

SECTION 10

LICENSEE'S PRELIMINARY PROPOSED STUDIES

This section describes Yuba County Water Agency's (YCWA or Licensee) preliminary proposed studies that may be needed to evaluate issues and Project effects identified in Section 8.0 of this Yuba River Development Project (Project) Pre-Application Document (PAD). For the purpose of this PAD, a "study" is any data gathering or analysis effort, and may or may not include fieldwork.

This section is divided into three subsections. Section 10.1 describes the collaborative process undertaken by Licensee and Relicensing Participants to develop study proposals. Section 10.2 describes Licensee's preliminary proposed studies. Section 10.3 provides a list of studies that Relicensing Participants proposed at Licensee-sponsored issue identification meetings on January 13, 2010, which should not be confused with Licensee's preliminary proposed studies (i.e., Licensee agreed to list them in the PAD whether or not Licensee agreed with them).

Attachment 10A contains Licensee's detailed preliminary proposed studies.

10.1 Collaborative Study Proposal Development Process

Since July 2009, Licensee has held approximately 30 meetings with Relicensing Participants. These included both one-on-one meetings, joint meetings, tours of the Project on October 1 and November 30, 2009, and an issues/effects identification meeting on January 13, 2010.

The primary purpose of many of Licensee's meetings since early in 2010 was the collaborative development of study proposals. The goal of these meetings was to reach agreement on as many study proposals as possible with as many Relicensing Participants as possible prior to Licensee's filing of its Pre-Application Document (PAD). To facilitate this process, Licensee took the following actions:

- On September 29, 2009, Licensee distributed a Preliminary Information Package that was formatted similar to and contained much of the information included in this PAD. Specifically, the Preliminary Information Package described the Project and provided existing, relevant and reasonably available information regarding resources that might be affected by the Project.
- Licensee developed and posted to the Relicensing Website approximately 40 "straw man" study proposals. The purpose of these "straw man" study proposals was to facilitate open discussion regarding additional data needs. Licensee stated that its "straw man" study proposals did not preclude the development of additional study proposals. Each "straw man" study proposal was posted in Microsoft Word format to facilitate red-lining by Relicensing Participants, and was modified during meetings. Licensee posted red-lined versions of the study proposals on the Relicensing Website as they were provided to Licensee by

Relicensing Participants and following the meetings during which the study proposal was discussed.

Further, Licensee stated that if collaborative agreement was reached on a study proposal and Licensee had funds available to perform the study, Licensee would consider beginning the study in 2011, prior to Federal Energy Regulatory Commission's (FERC) issuance of a Study Determination, which will occur in October 2011 if agencies with mandatory conditioning authority do not dispute FERC's Determination, and in December 2011 if disputes are filed.

Licensee, and Licensee understands Relicensing Participants, are committed to continuing the collaborative development of study proposals. To that end, Licensee and Relicensing Participants have scheduled two meetings per month from November 2010 through December 2011 to continue study proposal development.

10.2 Licensee's Preliminarily Proposed Studies

10.2.1 Study Proposal Template

Licensee prepared each of its preliminary study proposals in the same general format, which is based on 18 CFR § 5.11, and includes other useful information. The template includes:

- Title. This is the descriptive title of the study plan.
- 1.0 - Project Nexus. This information satisfies the requirement of 18 CFR § 5.11(d)(4), and includes the general description of the Project nexus to the resource addressed in the study.
- 2.0 - Resource Management Goals of Agencies with Jurisdiction over the Resource to be Studied. This information satisfies the requirement of 18 CFR § 5.11(d)(2). During study proposal development meetings, Licensee advised agencies that if they had jurisdiction over the resource addressed in a study and provided to Licensee a brief written description of the jurisdiction and it was acceptable to Licensee, Licensee would insert the description in this section of the study proposal for the Proposed Study Plan. If not, Licensee would complete this section to the best of its ability for the Proposed Study Plan.
- 3.0 - Study Goals and Objectives. This information satisfies the requirement of 18 CFR § 5.11(d)(1).
- 4.0 - Existing Information and Need for Additional Information. This information satisfies the requirement of 18 CFR § 5.11(d)(3), and includes a brief description of "...existing, relevant and reasonably available" information, and may include a reference to the appropriate portions of the PAD rather than repeating information in the study proposal. This section also describes the need for this additional information.
- 5.0 - Study Methods and Analysis. This section includes three subsections, each of which is described below.

- 5.1 - Study Area. This section describes the specific geographic area that the study encompasses. Studies may have different study areas based on the preliminary issue addressed by the study.
- 5.2 - General Concepts and Procedures. This section describes general concepts and procedures that apply to each of Licensee's proposed studies.
- 5.3 – Study Methods. This information satisfies the requirement of 18 CFR § 5.11(b)(1). This section describes the sampling locations to the extent possible, and the specific study methods to be employed to develop the additional information. If a relatively common approach is proposed, the section references that approach but also provides enough detail for an interested party to understand the approach and how it will be applied.
- 6.0 – Study-Specific Consultation. This section describes any consultations with agencies or other Relicensing Participants that are specifically part of this study proposal. General consultations regarded as part of FERC's Integrated Licensing Process (ILP) (e.g., meetings, providing data and progress reports) are not specifically described in this section because they apply to all of Licensee's studies.
- 7.0 - Schedule. This information satisfies the requirement of 18 CFR § 5.11(b)(2) and, in part, § 5.11(d)(5). This section includes the study schedule.
- 8.0 - Consistency of Methodology with Generally Accepted Scientific Practices. This information satisfies the requirement of 18 CFR § 5.11(d)(5). This section briefly describes how the study methodology is consistent with generally accepted practices in the scientific community and employed during hydro relicensings.
- 9.0 - Level of Effort and Cost. This information satisfies the requirement of 18 CFR § 5.11(d)(6). This section considers the appropriateness of the proposed level of effort and cost based on the value and use of the information to be obtained. For the PAD "straw man," this section is a placeholder and will be completed for the Proposed Study Plan.
- 10.0 - References Cited. This section lists any references cited in the study plan.

10.2.2 Licensee's Preliminary Proposed Studies

Table 10.2.2-1 provides for each issue/effect identified in Section 8 unless Licensee has stated in Section 8.4 that it believes the issue/effect is outside the scope of the Relicensing, whether Licensee believes existing information is entirely adequate to address the issue/effect and, if not, the proposed study or studies Licensee proposes to address the issue/effect.

Table 10.2.2-1. Potential issues/effects by resource area and whether existing information is adequate to address the issue/effect and, if not, Licensee’s preliminary proposed study to address the issue/effect.

Preliminary Issue/Effect		Additional Information Not Needed to Supplement Existing Information – No Study Proposed	Additional Information Needed to Supplement Existing Information – Study Proposed
GEOLOGY AND SOILS (G&S)			
G&S-1	Effect of the Project on channel morphology form and function, including effects from Project diversions and flow into and out of Project reservoirs.	Additional Information Needed	<u>Study 1.1:</u> Channel Morphology Above Englebright Dam <u>Study 1.2:</u> Channel Morphology Below Englebright Dam
G&S-2	Effect of the Project on connectivity to floodplains, including effects from Project diversions and flow into and out of Project reservoirs.		
G&S-3	Effect of the Project on channel conditions, including effects from Project diversions and flow into and out of Project reservoirs.		
G&S-4	Effects of the Project on sediment transport, especially through Project reservoirs and diversions.	Additional Information Needed	<u>Study 1.1:</u> Channel Morphology Above Englebright Dam <u>Study 1.2:</u> Channel Morphology Below Englebright Dam
G&S-5	Effect of the Project on bedload including effects from Project diversions and flow into and out of Project reservoirs.		
G&S-6	Effects of the Project on particle size and sediment composition, especially at dam outlets, due to flow releases from Project powerhouses and uncontrolled spills from Project dams, especially at New Bullards Bar Dam.		
G&S-7	Effects of tailrace discharge from New Colgate Powerhouse on channel morphology and sediment distribution.		
G&S-8	Effects of the Project on large woody debris distribution, including how the Project manages large woody debris.		
G&S-9	Effects of the Project on fish spawning gravel	Additional Information Needed	<u>Study 1.1:</u> Channel Morphology Above Englebright Dam <u>Study 1.2:</u> Channel Morphology Below Englebright Dam <u>Study 3.9:</u> Instream Flow Above Englebright Dam <u>Study 7.10:</u> Instream Flow for Steelhead and Chinook Salmon Below Englebright Dam
G&S-10	Effects of the Project on soil compaction, especially in dispersed recreation areas around Project diversion and reservoirs.	Additional Information Needed	<u>Study 8.1:</u> Recreation Use and Visitor Surveys
G&S-11	Effects of Project access roads, especially as sources of sediment.	Additional Information Needed	<u>Study 8.1:</u> Recreation Use and Visitor Surveys <u>Study 9.1:</u> Primary Project Roads and Trails
G&S-12	Effects of the Project on foothill yellow-legged frog (FYLF) and western pond turtle (WPT) populations and distribution, especially as related to the changes in channel morphology and sediment regimes.	Additional Information Needed	<u>Study 3.3:</u> Foothill Yellow-Legged Frog Surveys <u>Study 3.5:</u> Western Pond Turtle
WATER RESOURCES (WR)			
WR-1	Effects of the Project on the natural hydrograph by season in each Project-affected stream reach.	Additional Information Needed	<u>Study 2.1:</u> Hydrologic Alteration <u>Study 2.2:</u> Water Balance/Operations Model
WR-2	Effects of the Project the timing, magnitude, frequency, and duration of peak flows.	Additional Information Needed	

Table 10.2.2-1. (continued)

Preliminary Issue/Effect		Additional Information Not Needed to Supplement Existing Information – No Study Proposed	Additional Information Needed to Supplement Existing Information – Study Proposed
WATER RESOURCES (WR) (continued)			
WR-3	Effects of the Project on water quality criteria in the Basin Plan, especially the Toxicity Water Quality Objective.	Additional Information Needed	<u>Study 2.2</u> : Water Balance/Operations Model <u>Study 2.3</u> : Water Quality <u>Study 2.5</u> : Water Temperature Monitoring <u>Study 2.6</u> : Water Temperature Model
WR-4	Effects of the Project on water supply, including reliability of water deliveries to Yuba River diverters.	Additional Information Needed	<u>Study 2.2</u> : Water Balance/Operations Model
WR-5	Effects of the Project on availability of water for resources.		
WR-6	Effects of Project recreation on water quality in New Bullards Bar Reservoir.	Additional Information Needed	<u>Study 2.3</u> : Water Quality <u>Study 2.4</u> : Bioaccumulation <u>Study 2.5</u> : Water Temperature Monitoring
WR-7	Effects of the Project on dissolved oxygen in New Bullards Bar Reservoir and in USACE’s Englebright Reservoir.		
WR-8	Effects of the Project on the life history of <i>O. mykiss</i> (both anadromous and resident) in the Yuba River downstream of USACE’s Englebright Dam.	Additional Information Needed	<u>Study 2.5</u> : Water Temperature Monitoring <u>Study 2.6</u> : Water Temperature Model <u>Study 3.7</u> : Stream Fish Populations Above Englebright Dam <u>Study 3.8</u> : Non-ESA/CESA Listed Fish Populations Below Englebright Dam <u>Study 7.2</u> : Narrows Powerhouse Intake <u>Study 7.8</u> : ESA/CESA Listed Salmonids Below Englebright Dam
WR-9	Effect of the Project on the growth rate of salmonids (both anadromous and resident) in the Yuba River downstream of USACE’s Englebright Dam.		
WR-12	Effects of Nevada Irrigation District’s (NID) Yuba-Bear Hydroelectric Project and Pacific Gas and Electric Company’s (PG&E) Drum-Spaulding Project on the Project’s ability to meet multiple water resource/uses and benefits.	No	<u>Study 2.2</u> - Water Balance/Operations Model
AQUATIC RESOURCES (AR)			
AR-1	Effects of the Project on aquatic macroinvertebrates, a Forest Service Management Indicator Species, downstream of Project dams and powerhouses.	Additional Information Needed	<u>Study 3.1</u> : Benthic Macroinvertebrates
AR-2	Effect of the Project on special-status aquatic species including California floater and hardhead.	Additional Information Needed	<u>Study 3.1</u> : Benthic Macroinvertebrates <u>Study 3.2</u> : Special-Status Mollusks <u>Study 3.3</u> : Foothill Yellow-Legged Frog Surveys <u>Study 3.6</u> : Reservoir Fish Populations <u>Study 3.7</u> : Stream Fish Populations Above Englebright Dam <u>Study 3.8</u> : Non-ESA/CESA Listed Fish Populations Below Englebright Dam
AR-3	Effects of the Project on aquatic species due to Project outages.		
AR-4	Effects of the Project on stream health and aquatic biota due to Project peaking flows (below all Project facilities), ramping rates and flow fluctuations.		
AR-5	Effects of the Project on fish population abundance, distribution and age classes related to altered flows in streams from operations of Project diversion dams and reservoirs.	Additional Information Needed	<u>Study 3.6</u> : Reservoir Fish Populations <u>Study 3.7</u> : Stream Fish Populations Above Englebright Dam <u>Study 3.8</u> : Non-ESA/CESA Listed Fish Populations Below Englebright Dam
AR-6	Effects of the Project on fish passage, especially around Project diversion dams and from Project reservoirs into tributaries to the reservoirs.		
AR-7	Effects of the Project on fish due to entrainment into Project intakes.	Additional Information Needed	<u>Study 3.10</u> : Fish Entrainment

Table 10.2.2-1. (continued)

Preliminary Issue/Effect		Additional Information Needed to Supplement Existing Information – Proposed Study	Additional Information Needed to Supplement Existing Information – Proposed Study
AQUATIC RESOURCES (AR) (continued)			
AR-8	Effects of the Project on fish habitat.	Additional Information Needed	<u>Study 3.6</u> : Reservoir Fish Populations <u>Study 3.9</u> : Instream Flow Above Englebright Dam <u>Study 7.10</u> : Instream Flow for Steelhead and Chinook Salmon Below Englebright Dam
AR-9	Effects of the Project on invasive species, such as bullfrogs, mollusk and aquatic plants.	Additional Information Needed	<u>Study 3.2</u> : Special-Status Mollusks <u>Study 3.3</u> : Foothill Yellow-Legged Frog Surveys
AR-10	Effects of the Project on availability of large woody debris.	Additional Information Needed	<u>Study 1.1</u> : Channel Morphology
AR-11	Effects of the Project on warmwater fish reproduction along reservoir margins due to water level fluctuations.	Additional Information Needed	<u>Study 2.2</u> : Water Balance/Operations Model <u>Study 3.6</u> : Reservoir Fish Populations
AR-12	Effects of the Project on coldwater habitat to protect coldwater species due to the reduction in New Bullards Bar Reservoir as draw down occurs through summer and later months.	Additional Information Needed	<u>Study 2.2</u> : Water Balance/Operations Model <u>Study 2.5</u> : Water Temperature Monitoring <u>Study 2.6</u> : Water Temperature Model <u>Study 7.2</u> : Narrows Powerhouse Intake
AR-13	Effects of the Project on American shad in the Yuba River below USACE's Englebright Dam due to changes in water temperature.	Additional Information Needed	<u>Study 3.8</u> : Non-ESA/CESA Listed Fish Populations Below Englebright Dam, <u>Study 2.5</u> : Water Temperature Monitoring <u>Study 2.6</u> : Water Temperature Model <u>Study 7.2</u> : Narrows Powerhouse Intake
AR-14	Effects of the Project on fishes due to barriers including Our House Diversion Dam, including natural barriers.	Additional Information Needed	<u>Study 3.7</u> : Stream Fish Populations Above Englebright Dam
AR-15	Effect of the Project on juvenile salmonid rearing habitat, especially in floodplains, for spawning and adult holding.	Additional Information Needed	<u>Study 3.9</u> : Instream Flow Above Englebright Dam <u>Study 7.10</u> : Instream Flow for Steelhead and Chinook Salmon Below Englebright Dam
AR-16	Effects of the Project on hardhead due to flow fluctuation or thermal change.	Additional Information Needed	<u>Study 2.5</u> : Water Temperature Monitoring <u>Study 2.6</u> : Water Temperature Model <u>Study 3.7</u> : Stream Fish Populations Above Englebright Dam <u>Study 3.8</u> : Non-ESA/CESA Listed Fish Populations Below Englebright Dam
AR-17	Effects of the Project on WPT populations and habitat in relation to upland habitats condition, water flow patterns, geomorphic/sediment regimes, riparian vegetation and water temperature, especially from New Bullards Bar Dam to USACE's Englebright Reservoir.	Additional Information Needed	<u>Study 3.5</u> : Special-Status Turtles – Western Pond Turtle
AR-18	Effects of the Project on fish due to stranding.	Additional Information Needed	<u>Study 3.7</u> : Stream Fish Populations Above Englebright Dam <u>Study 3.8</u> : Non-ESA/CESA Listed Fish Populations Below Englebright Dam <u>Study 3.9</u> : Instream Flow Above Englebright Dam <u>Study 7.10</u> : Instream Flow for Steelhead and Chinook Salmon Below Englebright Dam
AR-19	Effects of the Project on aquatic newt (<i>T. torosa</i>).	Additional Information Not Needed	--

Table 10.2.2-1. (continued)

Preliminary Issue/Effect		Additional Information Not Needed to Supplement Existing Information – No Study Proposed	Additional Information Needed to Supplement Existing Information – Study Proposed
AQUATIC RESOURCES (AR) (continued)			
AR-20	Effects of the Project due to the introduction of non-native fish, especially in reservoirs and adjacent riverine ecosystems.	Additional Information Needed	<u>Study 3.6</u> : Reservoir Fish Populations <u>Study 3.7</u> : Stream Fish Populations Above Englebright Dam <u>Study 3.8</u> : Non-ESA/CESA Listed Fish Populations Below Englebright Dam
AR-21	Effect of the Project on fish due to restricted passage at New Bullards Bar Dam and Our House and Log Cabin diversion dams.	Additional Information Needed	<u>Study 3.7</u> : Stream Fish Populations Above Englebright Dam <u>Study 3.8</u> : Non-ESA/CESA Listed Fish Populations Below Englebright Dam
AR-22	Effects of the Project on anadromous fish from USACE's Englebright Dam downstream due to changes in the timing and amount of attraction and migration flows.	Additional Information Needed	<u>Study 2.2</u> : Water Balance/Operations Model <u>Study 7.8</u> : ESA/CESA-Listed Salmonids Below Englebright Dam <u>Study 7.9</u> : Green Sturgeon Below Daguerre Point Dam
AR-23	Effects of the Project on anadromous fish outmigration from USACE's Englebright Dam downstream due to changes in the timing and amount of flows.	Additional Information Needed	<u>Study 2.2</u> : Water Balance/Operations Model <u>Study 7.8</u> : ESA/CESA-Listed Salmonids Below Englebright Dam <u>Study 7.9</u> : Green Sturgeon Below Daguerre Point Dam
AR-24	Effects of the Project on amphibian/aquatic reptile habitat at the reservoir and survey to assess occupied sites by species abundance and potential of risk associated with reservoir operation and impoundment.	Additional Information Needed	<u>Study 3.3</u> : Foothill Yellow-Legged Frog Surveys <u>Study 3.4</u> : Foothill Yellow-Legged Frog Habitat Model <u>Study 3.5</u> : Special-Status Turtles – Western Pond Turtle
WILDLIFE RESOURCES (WR)			
WI-1	Effects of the Project on special-status wildlife species.	Additional Information Needed	<u>Study 4.1</u> : Special-Status Wildlife – California Wildlife Habitat Relationships <u>Study 4.2</u> : Special-Status Wildlife - Bats
WI-2	Effects of the Project on migratory deer winter range and migratory corridors.	Additional Information Needed	<u>Study 4.1</u> : Special-Status Wildlife – California Wildlife Habitat Relationships <u>Study 7.6</u> : CESA-Listed and Fully Protected Wildlife – California Wildlife Habitat Relationships
WI-3	Effects of the Project on California black rail and other aquatic-dependent avian species.		
WI-4	Effects of the Project on special-status raptors, especially on northern goshawk, osprey, golden eagle and California spotted owl.		
WI-5	Effects of the Project on special-status bats.	Additional Information Needed	<u>Study 4.2</u> : Special-Status Wildlife - Bats
BOTANICAL RESOURCES (BR)			
BR-1	Effects of the Project on special-status botanical species.	Additional Information Needed	<u>Study 5.1</u> : Special-Status Plants <u>Study 7.1</u> : ESA-Listed Plants <u>Study 7.5</u> : CESA-Listed Plants
BR-2	Effects of the Project on invasive exotic plants.		
RIPARIAN, WETLANDS AND LITTORAL HABITATS (RWL)			
RWL-1	Effects of the Project on wetlands and meadows.	Additional Information Needed	<u>Study 6.3</u> : Wetlands
RWL-2	Effects of the Project on riparian habitat.	Additional Information Needed	<u>Study 6.1</u> : Riparian Habitat Above Englebright Dam <u>Study 6.2</u> : Riparian Habitat Below Englebright Dam
THREATENED, ENDANGERED AND FULLY PROTECTED SPECIES (T&E)			
T&E-1	Effects of the Project on California red-legged frog (CRLF) habitat and populations in Project reaches and ponds or wetlands within 1 mile of Project facilities and features.	Additional Information Needed	<u>Study 7.3</u> : ESA-Listed Amphibians – California Red-Legged Frog

Table 10.2.2-1. (continued)

Preliminary Issue/Effect		Additional Information Not Needed to Supplement Existing Information – No Study Proposed	Additional Information Needed to Supplement Existing Information – Study Proposed
THREATENED, ENDANGERED AND FULLY PROTECTED SPECIES (T&E) (continued)			
T&E-2	Effects of the Project on CRLF populations due to warmwater fish.		
T&E-3	Effects of the Project on spring-run Chinook salmon and steelhead juvenile rearing habitat and shaded riparian and floodplain connectivity, especially related to spawning habitat and adult holding habitat.	Additional Information Needed	<u>Study 7.10</u> : Instream Flow for Steelhead and Chinook Salmon Below Englebright Dam
T&E-4	Effects of Project facilities and operations on bald eagle.	Additional Information Needed	<u>Study 7.7</u> : CESA- Listed Wildlife - Bald Eagle
T&E-5	Effects of the Project on valley elderberry longhorn beetle (VELB).	Additional Information Needed	<u>Study 7.4</u> : CESA-Listed Wildlife - Valley Elderberry Longhorn Beetle
T&E-6	Effects of the Project on anadromous fish attraction and migration flows due to releases from Narrows 2 Powerhouse and bypass.	Additional Information Needed	<u>Study 2.2</u> : Water Balance/Operations Model <u>Study 7.8</u> : ESA/CESA-Listed Salmonids Below Englebright Dam <u>Study 7.9</u> : Green Sturgeon Below Daguerre Point Dam
T&E-7	Effects of the Project on anadromous fish outmigration flow and timing due to releases from Narrows 2 Powerhouse and bypass.		
RECREATION RESOURCES (RR)			
RR-1	Effects of the Project on angling access/opportunities and boat ramps due to water level fluctuation.	Additional Information Needed	<u>Study 8.1</u> : Recreation Use and Visitor Surveys
RR-2	ADA compliance of Project recreation facilities on NFS land.		
RR-3	Condition, safety and adequacy of recreation facilities on NFS land.		
RR-4	Diversity of instream recreation opportunities below diversions (wading, swimming, fishing, whitewater).	Additional Information Needed	<u>Study 8.2</u> : Recreational Flow
RR-5	Effects of the Project on whitewater boating opportunities, especially as compared to opportunities that would occur under unimpaired flow conditions.		
RR-6	Effects of the Project on the availability of real-time flow data for the public.	Additional Information Not Needed	--
RR-7	Effects of the Project on access for recreational use of Project-affected reaches.	Additional Information Not Needed	--
LAND USE			
LU-1	Effects of the Project on the condition and use of roads on NFS land for Project access, recreation and operations.	Additional Information Needed	<u>Study 8.1</u> : Recreation Use and Visitor Surveys <u>Study 9.1</u> : Primary Project Roads and Trails
LU-3	Effects of the Project on boat ramp access for firefighting water.	Additional Information Not Needed	--
LU-4	Is the Project consistent with the Yuba County General Plan?	Additional Information Not Needed	--
SOCIO-ECONOMIC RESOURCES (SE)			
SE-1	Effects of the Project use of a single, sole-source concessionaire on business opportunities in the Camptonville area.	Additional Information Not Needed	--
SE-2	Effects of the Project on local infrastructure, including law enforcement, fire protection and waste management in the Camptonville area.	Additional Information Not Needed	--
AESTHETIC RESOURCES (VR)			
VR-1	Effects of the Project on visual quality on NFS land.	Additional Information Needed	<u>Study 10.1</u> : Visual Quality

Table 10.2.2-1. (continued)

Preliminary Issue/Effect		Additional Information Not Needed to Supplement Existing Information – No Study Proposed	Additional Information Needed to Supplement Existing Information – Study Proposed
CULTURAL RESOURCES (CR)			
CR-1	Effects of the Project on archeological sites due to water level and changes (e.g., exposure and inundation).	Additional Information Needed	Study 12.1: Historic Properties
CR-2	Effects of the Project on historic and cultural use of Project area.		
TRIBAL RESOURCES (TR)			
TR-1	Effects of the Project on tribal access to historic sites and area.	Additional Information Needed	Study 13.1: Native American Traditional Cultural Properties
TR-2	Effects of the Project on access to botanical/resources traditionally used for ceremonial/herbal purposes by tribes.		
TR-3	Effects of the Project on salmon as a tribal cultural resource.		

-- Not applicable

Table 10.2.2-2 lists by resource the 41 preliminary proposed studies referenced in Table 10.2.2-1.¹ A detailed study proposal is provided for each of Licensee’s preliminary proposed studies in Attachment 10.3A.

Table 10.2.2-2. List of YCWA’s preliminary proposed studies by resource area.

Study Number	Study Name
GEOLOGY AND SOILS	
1.1	Channel Morphology Upstream of Englebright Reservoir
1.2	Channel Morphology Downstream of Englebright Dam
WATER RESOURCES	
2.1	Hydrologic Alteration
2.2	Water Balance/Operations Model
2.3	Water Quality
2.4	Bioaccumulation
2.5	Water Temperature Monitoring
2.6	Water Temperature Model
AQUATIC RESOURCES	
3.1	Aquatic Macroinvertebrates Upstream of Englebright Reservoir
3.2	Aquatic Macroinvertebrates Downstream of Englebright Dam
3.3	Special-Status Aquatic Mollusks
3.4	Special-Status Amphibians – Foothill Yellow-Legged Frog Surveys
3.5	Special-Status Amphibians – Foothill Yellow-Legged Frog Habitat Modeling
3.6	Special-Status Turtles – Western Pond Turtle
3.7	Reservoir Fish Populations
3.8	Stream Fish Populations Upstream of Englebright Reservoir
3.9	Stream Fish Populations Downstream of Englebright Dam
3.10	Fish Instream Flow Upstream of Englebright Reservoir
3.11	Fish Entrainment
WILDLIFE RESOURCES	
4.1	Special-Status Wildlife – California Wildlife Habitat Relationships
4.2	Special-Status Wildlife – Bats
BOTANICAL RESOURCES	
5.1	Special-Status Plants ²

¹ Licensee has divided some resources studies (e.g., channel morphology, riparian habitat and stream fish) into two separate studies: one for upstream of USACE’s Englebright Dam and one for downstream of Englebright Dam. In most cases, the reason for this is that the study methods used upstream and downstream of Englebright Dam are very different.

Table 10.2.2-2. (continued)

Study Number	Study Name
WETLAND, RIPARIAN AND LITTORAL HABITATS	
6.1	Riparian Habitat Upstream of Englebright Reservoir
6.2	Riparian Habitat Downstream of Englebright Dam
6.3	Wetlands
THREATENED, ENDANGERED AND FULLY PROTECTED SPECIES	
7.1	ESA-Listed Plants
7.2	Narrows 2 Powerhouse Intake
7.3	ESA-Listed Amphibians – California Red-Legged Frog
7.4	ESA-Listed Wildlife – Valley Elderberry Longhorn Beetle
7.5	CESA-Listed Plants
7.6	CESA-Listed and Fully Protected Wildlife – California Wildlife Habitat Relationships
7.7	CESA-Listed and Fully Protected Wildlife – Bald Eagle
7.8	ESA/CESA-Listed Salmonids Downstream of Englebright Dam
7.9	North American Green Sturgeon Downstream of Englebright Dam
7.10	Instream Flow for Steelhead and Chinook Salmon Downstream of Englebright Dam
RECREATIONAL RESOURCES	
8.1	Recreation Use and Visitor Surveys
8.2	Recreational Flow
LAND USE	
9.1	Primary Project Roads and Trails
AESTHETIC RESOURCES	
10.1	Visual Quality
CULTURAL RESOURCES	
12.1	Historic Properties
TRIBAL RESOURCES	
13.1	Native American Traditional Cultural Properties

Licensee considers its proposed studies to be preliminary. These study proposals are subject to modification based on continued collaboration with Relicensing Participants, Licensee compliance with FERC’s Integrated Relicensing Process (ILP) requirements, comments at FERC’s National Environmental Policy Act (NEPA) scoping meetings and site visits, and the contents of FERC’s Scoping Documents 1 and 2.

10.3 Potential Studies Requested by Relicensing Participants

While discussion of studies was not on the agenda for Licensee’s-sponsored January 13, 2010 issue/effects identification meeting, some Relicensing Participants described studies they believed should be performed. Licensee agreed to list those studies in the PAD, but stated that inclusion of this list in the PAD should not be inferred to mean that Licensee proposes the study or plans to conduct it under Relicensing. The Relicensing Participant requested studies were:

- Potential for slope stability/mass wasting at Project features, especially but not exclusively at New Bullards Bar Reservoir.
- Use of Project diversion dam low-level outlets for sediment pass-through.
- Amount of coldwater (below 10°, 15° and 20° C isotherms) in New Bullards Bar Reservoir under various operation conditions and water year types.
- What is the existing temperature control device in New Bullards Bar Reservoir?
- Monitor Deer Creek Wastewater Treatment Plant effluent.

- Fish passage study at USACE’s Englebright Dam (i.e., identify what we know and what we need to know).
- Define USACE’s Englebright Dam’s function in Project.
- Fish passage at New Bullards Bar and Our House Diversion dams (i.e., identify what we know and what we need to know, and look closely at natural barriers below Our House Diversion Dam to determine what flows are needed and possible).
- Fish passage migration/outmigration as related to flow and natural barriers.
- Socioeconomic study of impacts of Project on Camptonville community Sphere of Influence and other local communities’ Spheres of Influence (e.g., Our House, Dobbins and Challenge).
- Study of migration corridors and winter range of migratory deer populations.
- Adequacy of existing bald eagle management plan for bald eagle on National Forest System land.
- Study forest mesocarnivores population/frequency of occurrence in Project Area.
- Study exotic territorial and aquatic species.
- Study ESA-listed fish.
- Study CESA-listed fish.
- Management of flatwater recreation on reservoir (distribution and diversity of water-based recreation opportunities).
- Availability of launch sites for drift boats, rafts, float tubes, etc. and research vessels on the Yuba River near Highway 20, on the North Yuba River near Highway 49 and Englebright Dam, and below Englebright Dam.
- Management information needs for fuel, fire management, and fire response on NFS land.
- Study the economic impact of increased recreation uses from resurgence of salmon (i.e., Identify economic opportunities related to fish passage).

10.4 List of Attachments

This section includes one attachment:

- Attachment 10.3A – Licensee’s Preliminary Proposed Studies

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Section 10.0

Licensee's Preliminary Proposed Studies

- **Attachment 10.3A: Licensee's Preliminary Proposed Studies**

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TABLES

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