.

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

The USFWS based its requested new study, in part at least, on a claim that the Project effects to salmonids differ by water year type (WYT), and that salmonid growth, condition factor, and length from fish captured in the rotary screw traps (RST) should be evaluated by the WYT or WYT category using the Yuba River Index (YRI) which was incorporated into SWRCB Order Revised Decision 1644 (RD-1644). However, SWRCB RD-1644 was supplanted by the Yuba Accord which utilized the North Yuba Index (NYI), rendering the YRI inapplicable to describe or discuss operations under the Yuba Accord. It may be appropriate to use the YRI WYT

categories to describe general hydrology, but care must be taken if that is to be referenced back to Project operations. Nonetheless, as described below, Interim TM 7-8 provides annual RST data such that USFWS can analyze the RST data using any WYT index, or collapsed combination of WYTs, that they choose. YCWA does not agree that these additional analyses are necessary in order to accomplish the goals of the study.

Also, as an example, Interim Technical Memorandum 7-8 (p. 52) provided a discussion regarding the *b*-parameter as the rate of addition of mass per unit length, which serves as a measurement of the acceleration of growth through life. The interim technical memorandum provided the results of a Chi-square analysis that was used to determine if there were significant annual differences between the monthly *b*-parameter estimates from the December through June time period (Table 3.2-5, Table 3.2-6). Moreover, Table 3.2-6 provided *b*-parameter estimates for each month for each year sampled. USFWS can therefore utilize these annual data to analyze *b*-parameter in any way in which they choose, using any WYT index.

The USFWS also requested analysis of the Vaki data by WYT. The interim technical memorandum (pp.71 – 72) presented the daily numbers of Chinook salmon (pp. 71 – 72) and steelhead (pp. 122 – 126) passing the Vaki Riverwatcher for all of the 8 individual years of available data. Because these data are already presented for each year, it is not necessary to plot or analyze the foregoing mentioned data by grouped categories of water year types in order to meet the goals and objectives of the TM 7-8.

In addition, due to the limited number of years with Vaki passage data for Chinook salmon and steelhead, it may not be appropriate to attempt to categorize these data by WYT. However, with the annual Vaki passage data for Chinook salmon and steelhead provided in Interim TM 7-8, USFWS can analyze these annual data using WYT as they choose. YCWA does not agree that these additional analyses are necessary in order to accomplish the goals of the study.

2.2.6.2.3 Criterion 3 – Why Request Was Not Made Earlier

The USFWS did not state why its request was not made earlier.

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

The USFWS did not base its request on the claim that YCWA has proposed significant changes in the Project or that new information has become available since FERC issued its Study Determination. YCWA has not proposed to change the Project and no new information has become available.

2.2.6.2.5 Criterion 5 – Address Seven Study Criteria at 18 CFR § 5.9(b)

The USFWS generally addresses FERC's seven study criteria, with the exception of level of effort and cost. The USFWS specifically requests re-developing several figures and tables presented in Interim Technical Memorandum 7-8 to account for WYT. Because YCWA is providing the raw rotary screw trap and Vaki data to Relicensing Participants, as well as annual representations of these data as described above, the USFWS may account for WYT when

analyzing the data to evaluate potential Project effects to salmonids. It is not clear how accounting for WYT in Figures 3.2-27 and 3.2-28 would inform license conditions, because the data are already depicted by year, for each year of available data. The estimated cost of re-analyzing the RST and Vaki data to account for WYT for the figures specified by USFWS would range from \$10,000 to \$20,000.

2.2.6.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the USFWS' request for a new Analyze Rotary Screw Trap and Vaki Date Using Yuba River Index Water Year Types Study.

2.2.7 Engineering Structural Inspection of Slope Near Dark Day Boat Launch (New Study 7)

2.2.7.1 Description of Request

The Forest Service requested YCWA perform an Engineering Structural Inspection of the Slope Near Dark Day Boat Launch Study. As described by the Forest Service:

The Tech Memo, Section 3.4, Evaluation of the Functional Periods of the Project Developed Boat Ramps, states that Dark Day boat launch is open year round and in good condition. We are concerned that a full evaluation was not completed because there is no mention of Dark Day boat ramp being closed when the reservoir water level is low in most autumn and winter seasons, when the silt from the failing slope above the ramp fills the ramp with silt. We are concerned that there is no description of the failing slope above the ramp. We think the dock rail and roller system is not in good condition due to several turns in the rail and roller system and the failing slope above the rail and roller system. The erosion and sedimentation requires the Forest Service to pull the dock out of the water each winter because the silt covers the dock rail and roller system. This hill slope has been failing for some time and licensee attempted to stabilize the slope with small riprap, coarse rock, and rock gabions, but it was not successful. The slope continues to contribute sediment into the boat launch area. We request that the licensee complete an engineering structural inspection of the slope in order to determine if a permanent solution is possible. (p. 15 of Attachment 1 to the Forest Service's January 25, 2013 letter.)

The Forest Service did not prove methods, a level of effort or cost for the study.

2.2.7.2 YCWA's Response

YCWA's response to the requested study is provided below in context of FERC's criteria for requesting a new study.

2.2.7.2.1 Criterion 1 – Material Changes in Laws and Regulations

The Forest Service 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 Forest Service's request.

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

The Forest Service did not base its request on the claim that the goals and objectives of its requested new study could not be met with approved studies.

Rather, YCWA will provide a description in Section 3.4 of the final Technical Memorandum 8-1, *Recreation Use and Visitor Survey*, of the slope instability and how the instability (i.e., silt sliding onto ramp) has the potential to impact the functionality of the boat ramp, floating courtesy dock and the dock rail and roller system used to move the dock as the water recedes or rises in the area of the instability (refer to YCWA's response to the functionality comment in Table 3.0-1 for Technical Memorandum 8-1). YCWA believes this will provide adequate identification of the issue and concern related to regular operation of the recreational facility and that YCWA and the Forest Service may address the solution to this issue as part of PM&E discussions based on the technical memorandum results, or outside the relicensing process, if further analysis of this issue indicates that an earlier resolution is appropriate.

2.2.7.2.3 Criterion 3 – Why Request Was Not Made Earlier

The Forest Service did not make this request earlier, or state why it had not been made earlier.

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

There have been no significant changes in the proposed Project. However, the Forest Service had opportunities to identify the slope instability as an issue during study development, but did not do so.

2.2.7.2.5 Criterion 5 – Address Seven Study Criteria at 18 CFR § 5.9(b)

YCWA believes the Forest Service has not adequately addressed FERC's study criteria 4, 6 and 7. First, for criterion 4, YCWA believes the Forest Service has not adequately described the need for the information that would be developed by its requested study. Rather, the Forest Service has identified an issue with the existing boat ramp facility, which YCWA will acknowledge and analyze in its Technical Memorandum 8-1 as part of the conditional functionality of the boat ramp.

Second, the Forest Service has not adequately addressed study criterion 6, which requires the proponent to present scientifically valid and accepted methods for the study. YCWA does not believe a study is needed to address the issue, but rather this issue would be addressed as part of

PM&E discussions or in annual recreation season planning between the Forest Service and YCWA.

Third, the Forest Service has not provided a time and cost estimate for implementation of the study, which is required for study criterion 7. YCWA's estimates the cost to perform the requested new study is between \$40,000 and \$50,000.

2.2.7.3 YCWA's Recommendation

For the reasons stated above, FERC should not adopt the Forest Service's request for a new Engineering Structural Inspection of the Slope Near Dark Day Boat Launch Study.

2.2.8 Project Effects on Anadromous Fish Habitat and Passage Upstream of Englebright Dam (New Study 8)

2.2.8.1 Description of Request

At page 1 of Enclosure B to its January 28, 2013 letter, the NMFS noted that "*The Commission-approved Study Plan for the Project does not order the evaluation of the effects of the Project's facilities located upstream of Englebright Dam on fish passage for anadromous fishes, or on habitat for anadromous fishes should they occur upstream of Englebright Dam in the future.*" At page 1 of Enclosure B, NMFS requested that:

- 1) The Commission staff review the NMFS' requests for information or study that pertain to the fish passage effects of Project facilities upstream of Englebright Dam; NMFS previously filed these requests in this ILP on March 7, 2011;
- 2) The Commission staff review the NMFS' requests that pertain to the effects of Project facilities upstream of Englebright Dam on potential habitat for anadromous fishes; NMFS previously filed these requests in this ILP on March 7, 2011;
- 3) The Commission revise its existing Study Plan for the Project, to order the previous NMFS' requests for information or study referred to above, so that full evaluation of the effects of the Project's facilities upstream of Englebright Dam is undertaken in this ILP.

The NMFS did not provide a level of effort or cost to perform the requested new study. However, in its March 7, 2011 letter, NMFS provided cost estimates for each of its requested studies. Collectively for the eight studies, NMFS' estimate ranged from \$915,000 and \$2,015,000.

2.2.8.2 YCWA's Response

YCWA's response to the requested study³⁴ is provided below in context of FERC's five criteria for requesting a new study.

2.2.8.2.1 Criterion 1 – Material Changes in Laws and Regulations

The NMFS specifically states that it did not base its request on a claim of material changes in applicable law and regulations, or the implementation of those laws and regulations (p. 2 of Enclosure B of NMFS' January 28, 2013 letter.).

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

The NMFS did not claim that its requested new study is needed to assess current (i.e., baseline) Project effects on anadromous fish upstream of Englebright Dam. As stated by FERC in its Formal Study Dispute Resolution Determination "*The Panel agreed with the [FERC's September 30, 2011] 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*" (p. 10 of Appendix B to FERC's December 28, 2011 Formal Study Dispute Resolution Determination).

Rather, the NMFS stated that its requested new study is needed because "*the current Commission-approved Study Plan is deficient in its evaluation of Project facilities and operations for their potential to affect the future recovery of [Central Valley] CV steelhead and CV spring-run Chinook salmon in the upper Yuba River watershed*" [emphasis added] (p. 4 of Enclosure B of NMFS' January 28, 2013 letter). Under the study criterion at § 5.15(e)(2)), the NMFS claims that, in the reasonably foreseeable future, anadromous fish will occur upstream of Englebright Dam, and provides as evidence for this claim NMFS's *Public Draft Recovery Plan for Sacramento River Winter-Run Chinook Salmon, Central Valley Spring-Run Chinook Salmon, and Central Valley Steelhead*. This is not a new NMFS argument and was considered by the Commission when it issued its September 30, 2011 Study Plan Determination and December 28, 2011 Formal Study Dispute Resolution. In both cases, the Commission concluded that NMFS's evidence (i.e., Draft Recovery Plan) did not support NMFS' claim.

YCWA points out that a draft recovery plan is not the official position of NMFS. A recovery plan does not become the official position of NMFS until it is signed by the Secretary of Commerce or the Secretary's designee. Until NMFS officially adopts the recovery plan, none of the recommendations in the plan have been adopted, and it is not reasonably foreseeable that they will be implemented.

In addition, recovery plans are for guidance purposes only. For example, the draft recovery plan states (at p. 4): "*Although recovery plans provide guidance, they are not regulatory documents.*

³⁴ While YCWA treated NMFS' request in its January 28, 2013 letter as a single new study, for the reasons stated in Section 2.2.8.2.3, in actuality NMFS' request could result in up to 43 new studies.

The success of this Recovery Plan depends up on the cooperation of all stakeholders and regulatory entities to assure appropriate implementation.”

YCWA also points out that there is no support in the Draft Recovery Plan for NMFS’ claim that it is reasonably foreseeable that implementation of the plan will lead to the presence of ESA-listed fishes upstream of Englebright Dam. The Draft Recovery Plan de-emphasizes and assigns a low priority to the introduction of ESA-listed fishes into the Middle or South Yuba rivers upstream of Englebright Dam. The plan states “*it may not be necessary to re-establish populations to all of these rivers*” and then it specifically excludes the upper Yuba Rivers from the list of highest priority rivers (p. 215). This suggests that even full implementation of the Draft Recovery Plan might not lead to the introduction of ESA-listed fishes upstream of Englebright Dam.

2.2.8.2.3 Criterion 3 – Why Request Was Not Made Earlier

As acknowledged by NMFS, the request was made earlier. The March 7, 2011 letter referred to by NMFS provided NMFS’ comments on YCWA’s November 5, 2010 Pre-application Document and the Commission’s January 4, 2011 Scoping Document 1 (SD1). Enclosure F of NMFS’ March 7, 2011 letter listed eight NMFS study requests, which collectively included 47 study elements, each of which could be considered a separate study. Table 2.2-1 provides a tabular summary of the NMFS’ study requests in its March 7 letter, and those 43 study elements that pertain at least in part to anadromous fish upstream of Englebright Dam. While NMFS does not specifically describe these study elements, for the purpose of this response YCWA assumed those are the elements referred to by NMFS when it requests FERC “*revise its existing Study Plan for the Project, to order the previous NMFS’ requests for information or study referred to above.*”

Table 2.2-1. Summary of NMFS’s request for information and studies in its March 7, 2011 letter.

Study Name	Study Number	Total Number of Elements in Study	Specific Study Element #s that Pertain at Least in Part to Anadromous Fish Upstream of Englebright Dam
Request for Information or Study: Effects of the Project and Related Activities on Fish Passage for Anadromous Fish	#1	12 ¹	1, 2, 4, 6, 7, 8, 9, 10, 11, 12 & 13
Request for Information or Study: Effects of the Project and Related Activities on Hydrology for Anadromous Fish	#2	7	1, 2, 3, 4, 5 & 6
Request for Information or Study: Effects of the Project and Related Activities on Water Temperatures for Anadromous Fish Migration, Holding, Spawning, and Rearing Activities	#3	3	1, 2 & 3
Request for Information or Study: Effects of the Project and Related Activities on Coarse Substrate for Anadromous Fish; Sediment Supply, Transport and Storage	#4	6	1, 2, 3, 4 & 6
Request for Information or Study: Effects of the Project and Related Activities on Large Wood and Riparian Habitat for Anadromous Fish	#5	4	1, 2, 3 & 4
Request for Information or Study: Effects of the Project and Related Activities on the Loss of Marine-derived Nutrients in the Yuba River	#6	7	1, 2, 3, 4, 6 & 7
Request for Information or Study: Effects of the Project and Related Activities on Aquatic Benthic Macroinvertebrates for Anadromous Fish	#7	1	1

Table 2.2-1. (continued)

Study Name	Study Number	Total Number of Elements in Study	Specific Study Element #s that Pertain at Least in Part to Anadromous Fish Upstream of Englebright Dam
Anadromous Fish Ecosystem Effects Analysis: Synthesis of the Direct, Indirect, and Cumulative Effects of the Project and Related Facilities on Anadromous Fish	#8	7	1, 2, 3, 4, 5, 6 & 7
Total	8	47	43

¹ Study #1 did not include a Study Element #5.

In Section 3.1.4.10 through 3.1.4.17 of its April 19, 2011 Proposed Study Plan, YCWA provided a detailed response to each of NMFS’ March 7 requested studies and study elements.

Throughout the study plan development phase of the Integrate Licensing Process (ILP), NMFS has repeated, and at times modified, its March 7, 2011 study requests. YCWA responded to each of these requests. Specifically, see NMFS’ July 18, 2011 letter that provided NMFS’ comments on YCWA’s Proposed Study Plan. YCWA responded to NMFS’ requests in its August 17, 2011 Revised Study Plan; NMFS’ September 1, 2011 letter that provided NMFS’ comments on YCWA’s Revised Study Plan, and YCWA’s September 8, 2011 response; and NMFS’ October 20, 2011 Notice of Study Dispute, and YCWA’s November 14, 2011 response. YCWA includes the above plans and letters by reference in this response (i.e., each has been filed with FERC and is already part of the administrative record for the proceeding).

The Commission considered all the above plans and letters when issuing its Study Plan Determination, as amended, which does not include studies to provide information for the assessment of Project effects on anadromous fishes upstream of Englebright Dam.

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

The NMFS did not base its request on the claim that YCWA has proposed significant changes in the Project.

Rather, NMFS restated its claim that, in the reasonably foreseeable future, anadromous fish will occur upstream of Englebright Dam, primarily³⁵ based on NMFS’ February 29, 2012 *Biological Opinion on the U.S. Army Corp of Engineers’ Continued Operation and Maintenance of Englebright Dam and Reservoir, Daguerre Point Dam, and Recreational Facilities On and Around Englebright Reservoir* (herein referred to as the BiOp). The BiOp was issued subsequent to FERC’s December 28, 2012 Formal Study Dispute Resolution, and thereby constitutes new information. However, the BiOp is not part of the record of this proceeding.

Even if it were, the BiOp does not support NMFS’ claim. While a biological opinion might, in certain circumstances, reflect requirements so certain to be implemented that a subsequent

³⁵ The NMFS briefly restates the evidence of the Draft Recovery Plan to support its claim. However, as discussed in Section 2.2.8.2.2, the Draft Recovery Plan does not constitute “new information,” and certainly does not support NMFS’ claim.

action's effects to those activities are "reasonably certain to occur" – thus necessitating evaluation as "indirect effects."³⁶ In this case, there is no such certainty.

The BiOp requires the USACE to implement certain short-term and long-term fish passage actions as part of its reasonable and prudent alternative (RPA) (p. 231 of BiOp). Reintroduction faces many challenges and uncertainties, among them questions about how reintroduction would be technically achieved and biologically conducted. And while there are significant questions about how, where, and when passage might be provided – which in themselves cast serious doubt on the "reasonable certainty" of such measures – it is the USACE's fundamental lack of authority to implement the fish passage RPAs which raises the most serious questions regarding their certainty. Specifically, in Attachment 1 to its July 3, 2012 comments on the Englebright BiOp, the USACE clarified that implementation of RPAs related to fish passage would require the USACE to first seek, and then to successfully obtain, Congressional authorization and funding, which the USACE estimated as at least \$400 million for a fish ladder at Englebright Dam and \$35 million for improved fish passage at Daguerre Dam. These estimates do not even include costs to move fish from upstream of Englebright Dam to below the dam. Congress' approval and appropriation of more than \$435 million is by no means "reasonably certain."

The BiOp requires the USACE to prepare a comprehensive fish passage report by December 31, 2016, which the BiOp acknowledges is necessary in order to assess the feasibility of fish passage and other related structural and operational alternatives. For example, the BiOp states (p. 230 of BiOp): *"If the fish passage improvements are determined not likely to be technically or biological feasible by December 31, 2016, then the Corps and the Steering Committee shall identify other alternatives that would be implemented within the same timelines as those identified in the RPA."*

Curiously, NMFS did not mention in its comments the numerous acknowledged technical and legal errors in the BiOp, or NMFS' stated intention to revise the BiOp. For a discussion of some the technical and legal errors in the BiOp, see YCWA's website, at <http://www.ycwa.com> under "Current Projects," which includes copies of YCWA's Complaint for Declaratory and Injunctive Relief, and its February 28, 2012, June 29, 2012, and September 5, 2012 letters to NMFS, which voiced YCWA's objections to NMFS' BiOp and its comments to the Commission that the conclusions in the BiOp would remain unchanged after NMFS addressed all the technical and legal errors in the BiOp. (See also the USACE's July 3, 2012 comment letter, which points out many of the same technical and legal errors in the BiOp as the YCWA comment letter.

Further, NMFS failed to disclose in its January 28, 2013 letter the lawsuits filed against NMFS and the USACE regarding the BiOp, which cast additional doubt on NMFS' claim that the BiOp should be used as evidence to support its claim that ESA-listed fishes will be upstream of Englebright Dam.

³⁶ 50 CFR § 402.02 (defining "indirect effects" as those 1) caused by the action, 2) later in time, 3) "but still are reasonably certain to occur").

Given the significant technical, biological, legal, regulatory, (i.e., NEPA and CEQA review processes), Congressional and economic hurdles facing potential introduction of ESA-listed anadromous fish upstream of Englebright Dam, introduction is not “reasonably certain” to occur as purported by NMFS.

Regardless of the above, YCWA agrees with NMFS that relicensing the Project will require consultation with NMFS under Section 7 of the ESA regarding potential Project effects on ESA-listed species. In its January 4, 2011 commencement of proceeding notice, FERC initiated informal consultation with NMFS under Section 7 of the ESA and joint agency regulations thereunder at 50 CFR, Part 402, and designated YCWA as the Commission’s non-federal representative for carrying out this informal consultation. YCWA has had numerous Section 7 informal consultation meetings with NMFS and FERC to discuss the applicant-prepared draft biological assessment that YCWA intends to include in its Draft License Application.

2.2.8.2.5 Criterion 5 – Address Seven Study Criteria at 18 CFR § 5.9(b)

At page 7 of Enclosure B of its January 28, 2013 letter, NMFS refers FERC to its previous filings regarding how its requested new studies satisfy the study criteria at 18 CFR § 5.9(b). As stated above, YCWA has previously responded to NMFS’ statements. Rather than repeat those responses here, YCWA refers FERC to YCWA’s April 19, 2011 Proposed Study Plan and August 17, 2011 Revised Study Plan, as well as YCWA’s letters dated September 8, 2011 and November 14, 2011. Each of these documents is part of the administrative record for this proceeding.

2.2.8.3 YCWA’s Recommendation

For the reasons stated above, FERC should not adopt the NMFS’ request for a new Project Effects on Anadromous Fish Habitat and Passage Upstream of Englebright Dam Study.

SECTION 3

RESPONSE TO NON-STUDY REQUEST COMMENTS

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

- Comments on a FERC-approved Study, But Not a Request for Study Modification or New Study. These comments expressed concern that a specific study was not performed in accordance with FERC's Study Determination, as amended. YCWA addressed those comments in this section, unless the requested action was outside the scope of the FERC's Study Determination, as amended, (i.e., is a requested modification to a FERC-approved study or a request for a new study), in which case the request is addressed in Section 2.
- Comments on Technical Memoranda. These comments expressed general or specific dissatisfaction with the presentation, organization, format and/or tone of a technical memorandum, and requested 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 responded to those comments in this section.
- Comments, But No Requested Action. These comments expressed general dissatisfaction with a technical memorandum or performance of a study or provided general commentary on a subject, but did 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 two categories above. 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.

YCWA's responses are included in Table 3.0-1 with one exception. In comments on Technical Memoranda 3-6, 4-1, 7-3, 7-6 and 7-7, the Forest Service stated that information from the Plumas National Forest (PNF) was not included in the technical memorandum. Each of these technical memoranda included all relevant information provided to YCWA by the Forest Service as well as other existing, relevant and reasonably available information found by YCWA during preparation of the PAD. If additional information is provided to YCWA by the Forest Service, YCWA will include the information in the Draft License Application.³⁷

³⁷ YCWA and the PNF are in the process of discussing how the PNF can provide additional information to YCWA.

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Table 3.0-1. YCWA's responses by technical memoranda to Non-Study Requests in the seven letters filed with FERC that provided comments on YCWA's Initial Study Report and Initial Study Report meeting summary.

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
1-1	Channel Morphology Upstream of Englebright Reservoir	If tracer particles have not been checked, check them as soon as possible.	NMFS, p. 1 of Attachment A	YCWA checked and re-measured tracer particles following the December 10, 2012 flood event. The results will be provided in the final Technical Memorandum 1-1.
1-2	Channel Morphology Downstream of Englebright Dam	Request to identify species or breakdown by hardwood versus conifer for LWM Key Pieces.	NMFS, p. 2 of Attachment A	YCWA will include species information, identified as "hardwood," "conifer," or "unknown" for each Key Piece of LWM in Table 3.6-7 of the final Technical Memorandum 1.2.
		Clarify why pieces # 115, 1285 and 1498 meet minimum size criteria for LWM	NMFS, p. 2 of Attachment A	YCWA will correct and edit the information in Table 3.6-7 in the final technical memorandum 1-2 to show that LWM pieces #1498, #1285, and #115 meet the 25/25 criteria.
2-1	Hydrologic Alterations	Request for more complete analysis of when (what seasons) and by how much flows in Middle Yuba River and Oregon Creek are altered.	Forest Service, p.2 of Attachment 1	All data regarding changes in Middle Yuba River and Oregon Creek flows are included in Attachment 2-1A and summarized in Section 3 of Technical Memorandum 2-1.
		Request for map and cross-walk table of streamflow gages with gage names (both USGS and YCWA), numbers and UTM coordinates.	Forest Service, p.2 of Attachment 1 CDFW, p. 1	YCWA will provide to Relicensing Participants a figure and table with USGS and YCWA streamflow gage locations and names independent of Technical Memorandum 2-1 by March 31, 2013
2-2	Water Balance/Operations Model	Request for map and cross-walk table of streamflow gages with gage names (both USGS and YCWA), numbers and UTM coordinates.	Forest Service, p.3 of Attachment 1	YCWA will provide to Relicensing Participants a figure and table with USGS and YCWA streamflow gage locations and names independent of Technical Memorandum 2-3 by March 31, 2013
		Request raw data inputs, and meeting to learn more about assumptions going into the model.	FWN, p.18	YCWA has held 10 meetings with Relicensing Participants (FWN was invited to each meeting) between 2009 and 2012 regarding model inputs and assumptions. If FWN has any specific questions regarding the model, YCWA would be pleased to discuss the questions with FWN. All raw data inputs were provided as an attachment to the Technical Memorandum 2-2.
2.3	Water Quality	In accordance with the State Water Board's Statewide Mercury Program, the State Water Board supports continued mercury related investigations to determine the impact of Project related activities in the Yuba River system.	SWRCB, p. 3	At a February 14, 2013 meeting, the SWRCB clarified that it was not making a request to modify a study or add anew study with this comment, but merely advising YCWA of this ongoing effort by the SWRCB. YCWA appreciates the information.
2-5	Water Temperature Monitoring	Noted YCWA and Relicensing Participants agreed to discuss additional margin water temperature data collection after July 2013.	Forest Service, pp. 3 & 4 of Attachment 1 CDFW, pp. 3 & 4 FWN, p. 18	YCWA agrees with the description with one clarification: the agreement was if YCWA and Relicensing Participants collaboratively agree to collect additional margin water temperature data after July 2013, the data would be collected outside of Study 2.5 and provided to Relicensing Participants.
		Request for map and cross-walk table of water temperature loggers with logger names (Study 2.5 number, YCWA number, and location) and UTM coordinates.	Forest Service, p.4 of Attachment 1 FWN, p. 19	YCWA will provide the map and cross-walk table in the final Technical Memorandum 2-5.
		Request YCWA discuss with Relicensing Participants the format of graphs (e.g., measurement units, time window or series to focus on, locations to depict in the same plot, etc.) prior to finalizing the Tech Memo.	Forest Service, p.4 of Attachment 1	YCWA believes the graphs provided in the Tech Memo are adequate and consistent with those provided in other recent FERC relicensings. However, at a February 14, 2013 meeting, YCWA said it would be willing to make reasonable modifications to graphs and plots in the final Technical Memorandum 2-5. Agencies said they would email suggested changes to YCWA.
		Request that water temperature monitoring data sets in New Colgate and Narrows 2 Powerhouse penstocks be excluded from the tech memo and the memo include a short discussion of the inaccuracies, or be explained why they are outliers.	USFWS, p. 5 CDFW, p. 3 FWN, p. 19	YCWA believes that most of the data available in these two data sets is of good quality. Portions of the data sets that are believed to be incorrect due to a variety of circumstances were identified by YCWA. These data, regardless of their quality were not used in the calibration or verification of the water temperature model.
		Clarify whether the YCWA collected temperature profiles between August 15 and September 1 in northeast and central arms of New Bullards Bar Reservoir at a location deep enough to capture thermocline.	NMFS, p. 7 of Attachment A	YCWA collected reservoir profiles on June 10 and August 4, 2012 as part of the water quality study near the dam, at the mid reservoir point and up the northeast arm, near Madrone Cove campground. These results showed very consistent profile data at each location including the depth and general trend of thermocline. The results will be provided in the Final Technical Memorandum 2-5. To confirm these results, YCWA will collect three additional profiles between August 15 and September 1, 2013 and provide them in the final Technical Memorandum 2-5.
3-1	Aquatic Macroinvertebrates Upstream of Englebright Reservoir	Requested YCWA demonstrate why the change in protocol from SWAMP targeted riffle method to the reach-wide benthos-multi-habitat protocol was made and how it will not bias the data. A presentation to the Forest Service and other relicensing participants on the new methodologies that were used would be beneficial to better understanding the data results.	Forest Service, p.4 of Attachment 1 CDFW, p. 4 FWN, p. 20	YCWA implemented the SWAMP reach-wide benthos method and not the targeted-riffle approach. This did not change the application of SWAMP and is a foundational step in common accepted methods when presented with the issue as described. Many of the sites had very little riffle habitat (between 0% and 50% of the site). The targeted-riffle approach requires for riffle habitat to be present. In many sites it was absent or minimally available, making the method either infeasible or a poorly applied approach. The reach wide benthos method calls for collecting samples at each of the 11 "major transects" identified during sampling providing a more representative composite sample from habitat types throughout the entire site length (when riffle habitat is minimal or absent). The equipment used to collect BMI samples is identical in both targeted-riffle and reach-wide methods as well as the physical habitat data collection, BMI identification level and effort and metric calculations (Ode 2007). Rehn et al. (2007) compared the results of 193 BMI sample sites in California where targeted-riffle and reach-wide methods were used and found that in general BMI assemblages were similar, particularly when metrics such as IBI or O/E were calculated. IBI metrics were used in the analyses. Therefore, the study methodology complied with the requirements of SWAMP, which was the required method stated in the study plan.

Table 3.0-1. (continued)

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
3-4	Special-Status Amphibians – Foothill Yellow-Legged Frog Surveys	Request clarification regarding whether loggers were installed or visited and instantaneous water temperatures were taken on March 29, 2011.	Forest Service, p.5 of Attachment 1 CDFW, p. 5	The start of pre-survey temperature monitoring represents the date that loggers were visited and downloaded. Temperature loggers were already in place on this date.
		Request for clarification regarding why surveys were not started until first week of June 2012.	Forest Service, p.5 of Attachment 1 CDFW, p. 6	The agreed survey trigger temperature in the Revised Study Plan was 11°C. Water temperature briefly reached this threshold in mid-April 2012, but then quickly dropped below 9°C. Mid-April is earlier than FYLF breeding is known to occur in the Middle Yuba River and earlier than observed anywhere during FYLF surveys at numerous sites on the Nevada Irrigation District's Yuba-Bear Hydroelectric Project and Pacific Gas and Electric Co.'s Drum-Spaulding Project in 2008 and 2009. Water temperature held at or above 11°C beginning on May 6, 2012. Because there were no known breeding locations on the Middle Yuba River downstream of Our House Diversion Dam (i.e., no sentinel sites), YCWA performed an informal egg mass survey at Site MYR-3B on May 22, 2012, expecting to find egg masses if they were present. None were found, but two adult FYLF in breeding condition were observed. Surveys were then mobilized to commence as soon as possible. The onset of breeding is likely stimulated by multiple exogenous and endogenous factors, including air and water temperatures, and seasonal hormonal changes.
		Request more descriptive results and discussion of the presence of invasive species relative to FYLF populations/breeding.	Forest Service, p.6 of Attachment 1 USFWS, p. 6 CDFW, p. 6	Information on incidental species observations, including non-native species, is presented in each section of the site results and in Section 3.4 (Incidental Observations of Other Species). In addition, Attachment 3-6D tabulates all incidental observations. Section 4.1 summarizes pertinent literature regarding possible effects of non-native and native predatory species. It is unclear what other information is being requested.
3-7	Reservoir Fish Populations	Request for information regarding mortality rates of hardhead, and other fishes, during the data collection phase of the study.	Forest Service, p.8 of Attachment 1 CDFW, p. 8	The information on mortalities during gill netting is included in Technical Memorandum 3-7, Attachment E, posted on the public relicensing SharePoint. Any fish collected can be looked up or summaries can be run in Excel.
3-8	Stream Fish Populations	Request that the field data form include a box for recording fish condition that specifically calls out the presence and number of parasites on captured or observed fish, with either a field identification of the parasite taxa or photograph taken for later identification.	Forest Service, pp. 8 & 9 of Attachment 1 USFWS, p. 6 CDFW, pp. 8 & 9	The request will be instituted in the 2013 field sampling data sheet.
		Request a copy of the snorkeler mask video DVD to further our analysis of snorkeling data.	Forest Service, p.9 of Attachment 1 CDFW p. 9	The data will be delivered to Dan Teater (FS) and Sean Hubler (CDFG) by March 2012.
		Request Figure 3.1-1 be improved for legibility.	Forest Service, p.9 of Attachment 1 CDFW, p. 9	The figure will be improved for legibility in the final Technical Memorandum 3-8.
		Request clarification regarding variance of sampling locations in the North Yuba River.	Forest Service, p.9 of Attachment 1 CDFW, p. 9 FWN, p. 21	The variance was a collaboratively agreed upon revision. The site at the North Yuba River below New Bullards Bar dam was not feasible to sample and was agreed would be eliminated during a collaborative site visit, as described in Technical Memorandum M 3-8, Section 6. The site near Yellowjacket Creek on the Middle Yuba River was requested to be sampled by agencies, even though it was not part of the study plan. YCWA agreed to sample the location given the elimination of the North Yuba River site.
		Request copy of the completed data forms.	Forest Service, p. 9 of Attachment 1 USFWS, p. 7	A copy of the data sheets will be provided in the final Technical Memorandum 3-8.
		Address study variance for August 11, 2012 sampling at Yellowjacket Creek.	CDFW, p. 8 FWN, p. 21	It is important to clarify that the selection of the site at Yellowjacket Creek was a collaboratively approved variance (Technical Memorandum 3-8, Section 6). The applied sampling methodology at Yellowjacket Creek was not a variance, but a revision based on professional judgment of the field lead, which is allowed within the study plan.
		If YCWA and Relicensing Participants cannot agree on the cause of death of a Chinook salmon that was found dead, it should be deleted from the tech memo.	FWN, p. 21	The study describes the conditions and event that occurred. Collaborative agreement is not required on a reporting of results. Readers may draw their own conclusion based upon the facts detailed within the report.
3-9	Non-ESA Fish Populations Downstream of Englebright Dam	Explain why the diversity in Campos and Massa (2010) are not appropriate.	USFWS, p. 7	Campos and Massa (2012) combine data collected from the VAKI survey, RST surveys, and snorkel and electrofishing surveys. These data provide abundance estimates that are not comparable due to the selectivity of each type of sampling gear, location of sampling and period of sampling. Species composition diversity calculations require that the abundance estimates for species included in the diversity characterization be comparable. Using results of selective survey methods, such as RST and VAKI do not equally represent all species present in the river and are likely to misrepresent or completely miss the presence of some species.
		Page 55 – Correct number of native and non-native anadromous fish species, and number of anadromous native species.	USFWS, p. 7	The correct number of anadromous species is eight native and two non-native, per Table 3.2-1. This change will be made in the final Technical Memorandum 3-9
		Page 70 – Explain Project effects.	USFWS, p. 8	The objectives of the study included compilation of data from previous and ongoing studies to characterize the non-listed fish species populations downstream of Englebright Dam and to examine potential relationships between flow and temperature, other abiotic variables, and species-specific population and community metrics including species composition, species diversity, relative abundance, temporal distribution, habitat utilization, and spatial distribution. The data required to evaluate or compare metrics under different flow and temperature conditions were not available. Qualitative discussions of these metrics are provided in the TM that constitutes an evaluation of extant conditions of the population under Project conditions. Quantitative analysis of changes in the population metrics that could be attributable to Project conditions observed as changes between 1986 (Beak 1989) and the present (RMT various) would not meet the consistency of methodology with generally accepted scientific practices requirement.

Table 3.0-1. (continued)

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
3-11	Entrainment	Requests information on events that require the antenna arrays to be turned off and/or pulled out, including for each event: date and time of day, the amount of time the PIT tag antenna array was out of the tunnel and not collecting data, and flows into the reservoirs and through the tunnels.	Forest Service, p.11 of Attachment 1 SWRCB, p. 2 CDFW, p. 10 FVN, p. 21	This information will be included in the final Technical Memorandum 3-11 (data through February 3, 2013 were provided to Relicensing Participants on February 8, 2013).
		Request notification 1-2 days prior to planned cleaning of trash racks.	Forest Service, p.11 of Attachment 1 CDFW, p. 10 FVN, p. 22	At a February 14, 2013 meeting, YCWA stated it would provide agencies via e-mail as much advance notice as possible when the antenna array are to be pulled.
		Request YCWA provide all of the raw data from the PIT tagging antenna detections.	Forest Service, p.12 of Attachment 1 CDFW, p. 10	This information will be included in the final Technical Memorandum 3-11.
		Correct calculation error in Table 3.1-1.	Forest Service, p.12 of Attachment 1 CDFW, p. 10 FVN, p. 22	The correction will be included in the final Technical Memorandum 3-11.
		Correct statement that gill nets were deployed in Log Cabin Diversion dam.	Forest Service, p.12 of Attachment 1	This correction will be made in the final Technical Memorandum 3-11.
		Request that the field data form include a box for recording fish condition that specifically calls out the presence and number of parasites on captured or observed fish, with either a field identification of the parasite taxa or photograph taken for later identification.	Forest Service, p. 8 of Attachment 1 CDFW, p. 10	Sampling for fish is already complete. Revision to the field data form cannot be conducted.
		Provide citation for CDFW estimation of trout in Our House Diversion Dam, or estimate abundance based on mark and recapture methods.	CDFW, p. 10	The citation will be provided in the final Technical Memorandum 3-11.
		Request meeting to discuss whether additional fish tagging is needed because of the intermittent removal of the antenna array.	FVN, p. 22	YCWA does not understand the need for additional tagging, but would be willing to discuss it with FVN if FVN provide a rationale and Relicensing Participants agree to place the item on an agenda for a future Relicensing Participants meeting.
3-12	New Colgate Powerhouse Ramping	Clarify whether the stranding surveys were conducted during the normal range of representative flow fluctuations.	NMFS, p.7 of Attachment A	First, NFMS incorrectly states that Study 3.12 is ongoing. The study is complete and a final Technical memorandum 3-12 was posted to the Relicensing Website. Second, NFMS 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.
4-1	Special-Status Wildlife – California Wildlife Habitat Relationships	Request that hazard tree felling be added to the O&M activities in Table 3.2-1.	Forest Service, p.13 of Attachment 1	Hazard tree felling will be included in the DLA as a Project activity with the potential to affect special-status wildlife.
5-1	Special-Status Plants	Delete <i>Pyrrocoma lucida</i> from Table 2.2-1.	Forest Service, p.13 of Attachment 1	The occurrence of sticky pyrrocoma (<i>Pyrrocoma lucida</i>) listed in Table 2.2-1 of Technical Memorandum 5.1 was cited from CDFW's California Natural Diversity Database (CNDDDB) RareFind 4 (CDFG 2009); it is element occurrence number 3254. YCWA was unable to locate sticky pyrrocoma in the study area; YCWA will not include a discussion of the species in the DLA.
		Correct description of leaves and whorls on Butte County Fritillary.	Forest Service, p.13 of Attachment 1	YCWA's survey team documented occurrences of all fritillary (<i>Fritillaria</i> spp.) when found only in vegetative form and conducted revisits to those occurrences until identification to species was confirmed. Locations of Butte County Fritillary (<i>Fritillaria eastwoodiae</i>) provided in Technical Memorandum 5.1 represent individuals identified during flowering. YCWA did not provide information for other (non-rare) fritillary species.
		Clarify on page 37 that herbicides are not used along roadsides in the TNF on NFS land.	Forest Service, p.13 of Attachment 1	YCWA does not apply herbicides along roadsides on NFS land; discussions for herbicide application along roadsides will be clarified in the DLA.
		Provide reference for statement on page 37 that barbed goat grass, tree of heaven, Bermuda grass, and Medusa head grass may be successfully transported by water and colonize new sites.	Forest Service, p.13 of Attachment 1	Citations included in Technical Memorandum 5.1 for the dispersal mechanisms of non-native invasive plants (NNIPs) are primarily from <i>Weeds of California and Other Western States</i> (DiTomaso and Healy 2007) and the California Invasive Plant Council's (Cal-IPC) species accounts from <i>Invasive Plants of California's Wildlands</i> (Cal-IPC 2003, 2006). Barbed goat grass (<i>Aegilops triuncialis</i>), tree of heaven (<i>Ailanthus altissima</i>), Bermuda grass (<i>Cynodon dactylon</i>), and Medusa head (<i>Elymus caput-medusae</i> [<i>Taeniatherum caput-medusae</i>]) water aided dispersal is discussed in DiTomaso and Healy (2007). Many of the other NNIPs found in the study area can also be dispersed by water; discussions for the dispersal mechanisms of NNIPs found in the study area will be clarified in the DLA.
		Provide reason for statement that area near the bald eagle nest is unlikely to support special-status plants.	Forest Service, p.14 of Attachment 1	YCWA's survey team documented habitat around the bald eagle protection area. The area was dominated by a dense overstory of mature trees, a dense to diffuse shrub layer, and a depauperate herb layer. The aspect was primarily south/southeast facing. The plant community type and aspect observed in the bald eagle area is abundant in the study area around New Bullards Bar Reservoir; no special-status plant species were found in the other areas surveyed that matched the community type. However, some occurrences of Humboldt's lily (<i>Lilium humboldtii</i>) were found in openings adjacent to habitats like the bald eagle protection area, often along roads and trails, and in campgrounds.

Table 3.0-1. (continued)

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
6-1	Riparian Habitat Upstream of Englebright Reservoir	Forest Service states that the data presented in the tech memo is not presented in the manner that was agreed to in Study Plan 6.1 for seed germination and evaluation.	Forest Service, p.14 of Attachment 1	YCWA has included information regarding the location of germination in Attachment 6-1A. The attachment details the locations of seedlings, recruits, and mature woody vegetation in relation to the channel using channel cross-section illustrations as well as vegetation data tables that correspond to the cross-sections. YCWA will incorporate this information with the completion of the stage/discharge relationship and flow-frequency analysis in the final Technical Memorandum 6-1.
		Forest Service states that YCWA has failed to provide a seed germination evaluation that includes stage/discharge and flow frequency analysis.	Forest Service, p.14 of Attachment 1	YCWA will complete the stage/discharge and flow frequency analysis pending the completion of the stream/discharge calculations, and include the results in the final Technical Memorandum 6-1.
		Request information about sediment transport and movement of LWM be presented together to show the potential of each system to support riparian communities.	Forest Service, p.15 of Attachment 1	YCWA will incorporate sediment transport and movement of LWM to discuss the potential of a system to support riparian vegetation in the final Technical Memorandum 6-1.
		Request YCWA provide in writing what information was used to make the statement about vegetation health and hydrologic connectivity of floodplain vegetation at each site and consider the presence of non-native invasive plant infestation in that analysis.	Forest Service, p.16 of Attachment 1	YCWA will include in the final Technical Memorandum 6-1 a description of what indicators were used to indicate floodplain connectivity and will include impacts of invasive species.
		Update key pieces results in Tables 3.4-1 to only count key pieces within the bankfull channel.	NMFS, p. 9 of Attachment A	YCWA only surveyed LWM within bankfull and will clarify the report language accordingly in the final Technical Memorandum 6-1.
6-2	Riparian Habitat Downstream of Englebright Dam	The Executive Summary to list willows as the most frequently occurring woody species and Fremont's cottonwood as the second; The order should correspond with Table 3.2-3	FWN, p.22	YCWA will change the Executive Summary in the final Technical Memorandum 6-2 to list willows as the most frequently occurring woody species and Fremont's cottonwood as the second.
		Clarify whether LWM pieces were mapped in relation to 5,000 cfs or bankfull extent.	FWN, p. 22	YCWA will clarify the extent of the LWM mapping effort in the final Technical Memorandum 6-2.
		Data on key LWM pieces should be presented with all attributes including dimensions, type of tree and root wad.	FWN, p. 22	YCWA will include specifics including dimensions, type of tree and rootwad in the final Technical Memorandum 6-2.
		Provide more explanation on relationship between riparian trees and LWM.	FWN, p. 22	YCWA will include a description of the relationship between riparian trees and LWM in the final Technical Memorandum 6-2.
		Various comments on page 29 of tech memo as well as on Tables 3.2-4, 3.2-5 and 3.2-7 and Figure 3.2-1.	FWN, pp. 22	In the final Technical Memorandum 6-2, YCWA will: 1) change "Trees" to "Polygons" in Table 3.2-4; 2) change "Reach" to "Site" in Table 3.2-5; 3) change the dbh data in Table 3.2-7, as it contains incorrect measurements; 4) clarify which cored trees were included in the analysis of age vs. dbh; and 5) provide an explanation as to why the dbh was not collected for some cottonwoods cored
		Replace Box Plot (Figure 3.2-1) with Scatter Plot and describe which data are used	FWN, p.23	YCWA will include a scatter plot of cored cottonwood ages and include a description of which cored cottonwoods are included in the scatterplot in the final Technical Memorandum 6-2.
7-6	CESA-Listed and Fully Protected Wildlife – California Wildlife Habitat Relationships	Include greater detail of dredger activity and impacts on riparian vegetation.	FWN, p.23	YCWA will include greater detail of dredger activity and impacts on riparian vegetation in the final Technical Memorandum 6-2.
		Request that hazard tree felling be added to the O&M activities in Table 3.2-1.	Forest Service, p.18 of Attachment 1 CDFW, pp. 12 & 13	Hazard tree felling will be included in the DLA as a Project activity with the potential to affect CESA-listed and Fully Protected wildlife.
7-7	CESA-Listed and Fully Protected Wildlife – Bald Eagle	Request assessment of impacts to bald eagles from continued operation and maintenance of reservoir be developed and reported in the re-licensing environmental compliance documents.	USFWS, pp. 14, Forest Service, p.18 of Attachment 1	An assessment of impacts to bald eagles that may result from continued operation and maintenance of New Bullards Bar Reservoir will be included in the DLA.

Table 3.0-1. (continued)

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
7-8	ESA and CESA-Listed Salmonids Downstream of Englebright Dam	Pages 33 – 34 – Comments regarding assertion that the river is self-sustaining and how the spatial organization of morphological units relates to quality of fish habitat.	USFWS, pp. 17 & 18	Additional discussions of geomorphology of the Yuba River downstream of Englebright Dam and how it relates to the quality of anadromous salmonid habitat will be further considered and described in the final Technical Memorandum 7-8, including scour/fill processes and the maintenance of riffles and pools associated with the current hydrologic regime.
		Recommends that overstorycover, in-water cover, prey abundance and availability, and contribution of large and small woody material be included in the mesohabitat analysis.	USFWS, p. 18	As stated in the FERC-approved Study 7.8, “additional field-based data collection is not needed to describe the salmonid fishes in the Yuba River downstream of Englebright Dam for the purpose of assessing potential Project effects and development of protection, mitigation and enhancement (PM&E) measures to be included in a new license for the Project.” Pursuant to the FERC-approved study (7.8), the definition of mesohabitat was for the specifically-stated purposes, and did not include the attributes that the USFWS is requesting. YCWA agrees that a clear distinction should be made in the final Technical Memorandum 7-8 between mesohabitat and morphological unit.
		Request to not use “mesohabitat” to characterize morphological units.	USFWS, p. 18	As stated in the FERC-approved Study 7.8, “the report for this study plan will be a synthesis of data presentation and characterization of the analytics included in the Yuba Accord M&E Program...” The definition of the term mesohabitat used by the M&E Program is provided in Wyrick and Pasternack (2012) as follows: “A mesohabitat is represented by the stage-dependent hydraulics (e.g., depth and velocity) that occur as a result of the discharge interacting with the underlying topography.” Therefore, the interim technical memorandum uses this definition of mesohabitat.
		Page 35 – Define and show on map “floodplains and “high floodplains.” And report inundation frequencies and durations of areas containing riparian vegetation and of areas containing LWM to provide a measure of Project effects.	USFWS, p. 18	The FERC-approved Study 7.8) did not address the mapping of floodplains or inundation frequencies of large woody debris and riparian vegetation. As stated in the FERC-approved study, “...the results of other relevant studies pertinent to anadromous salmonids below Englebright Dam proposed in the ILP will be incorporated and integrated into the report prepared for this study plan.” Therefore, discussions of LWM and riparian vegetation studies presented in Technical Memorandum 1-2, Channel Morphology Downstream of Englebright Dam, were summarized in Technical Memorandum 7-8. Technical Memorandum 1-2 provides additional detail regarding inundation frequencies of LWM and riparian vegetation, and provides maps of the floodplains.
		Page 38 – Request removing or rewording statements to reflect common understanding of migration impedance by Daguerre Point Dam.	USFWS, p. 19	USFWS comments that the statement that “adult Chinook salmon immigration at Daguerre Point Dam is not prohibited during migratory periods” implies that migration is not impeded in any way and that there are no Project impacts (p. 19). YCWA disagrees with this USFWS comment. USFWS incorrectly confuses “prohibited” with “impeded.” Interim Technical Memorandum 7-8 does not conclude whether or not Daguerre Point Dam represents a migration impedance to anadromous salmonids. However, the technical memorandum does report the results of the RMT’s adult spring-run Chinook salmon acoustic tagging study, including the observation that the period of occupation in the Daguerre Point Dam plunge pool by tagged adult spring-run Chinook salmon ranged from 0 to 116 days, and that spring-run Chinook salmon were able locate the fish ladders and migrate upstream rapidly during flows ranging from 2,000 to 5,000 cfs, as observed during the survey period (May-October). The technical memorandum further states that “...it is possible that these fish over-summered in the Daguerre Point Dam pool due to the suitable habitat conditions available below the dam (e.g., favorable water depths, cover, water temperatures and proximity to quality spawning gravels). Daguerre Point Dam creates a large, deep pool downstream of the dam that provides several holding habitat attributes reportedly utilized by spring-run Chinook salmon.” USFWS further comments that “There is also a long history of documented salmon migration impedance at Daguerre Point Dam.” (p.19). However, USFWS does not provide any studies or references to support this statement. YCWA will include reference to such studies in the final Technical Memorandum 7-8 if they are provided by the USFWS.
		Comment that cold water temperatures may impede smoltification.	USFWS, p. 19	USFWS does not provide any references or studies that support their comment that the physiological process of smoltification of juvenile Chinook salmon and steelhead could be impeded by cold water temperatures in the lower Yuba River. YCWA will include reference to such studies in the final Technical Memorandum 7-8 if they are provided by the USFWS.
		Include in the matrix of information needed to evaluate fish passage in the lower Yuba River how the relicensing, RMT and YSF studies address those information needs and a schedule for completion of such studies both inside and outside relicensing.	NMFS, p. 13 of Attachment A	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. NMFS did not suggest in their comments any specific studies to incorporate into the matrix. YCWA will consider incorporating additional studies into the matrix if NMFS provides the names of such studies and how they address the NMFS information requests for Study NMFS-1, Element 4
7-9	Green Sturgeon Downstream of Englebright Dam	Comment that the study does not contain sufficient information to assess the need for field surveys and studies to detect juveniles, larvae, and eggs.	NMFS, p. 13 of Attachment A	Per FERC’s September 30, 2011 Determination, Study 7.9 was designed to provide information necessary to inform an assessment of Project-related effects on green sturgeon habitat for all life stages in the lower Yuba River. Interim Technical Memorandum 7-9 documented the occurrence of green sturgeon in the Yuba River resulting from RMT studies, as well as from the California Fish Tracking Consortium and the DWR sturgeon tagging and tracking programs. Although not specifically required, Interim Technical Memorandum 7-9 also presented the results of AFRP-funded studies using underwater videography specifically searching for green sturgeon in the lower Yuba River. The interim technical memorandum also presented water temperature suitabilities in the Yuba River resulting from Project operations. However, evaluation of Project-related effects on green sturgeon habitat in the lower Yuba River was not, and is not, contingent upon the confirmed occurrence of green sturgeon in the lower Yuba River. As stated in Interim Technical Memorandum 7-9, the study was not complete at that time. The final Technical Memorandum 7-8 will include results of the green sturgeon adult deepwater holding habitat availability analysis, and the spawning habitat availability analysis, per the FERC-approved Study 7.9 and FERC’s September 30, 2011 Study Plan Determination that Technical Memorandum 7-9 include the green sturgeon spawning PHABSIM analysis conducted in Technical Memorandum 7-10.
		Request to state how many studies the Licensee reviewed that were performed to detect and document the presence/absence of green sturgeon juveniles, larvae or eggs in the Yuba River to support statements such as “There have been no observations of any green sturgeon juveniles, larvae or eggs in the Yuba River.”	NMFS, p. 13 of Attachment A	As stated in the FERC-approved Study 7.9, a review was conducted for any observations of green sturgeon during studies implemented by the RMT, including the Chinook salmon acoustic tagging and tracking study, juvenile fish snorkel study, salmonid redd study, and the rotary screw trapping study. Each of these studies included multiple surveys in the lower Yuba River. RMT fisheries biologists that conducted these studies were interviewed to document whether green sturgeon were anecdotally observed during the course of these studies. Specifically, the statement in the Interim Technical Memorandum that “No green sturgeon juveniles, larvae, or eggs have been observed in the lower Yuba River to date” was taken from NMFS in the 2008 Draft Biological Report, Proposed Designation of Critical Habitat for the Southern Distinct Population Segment of North American Green Sturgeon.
		Comment that the documentation in Interim TM 7-9 involved only the collection of the results of the field study of others that might pertain to the presence, distribution and movement of this species in the lower Yuba River. NMFS’ understanding is that Study 7.9 did not execute a new field study with the targeted objective of observing green sturgeon life stages in the lower Yuba River.	NMFS, pp. 13-14 of Attachment A	YCWA agrees with NMFS’ understanding that a new field study targeting green sturgeon in the lower Yuba River was not conducted. Consistent with the FERC-approved Study 7.9 and as stated in FERC’s September 30, 2011 Study Plan Determination, “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...As such, we do not recommend modifying study 7.9 to include specific surveys for green sturgeon.”

Table 3.0-1. (continued)

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
7-9 (cont.)	Green Sturgeon Downstream of Englebright Dam (cont.)	Comment that it is not clear if additional days of survey occurred in 2011, or if the 4-5 documented occurrences were logged over only 3 days of observation effort.	NMFS, p. 14 of Attachment A	YCWA will provide this information in the final Technical Memorandum 7-9 if it is readily available.
		Comment that it is not clear about how many (if any) green sturgeon have been collected in the Yuba River and tagged.	NMFS, p. 14 of Attachment A	YCWA is not aware that any green sturgeon have been acoustically-tagged within the Yuba River downstream of Englebright Dam. YCWA will provide this clarification in the final Technical Memorandum 7-9.
		Comment that if a large enough sample of green sturgeon individuals is obtained (captured and tagged in the delta or the lower Sacramento River during upstream migration), then it is reasonable that some of these individuals should be detected in the Yuba River, if these habitats are used by the species.	NMFS, p. 14 of Attachment A	The California Fish Tracking Consortium (CFTC) green sturgeon acoustic tracking database includes green sturgeon tagged in various locations, including San Pablo and Grizzly bays, Fremont Weir, Tisdale Bypass, Red Bluff Diversion Dam, and other locations. YCWA will provide additional details on the capture and tagging locations of the green sturgeon in the CFTC database in the final Technical Memorandum 7-9 if it is readily available.
		Comment that methods used by the Licensee to detect green sturgeon presence in the project area do not reflect spatial or temporal life history patterns of green sturgeon and have decreased the likely chances of detection.	CDFW, pp.13-14	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."
		Comment that CDFW disagrees with the use of Feather River Data to ascertain that green sturgeon are not utilizing the Yuba River.	CDFW, p. 13	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.
		Comment that "The Department was surprised that the Licensee failed to report the removal of a low flow barrier to green sturgeon passage at Shunghai Bend on the lower Yuba River."	CDFW, p. 14	YCWA assumes that CDFW is actually referring to the breaching of a low flow barrier at <i>Shanghai Bench</i> (not Shunghai Bend) on the lower <i>Feather River</i> (not the lower Yuba River). Also, that portion of the Feather River is not located in the study area for the FERC-approved Study 7.9) (i.e., the Yuba River downstream of Englebright Dam), and therefore is not addressed in Technical Memorandum 7-9.
7-10	Instream Flow Downstream of Englebright Dam	Service maintains that the results of USFWS (2010 a, b and c) should be used to develop habitat-related PM&E's for the Project below Englebright Dam; that the HSCs in USFWS (2010 a and b) should be used; and that the cover types in USFWS (2010b) should be used.	USFWS, p. 19	YCWA does not agree that the USFWS' model and HSCs represent the best available science, and should therefore be used to satisfy the needs of Study 7.10.
		USFWS did not agree to use the SRH2D hydraulic model, or agree on HSCs or cover types.	USFWS, pp. 19 & 20	YCWA was under the impression that the USFWS, which attended most of the collaborative meetings, was in agreement with the use of the SRH2D hydraulic model for the purpose of the Study 7.10. YCWA acknowledged that stakeholders could use whatever information they choose when proposing PM&Es to FERC, which may include other flow-habitat models. However, now that YCWA understands there is not collaborative agreement on the use of the RMT's SRH2D hydraulic model and collaboratively developed HSCs for the purpose of Study 7.10, YCWA scheduled with Relicensing Participants a meeting on March 11, 2013 in one last attempt to reach agreement with all Relicensing Participants on the model and HSCs. If agreement is not reached at that meeting, YCWA will refer the matter to FERC for resolution with regards to the study.
		Request YCWA provide results of SRH2D model for flows greater than 5,000 cfs.	USFWS, p. 20	YCWA will include the requested information in the final Technical Memorandum 7-10 should the SRH2D hydraulic model be used for the study (see above).
		Describe inflow values for Dry Creek and Hammond Reach used in SHR2D model.	USFWS, p. 20	YCWA will include the requested information in the final Technical Memorandum 7-10 should the SRH2D hydraulic model be used for the study (see above).
		Page 24 – Correct citations.	USFWS, p. 20	YCWA will correct referenced citations in the final Technical Memorandum 7-10.
7-11	Fish Behavior an Hydraulics Near Narrows 2 Powerhouse	Include in tech memo that a fish became stranded during operation of the partial-bypass.	NMFS, p. 22 of Attachment A	The fish mortality is documented in the report. YCWA does not agree that the events resulted in a stranding and will not re-characterize the description based on this request.

Table 3.0-1. (continued)

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
8-1	Recreational Use and Visitor Surveys	Request that YCWA provide the raw data from the visitor surveys prior to completing the final tech memo.	Forest Service, p. 19 of Attachment 1	YCWA provided the visitor survey raw data to the Forest Service on February 8, 2013 (email to Amy Lind) in two formats – Microsoft Excel spreadsheet with a coding tab and in the SPSS statistical software file (as used by YCWA per the FERC-approved study). In addition, YCWA provided the raw 2012 campground occupancy data for the Project campgrounds (via YCWA's concessionaire).
		Request the opportunity to review visitor survey data, potentially conduct some analyses, and discuss the results with YCWA before the final tech memo is produced.	Forest Service, p. 19 of Attachment 1	YCWA welcomes any discussions with the Forest Service based on the visitor survey data. YCWA provided the visitor survey raw data to the Forest Service on February 8, 2013.
		Burnt Bridge Campground, Cottage Creek Campground and Cottage Creek Group Campground were not evaluated as described in the study plan.	Forest Service, p. 19 of Attachment 1	YCWA only conducted road condition evaluations of the Burnt Bridge Campground as the road is the only remaining site facilities/features due to the decommissioning of Burnt Bridge Campground 33 years ago (1979). YCWA included a summary of the road evaluations in the Interim Technical Memorandum 8-1, which are summarized from Technical Memorandum 9-1, <i>Primary Project Roads and Trails</i> . YCWA has provided a more detailed evaluation of Cottage Creek Overflow Campground (family and group overflow) for the few remaining facilities and site elements that remain after the wildfire damage to the facilities in 2011 at Cottage Creek Campground. Further, if a site is decommissioned (Burnt Bridge Campground) and closed to public use (facility is gated), then an accessibility and use impact evaluation are irrelevant, particularly when no facilities exist outside of a road.
		The Tech Memo, Section 3.4, Evaluation of the Functional Periods of the Project Developed Boat Ramps, states that Dark Day boat launch is open year round and in good condition. We are concerned that a full evaluation was not completed because there is no mention of Dark Day boat ramp being closed when the reservoir water level is low in most autumn and winter seasons, when the silt from the failing slope above the ramp fills the ramp with silt. We are concerned that there is no description of the failing slope above the ramp. We think the dock rail and roller system is not in good condition due to several turns in the rail and roller system and the failing slope above the rail and roller system. The erosion and sedimentation requires the Forest Service to pull the dock out of the water each winter because the silt covers the dock rail and roller system. This hill slope has been failing for some time and licensee attempted to stabilize the slope with small riprap, coarse rock, and rock gabions, but it was not successful. The slope continues to contribute sediment into the boat launch area. We request that the licensee complete an engineering structural inspection of the slope in order to determine if a permanent solution is possible.	Forest Service, p. 19 of Attachment 1	At the time that YCWA conducted the boat ramp facility evaluation (September 2012), this condition was not evident as the water level was well above the location. Upon receiving this information from the Forest Service, YCWA will provide a description in Section 3.4 of the Recreation Use and Visitor Survey technical memorandum (Study 8-1) of the slope instability and how the instability (silt sliding onto ramp) has the potential to impact the functionality of the boat ramp, floating courtesy dock and the dock rail and roller system used to move the dock as the water recedes or rises in the area of the instability. In addition, YCWA will change the dock condition rating to "fair" in the final technical memorandum in light of the Forest Service comments; however, this is one of the site elements evaluated at the boat launch (others include boat ramp surface, trash receptacles, and recycling receptacles) and when all the "site elements" condition are taken together, the boat launch site facilities are still in "good" overall condition. Please also refer to YCWA's response to the Forest Service's request for the new study to identify solutions to this issue in Section 2.2.8.2.
		Request that evaluating outdated, out of code conditions in the facilities be part of condition surveys.	Forest Service, p.19	YCWA did not evaluate outdated or out of code conditions since this method was not identified in the FERC-approved study methodology. The study methodology identified four condition categories for assessing the condition of a recreation facility – poor, fair, good and excellent.
		State that the Moran facility has evidence of shoreline disturbances, namely litter and fire rings, particularly when the water is drawn down in late summer.	Forest Service, p. 20 of Attachment 1	YCWA believes this is miscommunication in site identification and not an oversight by YCWA of recreation use impacts at the Moran Road Day Use Area. YCWA conducted an evaluation and identified recreation use impacts at the "Moran Trail" site, which provides visitors access below the high water line at the Moran Road Day Use Area. YCWA now understands based on Forest Service comments on the Initial Study Report (see comments related to "Moran Trail" below) that this is not officially a Forest Service trail. Either way, YCWA has characterized recreation use impacts at the site; whether it is identified as "Moran Trail" or "Moran Road Day Use Area" the impacts exist and have been identified in the technical memorandum. Once YCWA and the Forest Service discuss this site and are able to clearly sort out the actual facility (road or trail or just shoreline of Moran Road Day Use Area), YCWA will make the appropriate adjustment in the technical memorandum.
		Inconsistent terminology used for the Day Use Area off Moran Rd; it is identified as both Moran Cove and Moran Road. The Tech Memo should reference the one correct name.	Forest Service, p. 20 of Attachment 1	YCWA will make the naming of this site (Moran Road Day Use Area) consistent throughout the final Technical Memorandum 8-1.
		Acknowledge the other trailheads listed in Table 2.2-9 of the Study Plan, and report on evaluation of their condition. These are the 8-Ball Trailhead, which is a shared location with Rebel Ridge Trailhead; the Bullards Bar Trailhead, which is a shared location with Sunset Vista Day Use area; the Schoolhouse Trailhead, which is located within Schoolhouse Campground; and the Old Camptonville Road Trailhead, which is located on Old Camptonville Road.	Forest Service, p. 20 of Attachment 1 NPS, p. 3	YCWA will add wording to the final Technical Memorandum 8-1 that acknowledges these trailheads. Where the trailheads are co-located with another facility or more specifically are a site feature within the greater facility, YCWA evaluated the facility in the Interim Technical Memorandum 8-1 as follows. 1) For the 8 Ball Trailhead, which is co-located with the Rebel Ridge Trailhead, YCWA evaluated the Rebel Ridge Trailhead and provided the results in the interim technical memorandum. 2) For the Schoolhouse Trailhead, which is co-located with the Schoolhouse Campground, YCWA evaluated the campground and specifically the overflow parking area which serves both overflow for campers but also for trailhead users. 3) For the Bullards Bar Trailhead, which is co-located with the Sunset Vista Point facility, YCWA evaluated the Sunset Vista Point and provided the results in the interim technical memorandum. For the Old Camptonville Road Trailhead, YCWA did not evaluate the condition of this trailhead because the "trailhead" is informal and does not have any trailhead facilities (sign, parking, information board, etc.). Rather, this informal trailhead is simply a location where the Old Camptonville Road Trail intersects with Old Camptonville Road and trail users utilized the road shoulder or any available space nearby.
		Moran Trail does not exist. It is a road down to the barrier/water bar. Visitors in summer park all the way down the length of the road.	Forest Service, p. 20 of Attachment 1	YCWA will add the "Moran Trail" to the trail assessment study task based on the GIS data layer received from the Forest Service, which labels this former road as a trail. To be clear, the location of "Moran Trail" that YCWA evaluated as part of the study is located immediately to the west of the restroom and parking area; and not the gated road that is used informally for boat launching and reservoir access. This "trail" has large boulders preventing vehicle traffic beyond the first approximately 75 ft and the remainder of the "trail" does not have vehicle access.

Table 3.0-1. (continued)

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
8-1 (cont.)	Recreational Use and Visitor Surveys (cont.)	Request clarification on maintenance responsibility for County road segments on roads that lead to Project recreation facilities.	Forest Service, p. 21 of Attachment 1	YCWA understands that all county road segments are the maintenance responsibility of the county. Just as the Forest Service does not have the authority to modify county roads on NFS land, YCWA does not have such authority.
		Describe the existing condition of the underground water and septic systems, not just develop a schematic.	Forest Service, p. 21 of Attachment 1 NPS, p. 2	The FERC-approved study requires YCWA to provide an estimate of the underground location of the water and septic systems and not evaluate the condition of the underground segments of the system. Further, the study requires YCWA to inventory and evaluate the condition and accessibility of the above-ground elements of the water system, which YCWA included in the Interim Technical Memorandum 8-1 by Project recreation facility.
		It is essential that the capacity of the water system and the potential for expansion be described in this study.	Forest Service, p. 21 of Attachment 1	YCWA will describe the existing water system, including the capacity of the major components of the system in the final Technical Memorandum 8-1. However, the FERC-approved study (Section 5.3.1.2.2, Underground Water and Septic Systems) does not require YCWA to describe or assess the potential for expansion of the system.
		Request YCWA include in final tech memo statistics on law enforcement actions at campgrounds around New Bullards Bar reservoir that the Forest Service is gathering.	Forest Service, p. 22 of Attachment 1	YCWA does not believe this information is specifically relevant to or identified as a method in the FERC-approved Study 8.1. Rather, this information, when compiled by the Forest Service, will be helpful to YCWA in the development of a Recreation Facilities Plan. YCWA requests the Forest Service provide any existing, relevant and reasonably available information the Forest Service may have regarding law enforcement
		Request that any information that can be gathered from Brownsville, Challenge and Clipper Mills be included in the final Tech Memo.	Forest Service, p.22 NPS, p. 3	Gathering information from the towns of Brownsville, Challenge and Clipper Mills was not part of the FERC-approved Study 8-1. Rather, the FERC-approved study required YCWA to "...conduct up to four focus group meetings -- including up to two focus group meetings each with the Camptonville and the Oregon House/Dobbins communities," which YCWA completed in 2012 and provided the results in the interim technical memorandum.
		Include information from Forest Service's Pendola Fire final report, with findings from three public meetings conducted by the PNF, be included in the final tech memo.	Forest Service, p. 22 of Attachment 1	If the Forest Service provides the final report to YCWA in February 2013, then YCWA will evaluate the report's information to determine if any of the information is relevant to the study's unmet demand assessment task. However, if YCWA does not receive the report prior to finalizing the Technical Memorandum 8-1, then YCWA will not be able to include the report in the final technical memorandum, though it is possible the information could be included in the DLA.
		Recreational use figures and occupancy may not take into account the fire that required evacuation and closure of the Cottage Creek facility and others during suppression operations in 2010. The findings should address this possible anomaly.	Forest Service, p. 22 of Attachment 1	YCWA recognizes that the closure of the Cottage Creek facility may have had a minor impact on the overall recreation use estimate. However, the Cottage Creek Campground facility is used for overflow purposes (both group and family overflow) when the other developed campgrounds are fully occupied. As such, YCWA believes the closure of an overflow camping area does not have any bearing on the occupancy levels of the other developed campgrounds; and, thus, YCWA does not believe more data is needed to accurately capture the occupancy of the other developed campgrounds due to the overflow nature of the Cottage Creek Campground facilities. The only impact would be the lack of use of the overflow campground that was not accounted for in the total Project camping use at Bullards Bar Reservoir due to the closure. Further, in 2012, there were relatively few days that all sites were occupied at a similar type of campground - 6 days when both family campgrounds were both full; 4 days when both boat-in campgrounds were full; and 21 days when the group campground was full. However, since group camping is typically reserved in advance, YCWA expects that the impact would be much less for group campers that come to the Project without a reservation as compared to non-group campers that are more likely to come to the Project without an advance reservation. For these reasons, YCWA believes the impact is minimal compared to the overall Project recreation use (YCWA estimated use to be nearly 110,000 Recreation Days) and thus, more data is not needed to understand the overall use estimate.
		Discuss observations of use on the shoreline or reservoir surface, specifically: What were the predominant vessels? What was observed and unexpected? Describe by type of watercraft - e.g., paddle boards, hobiecats, canoes.	Forest Service, p. 23 of Attachment 1	First, YCWA understands that the Forest Service conducts on-water observations annually to assess the reservoir boating capacity per the existing Exhibit R's Limits of Acceptable Change monitoring program. YCWA believes these data are already being collected, which is why water-based observations were not part of the FERC-approved Study 8-1. YCWA did collect types of craft data on the visitor surveys administered throughout the 2011-2012 study season, which supplements the primary data collection conducted by the Forest Service outside of the relicensing study. If the Forest Service provides YCWA with the boating capacity data for 2012 in time for the final technical memorandum (due in March 2013), then YCWA will include it in the final technical memorandum.
		Request copies of the completed visitor and observation survey forms as attachment to the final tech memo.	Forest Service, p. 23 of Attachment 1	YCWA will provide copies of these forms in a CD or DVD attachment to the final Technical Memorandum 8-1. Note that in all, YCWA collected more than 7,000 pages of visitor and observation survey forms.
		Request that Bowker et al. 2012 and Cordell 2012 be included as part of identifying future use and demand opportunities.	Forest Service, p. 23 of Attachment 1	YCWA will utilize the most current activity projection indices (Bowker et al. 2012) to project the future use and demand at the Project in the final Technical Memorandum 8-1.
		Request that final tech memo include summary of Yuba County planning data for communities, the recreation master plan, etc.	Forest Service, p. 23 of Attachment 1	YCWA will include any planning documents relevant to current and future Project recreation use, including any applicable Yuba County planning documents in the final Technical Memorandum 8-1.
Clarify use of "recurrent dispersed recreation site" and "undeveloped, permitted shoreline campsite."	NPS, p. 3	"Recurrent dispersed recreation sites" are use locations within the FERC Project Boundary but outside of the Project developed recreation facilities. "Undeveloped, permitted shoreline camping" refers to the permitted camping allowed along the New Bullards Bar Reservoir shoreline once the reservoir water surface elevation drops 15 ft or more below the normal maximum water surface elevation. Undeveloped, permitted shoreline camping is a distinct activity for which users must get permits from the YCWA concessionaire at Emerald Cove Marina. A recurrent dispersed recreation site may be from an undeveloped, permitted shoreline camper, but may also be from other types of recreation activities and uses along the shoreline or outside the developed facilities. YCWA will provide these definitions in the final Technical Memorandum 8-1.		
Final tech memo should discuss 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.	NPS, p. 2	As stated in an earlier comment response, the FERC-approved Study 8.1 did not require YCWA to conduct observations of on-water activity and types of boats. YCWA understands that the Forest Service conducts on-water observations annually to assess the reservoir boating capacity per the existing Exhibit R's Limits of Acceptable Change monitoring program. YCWA believes these data are already being collected, which is why water-based observations were not part of the FERC-approved study. YCWA did collect types of craft data on the visitor surveys administered throughout the 2011-2012 study season, which supplements the primary data collection conducted by the Forest Service outside of the relicensing study.		

Table 3.0-1. (continued)

Technical Memorandum		YCWA's Summary of Comment	Commenter & Reference Page in Comment Letter ¹	YCWA's Response
#	Name			
8-2	Recreation Flow	If the flows indicated in the Recreation Flow Study are not achieved opportunistically in 2013, Forest Service will work with YCWA to determine a plan for meeting the objectives of the study in the late fall of 2013 or winter of 2014.	Forest Service, p. 23 of Attachment 1	YCWA looks forward to working with the Forest Service and other interested participants if the 2013 opportunistic flow study does not meet the study needs.
		The results in section 3.1.1.1.2 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, 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... Request YCWA contact the survey respondents to verify their survey responses.	Forest Service, p. 24 of Attachment 1 NPS, p. 3	YCWA recognizes that the scale used in Table 3.1-18 was reversed inadvertently for this section, which in turn misrepresented the boater responses. YCWA will correct this error in the final Technical Memorandum 8-2. As a result, the text and table will now be consistent with the results of the focus groups. YCWA believes the correction of this inadvertent error remedies the inconsistency and thus, there is not a need for YCWA to contact the survey respondents to verify their survey responses, which upon correction of the scale reversal makes their responses consistent with the focus group results.
		Make Tables 3.1-3, 3.1-9, and 3.1-12 consistent.	Forest Service, p. 24 of Attachment 1	In the final Technical Memorandum 8-2, YCWA will make the rows consistent in each of the tables referenced so that the type of watercraft is listed in the same order for each table.
		Request the tech memo include a more detailed account of the results from the April 26, 2012 whitewater focus group meeting.	Forest Service, p. 24 of Attachment 1 NPS, p. 3 FWN, p. 24	YCWA provided the detailed results of the focus group on April 26, 2012. The intent of the focus group was to verify and/or refine the key aspects of the flow study with particular focus on the access considerations, key reach characteristics (whitewater difficulty, boatable and optimal flow ranges, portages and types of craft), and how boaters retrieved flow information. The results in the technical memorandum reflect these traits. However, in the final Technical Memorandum 8-2, YCWA will provide some additional details related to the reliability of flow information as requested by the Forest Service, NPS and FWN.
		The tech memo should clarify that the Chamberlain Falls run is considered to be one of the best Class IV runs in California.	Forest Service, p. 24 of Attachment 1 FWN, p. 24	YCWA will make this clarification in the final Technical Memorandum 8-2.
		Request YCWA provide copies of the completed evaluation forms (including both survey and open-ended responses) from any boaters that that were part of either opportunistic or more controlled flow studies as an attachment to the final tech memo.	Forest Service, p. 24 of Attachment 1	The primary boater survey data collection method was via an online survey; although some hard copy surveys were provided to YCWA as well. Thus, YCWA will include in the final Technical Memorandum 8-2 the survey database, which includes open-ended comments from the surveys.
	Were completed surveys for a boater group that ran the Our House Dam to Highway 49 reach on April 27, 2012 excluded from the tech memo?	NPS, p. 4 FWN, p. 24	YCWA did not include the April 27, 2012 boater surveys in the Interim Technical Memorandum 8-2 for two reasons. First, YCWA received a total of 45 completed boater surveys (at 12 different flow levels ranging from 350 to 2,200 cfs) for the Middle Yuba River reach from Our House Diversion Dam impoundment downstream to Highway 49 from the start of 2011 through the 2011-2012 winter season, which YCWA and Relicensing Participants agreed was adequate to then hold a focus group meeting to verify and finalize the 45 boater survey results. Notably, YCWA consulted with Relicensing Participants to schedule the focus group meeting to finish the data collection for the study reach. Second, YCWA was not provided any completed boater survey results for timeframe noted by the Forest Service and FWN.	
12-1	Historic Properties	Do not post confidential information on Public Website.	Forest Service, p. 27 of Attachment 1	Maps with site location information have been removed from the Public Website.
		Request additional documentation (i.e., detailed maps at an appropriate scale and photographs) to support where surveys were not performed due to safety considerations.	Forest Service, p. 27 of Attachment 1	Updated maps and photographs to show unsurveyed areas due to safety considerations will be provided in the final Technical Memorandum 12-1.
		Request additional information regarding the survey of the fluctuation zone.	Forest Service, p. 27 of Attachment 1	YCWA conducted a field visit with Forest Service archaeologists on February 13, 2013 to look at the areas. The Forest Service indicated a couple of locations that would need further investigations. YCWA will return to the field by the end of February 2013 to try and resurvey those locations and provide the results of those investigations in the final Technical Memorandum 12-1.
		Additional information is needed to determine why a recorded site (that is not under water) could not be accessed.	Forest Service, p. 27 of Attachment 1	YCWA conducted a field visit with Forest Service archaeologists on February 13, 2013 to look at areas where sites could not be accessed during the survey. These sites could not be accessed due to safety issues at the time of the survey. YCWA proposed that these sites would be revisited when they can be safely accessed as a management measure under the Historic Properties Management Plan.
		More detailed information is needed before we can comment on the proposed eligibility of sites.	Forest Service, p. 28 of Attachment 1	YCWA will provide agency cultural resources specialists and tribal representatives site records with detailed information on site eligibility recommendations.
		Additional information should be researched regarding the determination of eligibility of the dam as it may be a unique building structure. There is also a building that houses a large Pelton wheel; the Camptonville Historical Society is highly interested in this Pelton wheel.	Forest Service, p. 28 of Attachment 1	YCWA is further researching the eligibility of the New Bullards Bar Dam and Powerhouse and will provide the final recommendations in the final Technical Memorandum 12-1.
		Request that the licensee evaluate the sites noted as YCWA-25, YCWA-1, YCWA-53, YCWA-54, YCWA-55, YCWA-56, and YCWA-57. The road segments recorded as YCWA-55 and 56 appear as if they can be recorded as one set of linear sites based on available information. On the informal table provided to Forest Service staff, please clarify if YCWA-57 is located at Lake McClure.	Forest Service, p. 28 of Attachment 1	YCWA will evaluate the eligibility of sites YCWA-25, YCWA-1, YCWA-53, YCWA-54, YCWA-55, YCWA-56, and YCWA-57 and will provide the final recommendations in the final Technical Memorandum 12-1 and site records. YCWA-57 is located at New Bullards Bar Reservoir.

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SECTION 4

UPDATED SCHEDULE FOR IN-PROGRESS STUDIES

FERC’s September 30, 2011 Study Plan Determination, as amended on December 8, 2011, December 28, 2011, May 14, 2012 and July 24, 2012, required YCWA to perform 44 studies.

YCWA has completed 24 of the FERC-approved studies. For each of these studies, a final technical memorandum, which includes the study goals and objectives, methods, results, discussion and any variances to the FERC-approved study has been posted to YCWA’s Relicensing Website (www.ycwa-relicensing.com).

The remaining 17 FERC-approved studies are in progress. For each of these studies, YCWA has posted to the Relicensing Website an interim technical memorandum that provides key findings and any variances to the FERC-approved study through November 30, 2012. Table 4.0-1 provides the date that YCWA expects to complete each study that is in progress.

Table 4.0-1. Studies in progress and the date that YCWA expects each study will be complete.

Study Number	Study Name	Date YCWA Posted an Interim Technical Memorandum to the Relicensing Website	Date of Scheduled Study-specific Consultation, If Required by FERC-approved Study	Date YCWA Forecasts the Study Will be Complete ¹
1.1	Channel Morphology Upstream of Englebright Reservoir	November 28, 2012	No Additional Consultation Required	April 15, 2013 ²
2.5	Water Temperature Monitoring	November 17, 2012	July 23, 2013	August 31, 2013 ⁴
2.6	Water Temperature Model	December 3, 2012	No Additional Consultation Required	March 31, 2013 ²
3.5	Special-Status Amphibians – Foothill Yellow-Legged Frog Habitat Modeling	November 27, 2012	Anticipated to Occur in June, July and August 2013	September 30, 2013 ³
3.8	Stream Fish Populations Upstream of Englebright Reservoir	December 1, 2012	None Required	September 30, 2013 ³
3.10	Instream Flow Upstream of Englebright Reservoir	November 28, 2012	Anticipated to Occur in March 2013	April 15, 2013 ²
3.11	Entrainment	November 27, 2012	None Required	October 31, 2013 ³
3.13	Special-Status Amphibians – Focused 2013 Foothill Yellow-Legged Frog Surveys	--	None Required	October 30, 2013 ⁴
3.14	Special-Status Turtles – Focused 2013 Western Pond Turtle Surveys	--	None Required	September 30, 2013 ⁴
6.1	Riparian Habitat Upstream of Englebright Reservoir	December 1, 2012	Anticipated to Occur in Early May 2013	May 30, 2013 ²
6.2	Riparian Habitat Downstream of Englebright Dam	December 2, 2012	Anticipated to Occur in May 2013	August 31, 2013 ³
7.2	Narrows 2 Powerhouse Intake Extension	November 20, 2012	March 11, 2013	September 30, 2013 ³
7.8	ESA/CESA-Listed Salmonids Downstream of Englebright Dam	December 2, 2012	March 11, 2013	April 30, 2013 ²
7.9	Green Sturgeon Downstream of Englebright Dam	February 21, 2013	March 11, 2013	April 30, 2013 ²
7.10	Instream Flow Downstream of Englebright Dam	December 2, 2012	March 11, 2013	April 30, 2013 ²
7.11	Fish Behavior and Hydraulics Near Narrows 2 Powerhouse	December 2, 2012	None Required	November 30, 2013 ⁴

Table 4.0-1. (continued)

Study Number	Study Name	Date YCWA Posted an Interim Technical Memorandum to the Relicensing Website	Date of Scheduled Study-specific Consultation, If Required by FERC-approved Study	Date YCWA Forecasts the Study Will be Complete ¹
7.12	Project Effects on Fish Facilities Associated with Daguerre Point Dam	February 14, 2013	March 11, 2013	March 31, 2013 ²
8.1	Recreation Use and Visitor Surveys	December 2, 2012	None Required	March 31, 2013 ³
8.2	Recreational Flow	October 29, 2012	July 23, 2013	September 30, 2013 ³
12.1	Historic Properties	December 1, 2012	March 15, 2013 – April 15, 2013	April 30, 2013 ²
Total		20		

¹ Study-specific consultation/collaboration could result in a delay to study completion, especially if differences must be referred to FERC for final resolution.

² This date is later than the completion date in the FERC-approved study.

³ This date is the same as the completion date in the FERC-approved study.

⁴ This date is the anticipated study completion date if FERC approves YCWA's proposed study modification or new study proposed by YCWA in its Initial Study Report and Initial Study Report meeting summary.

Based on the Initial Study Report comment letters, YCWA plans to reissue by the end of March 2013 final Technical Memorandum 1-2, *Channel Morphology Downstream of Englebright Dam*, to correct two tables.

If FERC's March 2013 Study Determination affects the scheduled completion date for in-progress studies or adds new studies, YCWA will file with FERC a revised anticipated study completion schedule.

SECTION 5

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