Foothills Water Network

COMMENTS AND RECOMMENDATIONS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR THE YUBA RIVER DEVELOPMENT PROJECT (P-2246-065)

July 30, 2018

Hon. Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, DC 20426

Via electronic filing

Dear Ms. Bose:

The Foothills Water Network (FWN or the Network) and its member organizations respectfully offer the following comments and recommendations on the Draft Environmental Impact Statement (DEIS) for the relicensing of Project 2246, the Yuba River Development Project (hereinafter the "project" or "YRDP") operated by the Yuba County Water Agency (YCWA or licensee).

Foothills Water Network

This response was jointly developed and signed by non-governmental organizations and individuals participating in the YRDP relicensing.[1] The Foothills Water Network represents a broad group of non-governmental organizations (NGO) and water resource stakeholders in the Yuba, Bear, and American Watersheds. The overall goal of the Foothills Water Network is to provide a forum that increases the effectiveness of non-profit conservation organizations to achieve river and watershed restoration and protection benefits for the Yuba, Bear, and American Rivers. This includes negotiations at the county, state, and federal levels, with an immediate focus on Federal Energy Regulatory Commission (FERC or Commission) relicensing processes.

[1] Foothills Water Network, American Rivers, American Whitewater, California Outdoors, California Sportfishing Protection Alliance, Friends of the River, Gold Country Fly Fishers, Northern California Council Federation of Fly Fishers, , Save Auburn Ravine Salmon and Steelhead, Sierra Club, Sierra Foothills Audubon Society, South Yuba River Citizens League, and Trout Unlimited, joined in these comments by Nevada City Rancheria, Nisenan Tribe.

Executive Summary

The Network appreciates the fact that Commission staff (staff) approved many of the recommended terms and conditions jointly agreed to and submitted by the parties to this proceeding. In addition, the Staff Alternative contains elements that improve upon the licensee's proposal in important ways. The Staff Alternative would require vehicular access to the North Yuba River downstream of New Bullards Bar Dam. It would also require clarification of the funding responsibility of the licensee in maintaining recreational opportunities at the Oregon Creek Day Use Area, as recommended by the Network. The Staff Alternative would require a plan to reduce fish stranding below Narrows 2. The Staff Alternative would also require development and implementation of a plan to mitigate the blockage of large woody material from the lower Yuba River, though we are unclear of the proposed scope of this measure.

However, despite these and other additions, the Staff Alternative will not functionally improve habitat conditions for aquatic resources in the lower Yuba River.

The DEIS opines: "[E]xisting project effects on riparian habitat along the lower Yuba River are minimal in comparison to past activities."[2] The DEIS finds those effects so minimal that, except for large wood augmentation, staff declines to require the licensee to implement ***any*** physical habitat improvements to the lower Yuba River.

The DEIS acknowledges: "[F]lows in the lower Yuba River during March through June … have decreased significantly as a result of project operation."[3] However, the Staff Alternative also completely absolves the licensee from augmenting lower Yuba River flows, because most of the lower Yuba River's existing floodplain is no longer accessible to the river without flows recommended by FWN, the California Department of Fish and Wildlife (CDFW) and the U.S. Fish and Wildlife Service (FWS). "YCWA's modeling and analysis show that the resource agencies' recommended pulse flows would not substantially increase floodplain inundation, and that inundation would not increase habitat because of the highly disturbed nature and limited enhancement potential of the floodplain …."[4]

The non-flow and flow recommendations of CDFW, FWS and FWN, working in combination, seek to mitigate these impacts. The recommended physical habitat improvements are a modest portion of the overall need in the lower Yuba River. The non-flow measures were explicitly designed to allow connectivity of the river with the floodplain at recommended flows that remain within the capacity of existing outlet works at Englebright Dam; we understood this to be a major interest of the licensee. In brief, the concept was to bring the floodplain to the river with greater frequency because of the difficulty of using managed flows to bring the river to the floodplain.

The economic analysis in the DEIS of CDFW-FWS-FWN proposed non-flow and flow measures accepts the licensee's arguments about the costs of these measures with an unwarranted lack of skepticism. The analysis of the costs of lost generation fails to consider

[2] DEIS, p. 3-245.
[3] DEIS, p. 3-154.
[4] DEIS, p. 3-186.

energy revenue in the context of rapidly changing energy markets, particularly in California. The analysis of the costs of potential reductions in water available for sales accepts an extreme case with unstated assumptions as fact and fails to evaluate likely increases in water sale revenues in the context of foreseeable increases in demand and reductions in statewide supply.

The Staff Alternative dismisses protective non-flow and flow measures for the North Yuba and upper Main Yuba River, downstream of New Bullards Bar Dam. Despite increased investment by a local land trust in land acquisition and increased access to the area, the Staff Alternative continues the practice of the last fifty years of leaving the aquatic resources within these river segments as the prisoners of river reaches managed as throwaways.

The Staff Alternative rejects an Ecological Group that would provide non-governmental stakeholders with a defined and informed role in license implementation. For over fifteen years, NGO intervenors in this proceeding and other members of the Hydropower Reform Coalition have advocated in relicensing for such a role in license implementation. When given the opportunity, non-agency representatives of the public interest have proven their value in improved decision making and outcomes on countless issues. The Staff Alternative's rejection of the proposed Ecological Group is disappointing and disturbing.

On almost every river in California's Sacramento and San Joaquin valleys in which anadromous fish are present, FERC licensees or other operators of water developments conduct the type of fisheries monitoring that CDFW, FWS and FWN have recommended for the lower Yuba River. Responsible water managers and engaged stakeholders want to know how fisheries are doing on their watch, and want data to help them understand how they can do better. Licensee YCWA has agreed to the recommended monitoring. Inexplicably, the Staff Alternative rejects such monitoring.

We elaborate on these and other issues below.

I. The Staff Alternative inaccurately denies project nexus with the condition of the lower Yuba River's stream channel and riparian corridor and fails to require mitigation for the project's effects on lower Yuba River flow.

A. There are multiple points of nexus between the project and the condition of the lower Yuba River's stream channel and riparian corridor.

The DEIS opines that there is "no nexus between the proposed project and the need for floodplain enhancement."[5] However, the DEIS also states that the project has "reduced the frequency and duration of spring peak flows" and created "a relatively stable channel with little scour."[6] Further, the DEIS observes: "[R]eduction in peak flows has likely created stable channel condition[s] with little scour…have the potential to negatively affect juvenile salmonid migration rates and survival in the lower river."[7]

[5] DEIS, p. 5-12.
[6] DEIS, p. 5-19.
[7] DEIS, p. 3-156.

Thus, despite staff's conclusion, the DEIS acknowledges that "floodplain isolation and channelization" are not purely the result of "prior" historical land use practices. Rather, the impacts associated with mining and development in the lower Yuba River are further exacerbated by the cumulative, annual impacts of an altered flow regime.

Rivers are disturbance-prone ecosystems that are continuously impacted by annual changes in flow (Ward 1998; Poff et al. 1997). Riverine flora and fauna are adapted to natural, episodic flow events and variability. They are not adapted to persist or thrive in a system where annual flow alteration restricts their life-stage requirements. The altered flow regime of the lower Yuba River creates habitat that is less hospitable to spring-run Chinook, green sturgeon, Sacramento splittail, fall-run Chinook, steelhead, birds and other wildlife, and the plants that create and support habitat for all these species.

In 1993, FERC required Pacific Gas and Electric Company (PG&E), owners of the Narrows Project (P-1403) at the base of Englebright Dam, to prepare "a plan to enhance fisheries habitat in the Yuba River downstream of the Project."[8] As rationale, the Commission noted: "The salmonid resource in the Yuba River has been negatively affected by loss of habitat from dam construction and stream channelization; unfavorable flow and water temperature regimes."[9] This requirement has contributed funds and support to habitat restoration plans and implementation at Upper Rose Bar, Hammon Bar, and the Yuba River Canyon Project. To the Network's knowledge, there have been no developments since 1993 that would materially nullify FERC's rationale for requiring PG&E to contribute to mitigating the condition of the lower Yuba River downstream of Englebright Dam. This assignment of partial responsibility to PG&E for the Narrows 1 Project in 1993 should be consistent with a partial assignment of similar responsibility to YCWA for the much greater impacts of the YRDP in 2018.

Weber and Pasternack (2017) suggest that the combined effect of high flows and the presence of the training walls (walls of gravel built to keep the river in place before project construction) may reduce the lower Yuba River's ability to export sediment. This condition creates a "Levee Surcharge Effect" in the lower Yuba River, where mining sediment that would otherwise be transported downstream essentially eddies out in close proximity to where the erosion initiated from the same flow event. Weber and Pasternack's results indicate that 25% less sediment leaves the lower Yuba River corridor during high flow periods compared to drought periods.

The stabilization of the channel and reduction of spring peak flows can serve to reduce survivorship of both young and mature members of the cottonwood family, through the loss of seed bed creation and alteration of the spring recession (Auble et al. 1997; Rood and Mahoney 1990; Rood and Mahoney 2000) and through the lowering of the groundwater table (Stromberg et al. 1996). These project effects create unfavorable conditions for riparian and floodplain adapted species (Decamps et al 1998) and are conditions that are too wet and disturbance-prone for more upland species (Johnson 1994).

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[8] FERC. 1993. Order Issuing New License for Project No. 1403-004, p. 52.
[9] *Id.*, p. 30.

Figure 1: Daguerre Point Dam, looking upstream. Post 1906. From the book: Hammonton Dredger Town 1902 – 1957. Lottie Lathrop Workman. 1975.

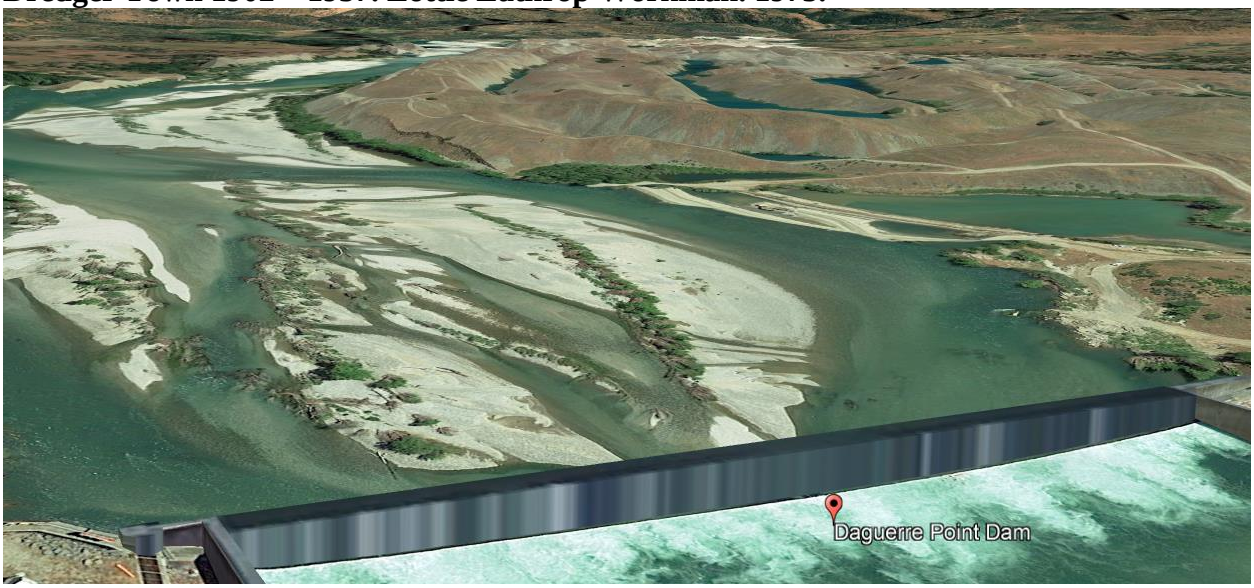


Figure 2: Daguerre Point Dam, looking upstream. Image date 2017, Google Earth.

Before project construction, but after the 1884 Sawyer Decision that put a stop to major hydraulic mining operations in the upper Yuba River watershed, the river floodplain was vegetated with large trees and diverse vegetation, as depicted in Figure 1 above looking upstream at Daguerre Point Dam (Workman 1975). While mining operations and development in the lower Yuba River have greatly altered the river landscape, flow modifications have slowed or diminished natural regeneration of species after those very large disturbances. Figure 2 depicts the landscape above Daguerre Point Dam in 2017, showing that the floodplain is largely devoid of vegetation that was able to persist in the post-hydraulic mining era as shown in Figure 1.

As described in FWN's Comments on Ready for Environmental Analysis, construction of the Narrows 2 access road as part of the construction of the Narrows 2 development redistributed shot rock into the channel of the lower Yuba River.[10] The road and the erosion it has created and continues to create makes the exposed shot rock readily available to be mobilized during high flow events. This was particularly problematic during the high flow event in 1997 sending large, angular rock into the Yuba River's spawning beds. The DEIS does not analyze this ongoing project effect. It is an ongoing direct impact of the project on the lower Yuba River stream channel.

In sum, a stable channel with few opportunities for natural riparian vegetation recruitment (WSI and Fremier 2012), inadequate timing and duration of inundation for juvenile fish (Jeffres 2008), decreased sediment transport during high flows events (Weber and Pasternack 2017), and ongoing mobilization of shot rock are all impacts directly tied to Project operations. These impacts require mitigation through habitat and flow restoration measures in the lower Yuba River.

B. Recommended physical habitat improvements in the lower Yuba River corridor would have beneficial effects on water quality, fish and wildlife, and flood safety.

Currently, much of the lower Yuba River is composed of exposed sediments (WSI and Fremier 2012). Exposed sediments on river floodplains are easily incorporated into floodwaters and can create turbidity exceedances in a river system. While impacts to turbidity from these exposed sediments in the Yuba River have not been quantified, it is expected that suspended sediments enter the river system during high flow events associated with the December-April period when Chinook salmon eggs are still incubating, juvenile salmon are rearing, and steelhead are spawning.

Restoring floodplain habitat is known to improve water quality on a long-term basis due to the ability for vegetation to increase surface roughness and trap suspended sediments (Dosskey et al. 2010). In addition, such restoration supports the development of soils that can improve infiltration of water and that can remove potential pollutants and thus prevent them from moving further downstream (Beasley and Kneale 2002). The Yuba River basin is impacted by mercury used in the past during the gold extraction process and lost to the environment during the Gold Rush. While the potential that methylation will occur in restored floodplains exists, this concern does not outweigh the benefits of restoring a functioning ecosystem that provides other water quality benefits as well as multiple benefits for fish, wildlife, and downstream flood control.

The DEIS expresses the unfounded concern that physical habitat restoration projects in the lower Yuba River could have construction impacts that adversely affect water quality.[11] However, any habitat restoration project in the lower Yuba River or elsewhere in California is required to obtain a Clean Water Act § 401 permit from the State Water Resources Control

[10] Foothills Water Network, *Comments and Recommendations Ready for Environmental Analysis for the Yuba River Development Project (P-2246)*, eLibrary no. 20170825-5257 (FWN REA Comments), p. 27.
[11] DEIS, p. 5-12.

Board (State Board) or the Central Valley Regional Water Quality Control Board. Each project must also develop a stormwater pollution prevention plan (SWPPP). The § 401 permit and SWPPP establish best management practices (BMPs) that must be employed during project implementation, sampling requirements during project implementation, and water quality benchmarks that require project implementation measures to cease until an identified water quality concern is corrected. The Network is filing under separate cover the § 401 permit for the ongoing Hallwood Restoration Project as example documentation for preventing water quality issues from occurring during restoration activities.[12]

Floodplain restoration in the lower Yuba River will be beneficial to fish and wildlife species that depend on that resource for habitat. The restoration work that has been completed by the Teichert Corporation, as part of its requirement for remediating mining activities on floodplains that inundate above 21,000 cfs, is an example of how restoring floodplain has created refuge for deer, birds, and other fauna and flora in the lower Yuba River corridor, at a location that was previously depauperate in both plant and animal species. Teichert's remediation report, completed in 2014, showed that riparian planting and natural recruitment resulted in between 70-80% cover on previously bare surfaces, with the natural recruitment of trees resulting in about 1000 trees per acre and planted trees resulting in about 587 trees per acre.[13] New bird species that had not previously been recorded at the site included Cedar Waxwing, Merlin, Bald Eagle, Bufflehead, American Widgeon, Northern Pintail, and Clark's Grebe. Habitat restoration on a degraded floodplain was prescribed as a remediation method to improve water quality and ameliorate the impacts of mining on the landscape.

The pilot, 5-acre tree planting project completed at Hammon Bar by the South Yuba River Citizens League (SYRCL) in 2012 has also successfully created fish and wildlife habitat that did not previously exist in the on a floodplain in the lower Yuba River. Not only has the project resulted in over 1000 trees per acre as of surveys completed in 2018, it has also resulted in the deposition of fine sediments that increase in area and depth every year (Figure 3).[14]

[12] Central Valley Regional Water Quality Control Board. 2017. Clean Water Act Section 401 Water Quality Certification and Order for the Hallwood Side Channel and Floodplain Restoration Project. Yuba County (WDID#5A58CR00140).
[13] Teichert. 2014. Annual Reclamation Monitoring Report (Final). Hallwood-East Lagoon (Phase I). Prepared for the State Mining and Geology Board and The Department of Conservation.
[14] Rachel Hutchinson, SYRCL staff, pers comm 2018.

Figure 3: Hammon Bar Photo-point series from 2011-2018. Photo Credit: SYRCL.

In addition, annual data collection efforts at Hammon Bar show that year-over-year survivorship flatlined between 2017 and 2018, indicating that after 6 years tree mortality has stabilized. Gooddings willow and Fremont cottonwood had the lowest survivorship of the four species planted, but were planted in a greater abundance than the other two species, resulting in a more even composition of species on the floodplain after Year 6 (2018) monitoring (Figure 4).

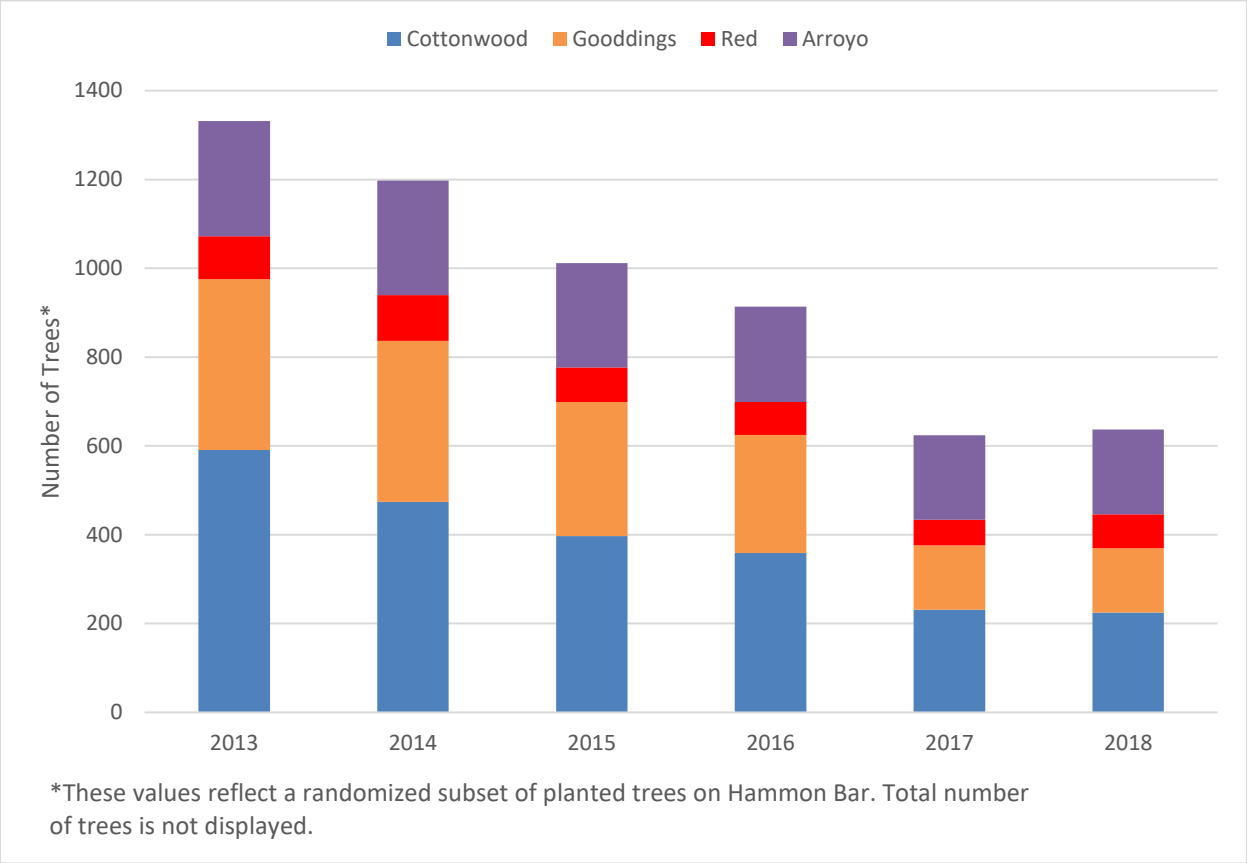


Figure 4: Subset of trees planted on Hammon Bar, monitored between 2013 and 2018. The subset depicted does not reflect the total number of trees on Hammon Bar.

A 2017 high flow event resulted in an 18% loss of pods (291 remain of the original 356).[15] A majority of the pods lost were concentrated in the upstream area of Hammon Bar, where 5-6 feet of large cobble flowed in from upstream during a high flow event (Figures 5 and 6). Post-2017 flood photos (Figure 7) show areas of sediment deposition directly after high flows downstream of planted trees. Photos taken in spring 2017 (Figure 8) show recruiting Fremont cottonwood, willows, and native annuals on fine sediment deposits.[7]

[15] SYRCL. 2017. Hammon Bar Annual Performance Narrative. Report to the US Fish and Wildlife Service.

Figure 5: Hammon Bar before 2017 high flow event.
Google Earth image from 8/22/2016.

Figure 6: Hammon Bar after high flow event.
Google Earth image from 10/17/2017.

Figure 7: Post 2017 flood event photos showing fine sediment deposition and leaning trees. Photo Credit: Gary Reedy.

Figure 8: Fine sediment deposition on Hammon Bar in spring of 2017 and native recruitment of Fremont cottonwood, willows, and native annuals on fine deposits. Photo Credit: Rachel Hutchinson.

Fish utilize floodplain habitats during high flow periods due to the slower flows, availability of cover, and high primary productivity (Ahearn et al. 2006; Schemel et al. 2004) that results in a diverse and abundant macroinvertebrate community. Native fish are sensitive to environmental cues which allow them to leave floodplain and other environments before stranding occurs (Moyle et al. 2007). Studies conducted on other rivers in California indicate that while non-native fish may become stranded on restored floodplains, it is rare for native fish to become stranded as floodwaters recede (Moyle et al. 2007).

Floodplain restoration projects reduce the downstream risk of flooding by increasing the upstream surface area that floodwaters can access (Kiedrzynska et al. 2015; Archer 1989; Wolff and Burges 1994; O'Sullivan et al. 2012). Ahilan et al. (2016) show that restored floodplains reduce flooding up to 23% by creating localized flood storage. Floodplain restoration not only spreads out the flow of floodwaters but also slows the flow of water, reducing the impact of floodwaters on downstream levees. Habitat restoration projects in river floodplains should include flood modeling of downstream areas to ensure that project plans do not increase the risk of flooding.

C. The physical habitat improvements to the lower Yuba River corridor proposed by CDFW, FWS and FWN are reasonable and feasible in terms of definition, site availability, and cost, and similar projects are already underway.

The DEIS states that there is no evidence that parcels of suitable size and floodplain location exist for restoration actions in the Lower Yuba River.[16] However, conceptual designs have been created by cbec (2010 & 2013) and United States Army Corps of Engineers (ACOE or Army Corps) (2017), and through conversations with landowners (Figure 9). Together, these designs represent over 1100 acres of potential floodplain restoration projects both upstream and downstream of Daguerre Point Dam. Cbec (2013) developed concepts for 18 restoration projects along the Lower Yuba River corridor. In 2017, the Army Corps of Engineers released a draft Ecosystem Restoration Study that recommended 178.6 acres of restoration across multiple sites (ACOE 2017). These draft plans also provide a clear framework for the locations at which sediment removal activities should occur in order to restore floodplain surfaces. In addition, studies from other river systems are available for review.

Sediment removal locations would need to be determined by the development of 65% design, engineered plans. While conceptual designs exist within the Lower Yuba River (cbec 2010 & 2013; ACOE 2017), the actual location and depth of material to be removed would need to be determined by very specific plans that target a flood return interval and inundation duration that is most beneficial to the fish and wildlife that would utilize the habitat. Plans of that specification would be developed as part of the planning process for each restoration action.

The Staff Alternative does not recommend adoption of the CDFW-FWS-FWN proposed flows on the grounds that these flows will not increase floodplain inundation.[17] However, even if the new YRDP license did not require lowering floodplain habitat so that it is accessible at flows of lesser magnitude than at present, such improvements are planned to take place. Within the next five years alone, projects funded through USFWS' Anadromous Fish Restoration Program will be implemented. The implementation of these projects, including Hallwood[18], Long Bar[19], and the Yuba River Canyon[20,21] will result in 220 acres of lowered floodplain and

[16] DEIS, p. 5-12.
[17] DEIS, p. 5-13.
[18] http://www.hallwoodproject.org/
[19] https://yubariver.org/our-work/restoration/lower-yuba-restoration/active-lower-yuba-projects/long-bar-restoration-project/

side channel habitat (Figure 9, Projects 13, 6a and 19, respectively). These projects have been designed to inundate for a range of 14 to 24 days with a target of 21 days (Table 1), which is optimal for macroinvertebrates to colonize off-channel areas (Merz and Ochikubo-Chan 2005; Ahearn et al. 2006). The YRDP operations model was utilized to guide floodplain and side channel designs, specifically in the amount of floodplain lowering that is required to achieve ecologically significant flood duration and timing. Table 1[22] below is taken directly from the draft basis of design report for the Long Bar Restoration Project and indicates the utilization of YRDP operations model flow to produce restoration projects that will include ecologically significant habitat. While flow conditions may change with the implementation of a new license, restoration projects can be designed to take advantage of specific flow regimes to create habitat that is most beneficial to native and sensitive species.

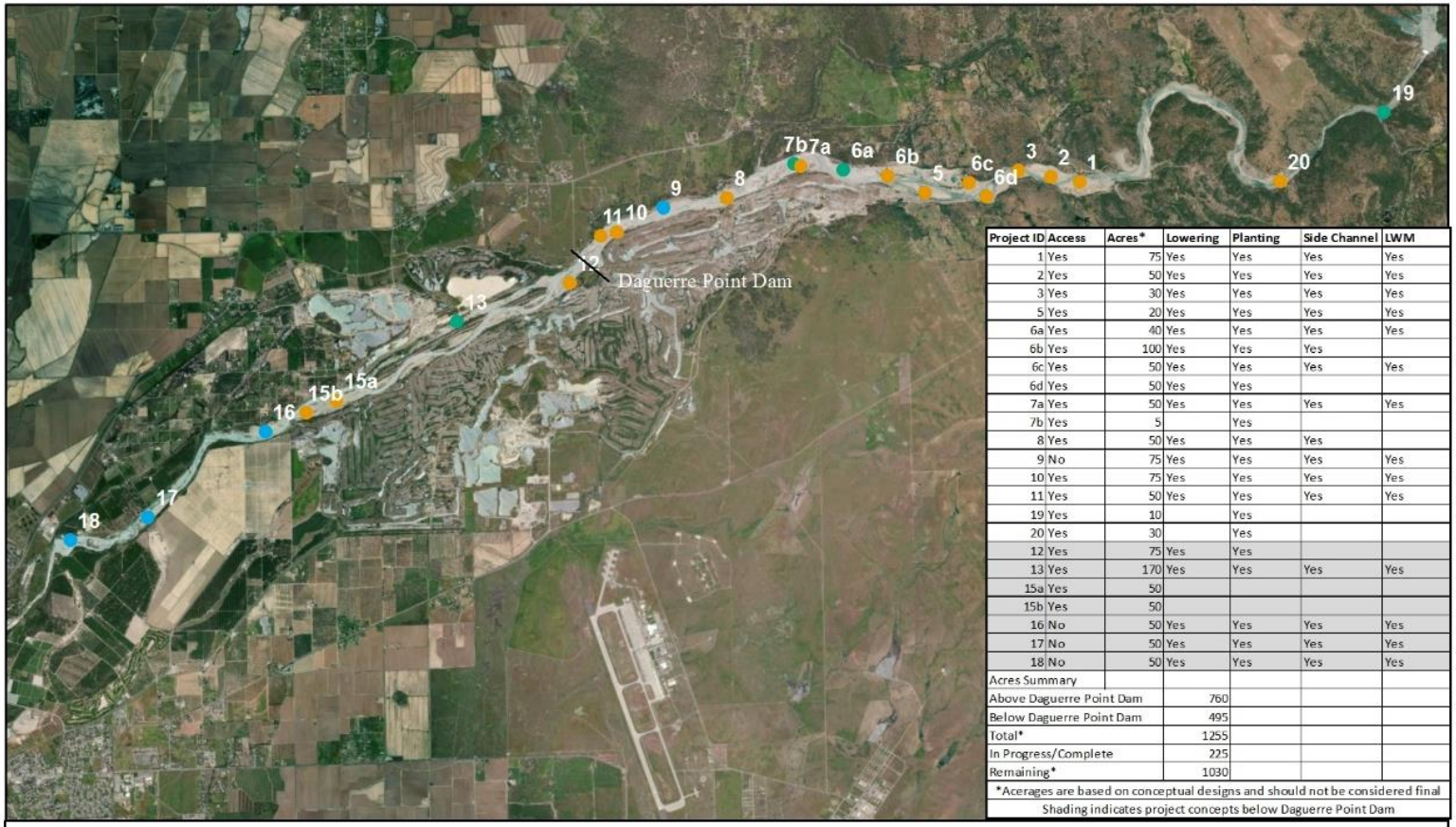
Table 1. Summary of ecologically significant flows guiding Project design

Dataset	**January to June**			**January to June**			**July to October**
	21-day Duration Flow (cfs)			**3-day Duration Flow (cfs)**			**Baseflow (cfs)**
	33%	**50%**	**67%**	**33%**	**50%**	**67%**	
Yuba River Development Project (YRDP) Model[a]	5,000	4,100	2,000	10,400	6,900	3,800	700

[a]YRDP Operations Model (FERC No. 2246) accessed from http://www.ycwa-relicensing.com.

While much of the lower Yuba River is privately owned, the major property owners, including the Bureau of Land Management (BLM), the Army Corps, Western Aggregates, Teichert, the co-owners of the Long Bar Mine Company, and Yuba River Properties, are engaged in habitat restoration projects within the river corridor in partnership with SYRCL[23], cbec, Environmental Science Associates, and FWS.

[20] https://yubariver.org/our-work/restoration/lower-yuba-restoration/additional-lower-yuba-projects/yubarivercanyonproject/
[21] These projects are in addition to SYRCL's 5-acre Hammon Bar project, which did not lower floodplain surfaces.
[22] Cbec. 2018. DRAFT Long Bar Basis of Design Report, unpublished.
[23] https://yubariver.org/our-work/restoration/lower-yuba-restoration/



Project ID	Access	Acres*	Lowering	Planting	Side Channel	LWM
1	Yes	75	Yes	Yes	Yes	Yes
2	Yes	50	Yes	Yes	Yes	Yes
3	Yes	30	Yes	Yes	Yes	Yes
5	Yes	20	Yes	Yes	Yes	Yes
6a	Yes	40	Yes	Yes	Yes	Yes
6b	Yes	100	Yes	Yes	Yes	
6c	Yes	50	Yes	Yes	Yes	Yes
6d	Yes	50	Yes	Yes		
7a	Yes	50	Yes	Yes	Yes	Yes
7b	Yes	5		Yes		
8	Yes	50	Yes	Yes	Yes	
9	No	75	Yes	Yes	Yes	Yes
10	Yes	75	Yes	Yes	Yes	Yes
11	Yes	50	Yes	Yes	Yes	Yes
19	Yes	10		Yes		
20	Yes	30		Yes		
12	Yes	75	Yes	Yes		
13	Yes	170	Yes	Yes	Yes	Yes
15a	Yes	50				
15b	Yes	50				
16	No	50	Yes	Yes	Yes	Yes
17	No	50	Yes	Yes	Yes	Yes
18	No	50	Yes	Yes	Yes	Yes
Acres Summary						
Above Daguerre Point Dam		760				
Below Daguerre Point Dam		495				
Total*		1255				
In Progress/Complete		225				
Remaining*		1030				

*Acerages are based on conceptual designs and should not be considered final

Shading indicates project concepts below Daguerre Point Dam

Lower Yuba River
Habitat Restoration Concepts

Project Concepts

- Projects in Progress/Complete
- Property Access Possible
- Property Access Not Evaluated

Figure 9: Lower Yuba River Habitat Restoration Concepts

The DEIS suggests that the restoration projects recommended by FWN would cost over $10 million per year.[24] The DEIS also estimates that 4-million cubic yards of material would need to be removed.[25] Based on estimates for material removal costs from Table 2 below, the cost range estimate for the removal of 4 million cubic yards of material is estimated to be between $15-26 million dollars. FWN requested that this work be completed over a period of 10 years. At a pace of 400,000 yds^3/year, the cost estimate is between $1.5-2.68 million dollars a year for ten years. FWN estimates the cost to complete the requested additional 251 acres of planting to be between $10-17 million total, or $1-1.7 million per year over a period of 10 years. In total, FWN estimates the cost of habitat restoration work (lowering floodplain and planting) to be $2.5-4.38 million per year over a period of 10 years.

The material removed from project sites would be available for use by local companies (e.g. Teichert, Western Aggregates, SRI Supreme) and processed for sale. At ongoing projects at Hallwood and Long Bar, the benefit of the removal of gravel and sand from project sites has helped offset the total cost of the projects while boosting the local economy and elongating the operation of gravel sorting facilities in Yuba County. The process of restoring the Yuba River Goldfields and gravel bars could employ dozens of Yuba and Nevada County residents during the construction phase. The Yuba River gravels are highly valued and can be used for road base and other construction and building purposes. Similar projects on the Merced River sorted unneeded material on site, graded it, and seeded it so there were no removal costs.

Table 2: Floodplain restoration project costs in the Merced and Yuba rivers that have been implemented and/or planned by the USFWS Anadromous Fish Restoration Program[26] and FWN restoration recommendations.

Project	Lowered Acres	Planted Acres	Cu. yds Removed	Cost	Cost/Acre	Cost/yds^3
Merced River						
Henderson Park	28		71855^	$2,549,140	$91,041	$35.47
Merced River Ranch	6		91372^	$604,450	$100,742	$6.60
Yuba River						
Hallwood Phase I	70	5	1,075,000	$4,200,000	$46,667	$3.90
Long Bar	40	10	300,000	$2,014,000	$50,350	$6.70
Hammon Bar	0	5	--	$277,482	$40,000-70,000	
FWN (II) Rec. Lowering	340	20*	4,000,000[19]	$15,600,000 /$26,800,000+	--	$3.9/$6.7
FWN (II) Rec. Planting	0	251	0	$10,040,000/ $17,570,000+	$40,000/ $70,000	--

*Estimate not included in FWN REA Comments
+Estimate for YRDP recommended projects, based on cost estimates from Yuba River projects
^ Material moved on Merced River projects was not removed from project sites.

[24] DEIS, p. 4-22, 4-23, 5-13, 5-52, 5-53
[25] DEIS, p. 5-12.
[26] Paul Cadrett and J.D. Wikert, USFWS, pers. comms.

B. The lower Yuba River flow recommendations of CDFW, FWS, and FWN would have multiple habitat benefits for fish, both within the lower Yuba River corridor and downstream.

FWN's REA comments summarize the fact that the existing "Yuba Accord" flow regime in the lower Yuba River, which is also the licensee's proposed future flow regime with only very slight modification, has not been effective in supporting existing fish populations and habitat: "[E]xisting evidence suggests that wild juvenile salmon born in the lower Yuba River do not return at rates sufficient to support a self-sustaining population."[27]

The Yuba Accord flows generally seek to optimize in-channel habitat for lower Yuba River salmonids. In many aspects, these flows are well-thought out and do a good job in that context. CDFW, FWS and FWN demonstrated respect for the work that went into developing the Yuba Accord flows by making the Yuba Accord flows not only the foundation of our collective proposed flow regime, but also the majority of the edifice.

However, while the Yuba Accord flows generally seek to optimize in-channel habitat, the Yuba Accord does not require flows that would access out-of-channel habitat, recognized as superior juvenile rearing habitat, as described in Section (I)(A) above.[28] Under the Yuba Accord, juvenile salmonids primarily access out-of-channel habitat during uncontrolled flows over Englebright Dam. CDFW, FWS, and FWN proposed flow augmentations in the lower Yuba River in the wettest 50% of water years to more reliably improve juvenile rearing.

The FWN REA comments describe how, in addition to traditional "floodplain habitat," these CDFW-FWS-FWN flows targeted the "bank zone:"

> The area between base flow and bankfull flow is called the in-channel bar zone (Wyrick and Pasternack 2012), or the bank zone (Reedy 2017). The bank zone has the unique combination of inundation at ecologically significant frequency and duration, structural complexity associated with riparian and geomorphic features (e.g. backwaters, swales and side-channels), and beneficial cover and food resources associated with near-channel riparian communities. In the current geomorphological setting of the lower Yuba River, the bank zone may be more representative of the biological benefits of the floodplain (referenced studies above) than the formally-defined floodplain.[29]

However, the DEIS does not respond to this analysis or even acknowledge it. The DEIS simply announces that since the "floodplain" is not accessible at the flows proposed by CDFW, FWS, and FWN, they have little value: "YCWA's modeling and analysis show that the resource agencies' recommended pulse flows would not substantially increase floodplain inundation."[30]

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[27] FWN REA comments, p. 13; also, pp. 39-43.
[28] *U.S. Fish and Wildlife Service Comments on River Management Team Draft Interim Report*, eLibrary 20140609-5190, p. 16.
[29] FWN REA comments, p. 29.
[30] DEIS, p. 3-186.

In addition to attempting to bring flows to better juvenile salmonid rearing habitat, CDFW, FWS, and FWN proposed creating additional physical habitat in the lower Yuba River corridor that would be accessible at flow levels that are achievable using the existing outlet capacity of Narrows 2 Powerhouse and Narrows 1 Powerhouse at Englebright Dam (approximately 4120 cfs combined). This was explicitly in an effort to meet the licensee's interest.[31]

If indeed the only way to mitigate the project's acknowledged impact on flows[32] within the four corners of project nexus is to achieve higher releases from Englebright Dam, the Commission should require YCWA to negotiate an easement with the Army Corps and construct another outlet to augment its release capacity to a combined 5500-6000 cfs.

The DEIS states: "[I]nundation would not increase habitat because of the highly disturbed nature and limited enhancement potential of the floodplain …."[33] A large number of entities disagree, including the Army Corps in a recent report for which YCWA provided a 50% cost share.[34] Many of those entities have already invested significant resources in lower Yuba River habitat restoration projects, as described in Section (I)(A), above. Even if the Commission does not order such restoration as part of the new YRDP license, many such actions will take place in the next decades, with a substantial number of acres likely treated before the new YRDP license issues. FWN never conceived that the justification for flow increases was solely dependent on physical habitat improvements ordered in the new license.

The DEIS defines the downstream limit of the geographic scope for water resources as the backwater of the Feather River at the Yuba River confluence.[35] This determination directly contradicts the determination of the State Water Resources Control Board in its update of the Bay-Delta Plan.[36] In its July 6, 2018 *Framework for the Sacramento/Delta Update to the Bay-Delta Plan*,[37] the State Board affirms: "The Science Report documents the needs for both inflow and cold water habitat requirements on the Sacramento/Delta tributaries to provide for instream flows within tributaries, while contributing to Delta outflows at the same time."[38] Water management on the Yuba River clearly affects water management into and through the Sacramento – San Joaquin Delta. It affects not only anadromous fish, but also pelagic fish downstream of the mouth of the Yuba. Throughout this relicensing, the Network has looked

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[31] For extensive discussion of the development of the CDFW-FWS-FWN flow proposal, see FWN REA Comments, pp. 10-28. Regarding the release capacity from Englebright Reservoir, see also CDFW, *Yuba River Development Project FERC No. 2246 Rationale Report for California Department of Fish and Wildlife 10(j) Recommendations*, eLibrary no. 20170825-5170, Appendix 1, p. 97. (CDFW Rationale Report)
[32] DEIS, p. 3-154.
[33] DEIS, p. 3-186.
[34] Army Corps of Engineers, *Yuba River* Ecosystem Restoration Feasibility Study California *Draft Interim Feasibility Report & Environmental Assessment*, January 2018. Available at: http://www.spk.usace.army.mil/Missions/Environmental-Projects/Yuba-River-Eco-Study/
[35] DEIS, p. 3-3.
[36] For further discussion, see FWN REA Comments, pp. 96-99.
[37] State Water Resources Control Board, *Framework for the Sacramento/Delta Update to the Bay-Delta Plan*, July 6, 2018. Hereinafter cited as "Framework." Available at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/sed/sac_delta_framework_070618%20.pdf
[38] *Id*., p. 7.

downstream to evaluate how management in the Feather River, the lower Sacramento River, and the Delta cascades back upstream to affect the Yuba. It has always been the intention of the Network that the February-June flows proposed for the Yuba River in relicensing should largely be the same as the flows required to meet the objectives in the update of the Bay-Delta Plan.[39]

C. Staff's recommended lower Yuba River pulse flows for Schedule 1 and 2 years in the Staff Alternative is incrementally better than the Yuba Accord flow regime without such flows, but it does not target the most limiting lifestage of salmonids in the lower Yuba River.

The Staff Alternative proposes several pulse flows in Schedule 1 and 2 water years, with the goal of improving juvenile salmonid outmigration:

> Therefore, we recommend YCWA, in consultation with NMFS, BLM, and California DFW, develop a plan to provide short-duration (up to 48 hours), moderate magnitude (up to a maximum of 3,500 cfs depending on water year type), spring pulse flows in the lower Yuba River to facilitate juvenile salmon and steelhead outmigration.[40]

This measure may have some incremental benefit. However, strictly as an outmigration measure, it lacks the benefit of providing long-term opportunities for improvement that a prolonged high flow would provide, because shorter pulses crowd migration periods into short time windows. To the degree that such pulses are successful in stimulating outmigration, they provide an alert to predators downstream of Daguerre Point Dam. Such pulses would also have the potential to stimulate spawning, followed by potential dewatering of redds.

The apparent objective of staff's proposed flow pulses is similar to that of the CDFW-FWS-FWN proposed Winter Pulse and Spring Pulse measures for certain dry water years. With limited available water such as in Schedule 5, 6 or 7 years, such pulses would be an improvement over a flow regime that often sees little disturbance. The objective under those conditions would be to move fish out of river conditions that are generally not very hospitable in times of scarcity both for flow and for water supply. However, this type of triage measure that is appropriate for very dry years does not address the greater need to improve juvenile rearing habitat in the lower Yuba River when water for that purpose is available. Analysis by FWN, CDFW, and FWS in response to the Notice of Ready for Environmental Analysis identifies the juvenile rearing lifestage as the limiting factor in the lower Yuba River.[41]

The measure proposed by staff is itself not clear. In endnote "m" to Table 4-3, staff provides the basis for its cost evaluation of the measure:

> Cost estimated by staff includes lost generation associated with six 48-hour releases of up to 3,500 cfs per year over a 3-year period, which represents the worst-case scenario that

[39] In addition, it is impossible to accurately evaluate the impacts of flow requirements for the lower Yuba River on water sales without evaluating management and changes throughout the Sacramento – San Joaquin watershed. See further discussion in sections (II)(F) and (II)(G), below.
[40] DEIS, p. 5-14.
[41] See FWN REA comments, pp. 21-22, 30-33, CDFW Rationale pp. 87-88, DOI REA Response, pp. 52-67.

> natural flows would not provide any of the flows, and therefore is all lost generation. The cost also includes $50,000 for plan development and $50,000 for an evaluation of the success of the program after 3 years and preparation of a report summarizing the evaluation.[42]

The apparent intent is that at least some natural flow pulses would reduce the requirement for the licensee to provide managed flow pulses; however, there is no discussion of staff's expectation for when such offset would or would not be allowed. The apparent frequency that staff foresees is six two-day releases per year, at magnitudes up to 3500 cfs. While establishing a boundary condition, staff's proposed measure provides no guidance about how planning entities would determine the volume of the proposed pulse flows that corresponds to the term "up to." To the degree that staff retains this measure, more guidance is necessary.

D. The DEIS inaccurately fails to identify as less-than-significant the temperature impacts of the lower Yuba River flow recommendations of CDFW, FWS, and FWN.

The DEIS states: "The resource agencies recommended spring pulse and floodplain inundation flows … would likely result in less suitable water temperatures overall for numerous life stages of ESA-listed salmonids (HDR and Grinnell, 2017e)."[43] The reference is to one of the voluminous appendices to YCWA's response to REA comments,[44] in which YCWA presents 123 exceedance plots to demonstrate that releasing more water from New Bullards Bar Reservoir in spring will create a slight increase in water temperature, generally less than 1°F, in the lower Yuba River in summer.[45] The DEIS makes no effort to distinguish a level of significance for this very small increase, an increase that was acknowledged in FWN REA Comments.[46] The claim of "less suitable water temperatures overall" provides no definition of suitability, which is not synonymous with *any* increase. The label also ignores the fact that even with a firm threshold, the practical difference is a river mile or two of river that might slip above that threshold, in a river corridor with many miles of suitable habitat under all conditions. This statement in the DEIS that the CDFW-FWS-FWN proposed flows would result in "less suitable water temperatures" is without foundation.

E. The DEIS overstates the water cost to local irrigators of the CDFW-FWS-FWN flow recommendations.

Following YCWA, the DEIS overstates the impacts of the CDFW-FWS-FWN flow recommendation to local irrigators. In some cases this is because YCWA did not carefully read the flow recommendation. In other cases, it is because YCWA creates the hypothetical that Narrows 1 Powerhouse may not be available to help meet lower Yuba River release requirements. In still other cases, it assumes that YCWA would short local irrigators instead of releasing extra water from storage to meet local demands.

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[42] DEIS, p. 4-32.
[43] DEIS, p. 3-156.
[44] The reference should be to Appendix 9, not Appendix 8.
[45] YCWA Response to REA Comments, Appendix 9, pp. 42-81 (pdf pagination).
[46] FWN REA Comments, p. 26.

The CDFW-FWS-FWN flow recommendation was structured to avoid delivery reductions to local irrigators. As described above, it was also structured to work with the existing outlet capabilities of Narrows 1 and Narrows 2 powerhouses at Englebright Dam. In recognition of YCWA's interests, the Schedule 1 flow proposal contained a caveat.

Footnote 2 in to Table 2.5-1 in CDFW's 10(j) recommendations footnotes all flow requirements of 3500 cfs at Marysville. It reads:

> Because diversions at Daguerre Point Dam are not controlled by Licensee, Licensee will be considered to be in compliance with the specified minimum instream flows when the combined release from the Narrows 1 Powerhouse (FERC Project No. 1403) and Narrows 2 Facilities, as measured at the Smartsville - USGS Streamflows Gage 11421000 is at or above 4120 cfs (the combined capacity of Narrows 1 Powerhouse and Narrows 2 Facilities) and Englebright Dam is not spilling. [47]

However, YCWA's Response to REA Comments, Appendix 9 contemplates various scenarios under which YCWA could not comply with the requirement.[48] The first scenario is that downstream diverters might divert too much water upstream of the Marysville gage to allow YCWA to meet the flow requirement with the maximum combined Narrows 1 and Narrows 2 release of 4120 cfs. This is exactly the exception that Footnote 2 addresses. Another scenario is that YCWA might need to induce spill at Englebright Dam, again something that Footnote 2 above was explicitly designed to avoid. YCWA suggests that at times Narrows 1 might not be available. It is not clear why YCWA would consider this a problem with the instream flow requirement and not an infrastructure problem. Additionally, since YCWA has already announced its interest in obtaining and operating Narrows 1, YCWA will in the future have greater control over the operability of Narrows 1 than it does today. For that matter, it is hypothetically conceivable that Narrows 2 and the Narrows 2 bypass might not be available. In such cases, YCWA would no doubt make haste to physically remedy the problem while seeking a variance.

In its Response to REA Comments, Appendix 7, YCWA discusses the fact that the CDFW-FWS-FWN flow recommendation might leave YCWA short of water to meet irrigation demand. FWN has reviewed the modeling based on which YCWA suggests that it would be short of water for irrigation in 1970, 1997, 2004 and 2007. It is likely that years with that hydrology YCWA would meet delivery demand by taking additional water out of storage, or that irrigators would meet demand by pumping groundwater from a basin that YCWA represents to be stable.

The DEIS acknowledges: "It should also be noted that YCWA can elect to modify its carryover storage targets for New Bullards Bar Reservoir."[49] Perhaps more complete or more accurate, it might say that YCWA might elect not to meet its carryover storage targets in some

[47] CDFW 10(j) Conditions for the YRDP, p. 13, eLibrary no. 20170825-5170.
[48] YCWA Response to REA Comments, Appendix 9, pp. 27-28.
[49] DEIS, p. 3-399.

years, particularly when snowmelt runoff is proportionally low in relation to total water-year runoff.

However, the DEIS for the most part echoes the licensee's language: "Such increases in instream flow requirements could result in water delivery shortages to local farmers in some wetter water years and would significantly reduce the water supply reliability for farmers and farm operations in some years."[50] The Network's concern with this statement is the use of the term "significantly." The DEIS establishes no basis for this use of the term and states it in the context of numerous qualifiers ("could result," "in some years"). The Final Environmental Impact Statement (FEIS) should strike the term "significantly."

The remaining analysis in the DEIS of the prospective "agricultural use effects" of the CDFW-FWS-FWN flow recommendations excerpts sections of YCWA's argument in Response to REA Comments, Appendix 7. This includes the use of the hypothetical unavailability of Narrows 1 Powerhouse and the statement:

> In two of the simulated years, when 3,500 cfs would be required in April, all diversions in the last week of the month would have to cease for YCWA to comply with the agency's recommendation. This type of shortage would occur in 5 additional schedule 1 years and in 7 of 19 schedule 1 years in the period of simulation (YCWA, 2017b).[51]

YCWA did not explain in the original why diversions would have to cease, and the DEIS mirrors this lack of explanation. It appears tied to one of the hypotheticals we rebut above. It also appears to be recitation without background investigation by staff.

The FEIS should be more even-handed in its analysis of the prospective "agricultural use effects" of the CDFW-FWS-FWN flow recommendations.

F. The DEIS's analysis of the alleged impact of CDFW-FWS-FWN flows to recreation at New Bullards Bar uncritically reproduces deceptive statistics from the licensee's argument.

YCWA's Response to REA Comments has a section heading that states: "The FWS, CDFW, and FWN Complete Flow Recommendations and the NMFS Complete Flow Recommendation Would Reduce Boater Access to New Bullards Bar Reservoir in Drier Years by Two to Three Months."[52]

In support of this assertion, YCWA's Response to Comments presents "Table 12. Comparison of the average end-of-month water surface elevation (feet) at New Bullards Bar Reservoir for the YCWA proposal, the FWS, CDFW, and FWN Complete Flow Recommendations, and the NMFS Complete Flow Recommendation."[53]

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[50] DEIS, p. 3-400.
[51] *Id.*
[52] YCWA Response to REA Comments, p. 147.
[53] *Id.*, p. 149.

YCWA's Response to REA Comments, Table 12 notes in a footnote that 1853' water surface elevation is the minimum usable elevation for the Cottage Creek Boat Ramp at New Bullards Bar Reservoir. This table also identifies May-September as the peak recreation season on New Bullards Bar Reservoir. FWN accepts these as bases for analysis. We note, however, that the other major boat ramp on the reservoir, the Dark Day Boat Ramp, is usable throughout the peak recreation season in all years except 1977, during which it would have been unusable under both proposal about mid-July. The analysis in this case deals with crowding and waiting, not with absolute lack of boating access. The claim that our flow proposal will reduce access "*by* two to three months" is thus misleading. It may reduce, not eliminate, access *in* two or three months – in some years.

Structurally, the Response to REA Comments Table 12 is confusing for multiple reasons. It presents the results for average water surface elevations for five undefined water year types, rather than the differences in number of days of usable operation in any given year. It uses the end-of-month surface elevation as a metric, without explaining how it addresses months in which the elevation was sufficient for use part of the month and not for the rest of the month.

More importantly, we reviewed the modeling output for the CDFW-FWS-FWN complete flow proposal ("Scenario 13") and the output for the YCWA AFLA proposal ("Scenario 12"), and came up with different numbers than appear to be presented in Table 12.

Before discussing the model output, we offer a caveat. We assume for the purposes of this analysis that the model reflects how YCWA would actually operate the reservoir. It is not entirely clear that this is the case. It is conceivable that YCWA might reduce generation in order to maintain the operation of New Bullards Bar Reservoir at current storage levels or closer to those storage levels than the model depicts.

Reviewing the model output for the two scenarios, there are no years in which the reservoir elevation is not 1853' throughout May except for 1977, a year in which it never reaches that level. Otherwise, the modeled dates on which the surface elevation drops below 1853' are shown in Table 3 below.

The years shown in Table 3 are the only years in which modeled water surface elevations at New Bullards Bar Reservoir drop below 1853' in the May-September time period.

The average (mean) difference between the two model runs in the number of days during the May-September peak recreation season on which the water surface elevation would render the Cottage Creek boat ramp unusable is 36. This does not count a dry water year like 1985, or the dry/critically dry water years like 1990 and 1991, when there are no days that the modeled water surface elevation goes below 1853'. Of the years shown on the table, the median difference in the number of days during the May-September peak recreation season on which the water surface elevation would render the Cottage Creek Boat Ramp unusable is 40 or 41.

Table 3: Comparison of dates in period of record on which New Bullards Bar Reservoir elevation drops below the minimum usable water surface elevation for the Cottage Creek Boat Ramp (1853 feet) under flow proposals for the lower Yuba River of CDFW-FWS-FWN and YCWA Source: YCWA Response to Comments model runs, Scenarios 13 and 12

Water Year	CDWF-FWS-FWN flow proposal	YCWA flow proposal	Number of Days Bet. CDFW-FWS-FWN and YCWA proposals
1970	July 19	August 28	42
1976	July 23	July 24	1
1977	Never reaches 1853'	Never reaches 1853'	N/A
1981	August 12	November 9	89 (May-Sept: 49)
1987	August 3	August 7	4
1988	June 11	July 11	30
1992	July 17	August 16	30
1994	July 13	August 22	40
2001	July 27	September 21	56
2002	August 22	Does not go below 1853'	N/A (May-Sept: 39)
2004	July 21	August 31	41
2007	July 22	September 7	48
2008	August 14	October 2	49 (May-Sept: 47)

The DEIS uncritically repeats YCWA's argument almost verbatim:

> The agency flow recommendation would result in the level of New Bullards Bar Reservoir being lower than the end of the Cottage Creek Boat Launch (i.e., visitors could not launch boats) for the entire peak recreation season in critically dry water years, and in August and September in dry water years. YCWA's flow proposal would have this effect only in critically dry water years from June through September.[54]

However one looks at it, there is just no way the data supports this conclusion. It overstates the impacts of YCWA's own proposed operation on access to the Cottage Creek Boat Ramp in addition to overstating the impacts of CDFW-FWS-FWN proposed flows.

Equally, there is no basis for YCWA's argument that the CDFW-FWS-FWN flow proposal would reduce the number of usable days for the Cottage Creek Boat Ramp "in drier years by two to three months."

In counterpoint, one could make an analysis of all the modeled number of days in the peak recreation seasons in the period of record during which there are insufficient reservoir levels for the use of the Cottage Creek Boat Ramp under each scenario. One could then compare that with the much larger number of days under each scenario during which reservoir levels are

[54] DEIS, p. 3-333.

sufficient. One could even construct a table and highlight the great big number of suitable days in green, and disparage the tiny little number of unsuitable days by comparison. However, this would reproduce from the other side of the argument a similarly rhetorical depiction of the facts. We shall refrain. The purpose of an EIS is to accurately disclose impacts. Staff should examine first-hand and reevaluate the data and produce in the FEIS an analysis of impacts to boat ramp access that is accurate and even-handed.

In a similar vein on the same subject, the FEIS should strike the repetition of YCWA's description of the impacts of the CDFW-FWS-FWN flow recommendations on the loss of available surface acres in New Bullards Bar Reservoir. The DEIS states:

> YCWA's proposed flows would provide, in general, greater water surface area in all water year types than the agency flow recommendation. In May through September, the agency flow recommendations would reduce the amount of usable water surface area by five times more than the YCWA proposal in wet water years, 10 to 15 times more in above normal water years, 12 to 29 times more in below normal water years, and 34 to 39 times more in dry water years.[55]

YCWA's argument[56] concerning recreational impacts of reservoir surface area is based on the multiplier of the number of acres by which YCWA's proposal would reduce surface acres on New Bullards Bar Reservoir to get the number of acres that the CDFW-FWS-FWN flow recommendations would reduce surface acres. Since YCWA's proposal is almost identical to existing operations, the change in surface acres under its proposal would be very small. Seeing how many times that very small number would go into the surface acre reduction of the CDFW-FWS-FWN flow recommendations simply verifies that the reduction in acreage under the YCWA proposal is a very small number. Stated differently, multiplying YCWA's very small number by even a factor of twenty or thirty still leads to a very small number of acres by which the CDFW-FWS-FWN flow recommendations would reduce the surface area of New Bullards Bar Reservoir.

A fair comparison would compare the reduction in surface acres under the CDFW-FWS-FWN flow recommendations to the total number of surface acres on New Bullards Bar Reservoir available at any given time. In this case, the average numbers are fairly consistent across the months of May-September because most of the differences between the CDFW-FWS-FWN flow recommendations and the YCWA flow recommendations are in flow requirements in the spring period, before the majority of the peak recreation season.

Table 14 in YCWA's Response to REA Comments provides a comparison of the number of surface acres by which different flow proposals would reduce New Bullards Bar Reservoir, averaged over different water year types at the end of month for May-September. YCWA's Table 14 also presents the average for all of those months for each water year type.[57] Table 4

[55] DEIS, bottom of p. 3-333 and top of p. 3-334.
[56] YCWA Response to REA Comments, pp. 150-152.
[57] There is an error in labelling in Table 14. The heading to the right states "Average Difference in the End-of-Month Water Surface Elevation (ft.), Relative to the Base Case." Presumably, it should state something like Average Difference in the End-of-Month Number of Surface Acres, Relative to the Base Case.

below presents the reduction in surface acres relative to the total number of surface acres of the reservoir at different reservoir levels (full reservoir storage is 966,103 acre-feet).

Table 4: Average percent reduction by water-year type of New Bullards Bar surface acres in May-September in modelled application of CDFW-FWS-FWN flow recommendations, assuming different reservoir levels as shown Sources: YCWA Response to Comments, Table 14 for reduction in number of surface acres; YCWA Operations Model for storage/surface acre relationship

Water yr type	Avg red. acres	Storage (af) 939,000	Acres 4313	Storage (af) 746,000	Acres 4053	Storage (af) 552,000	Acres 3355
Wet	65.1	1.5%		1.6%		1.9%	
AN	70.4	1.6%		1.7%		2.0%	
BN	152.3	3.5%		3.6%		4.5%	
Dry	232.6	5.4%		5.7%		6.9%	
CD	37.4	0.8%		0.9%		1.1%	

The DEIS uncritically reproduces YCWA's deceptive statistics about how the decline in surface acres will be twelve or twenty times greater or, in Dry years, thirty-nine times greater: than something. The fact is that about half the time, the reduction in surface acres would be 2% of the surface area of New Bullards Bar Reservoir or less. In the worst case, the reduction would be well under 10%, still leaving thousands of acres available for boating. YCWA characterizes the impacts of the CDFW-FWS-FWN flow recommendations on water surface area as "significant adverse impacts."[58] This claim is unfounded and hyperbolic.

G. Staff's rejection of most of the measures proposed by CDFW-FWS-FWN for the lower Yuba River would not meet the Commission's responsibility under the National Environmental Protection Act (NEPA) and the Federal Power Act (FPA) to mitigate direct, indirect and cumulative project effects

The DEIS acknowledges that the project is affecting both the flows and riparian habitat in the lower Yuba River yet requires no mitigation for these effects.[59] The rationale for this lack of mitigation is that there are also "other" causes of impacts in the watershed. The Network has repeatedly reminded the Commission of its obligations pursuant to FPA and NEPA to mitigate project effects on fish and wildlife beneficial uses (*see* the Network's REA comments and sections XII and XIII, below). Neither the FPA nor NEPA exempts the Commission from this obligation in the event that multiple causes of effect exist in addition to the project. In fact, both statutes contemplate this occurrence.[60]

[58] YCWA Response to REA Comments, p. 152.
[59] *See* DEIS, p. 3-245: "[E]xisting project effects on riparian habitat along the lower Yuba River are minimal in comparison to past activities." *See also* DEIS, p. 3-154: "[F]lows in the lower Yuba River during March through June … have decreased significantly as a result of project operation."[59]
[60] For more detail, see sections XII and XIII of these comments.

In addition, other legal doctrines hold actors to account for environmental harms regardless of whether multiple actors or factors contributed to the harm.[61] Recent trends have seen many of these doctrines shift from holding individual actors jointly and severally liable for the total harm regardless of proportional share to a more equitable approach.[62] Significant analysis is undertaken to determine the degree that each actor shall be held accountable, exclusively or otherwise, and required to mitigate harm even if it is impossible to identify all the causes of harm or effectively ascertain the percentage of contribution to the harm.[63]

Similar principles should guide the Commission as it considers how to equitably hold the licensee accountable for its share of the harm to resources in the lower Yuba River. Fish and wildlife beneficial uses in the project area have been affected and continue to be affected by the licensee's operations and other causes. The measures adopted and not adopted in the DEIS would shield the licensee from contributing to the mitigation of this harm in preference to assuring that fish and wildlife beneficial uses do not continue to shoulder the burden of this harm. The outcome that would result from the Commission's inaction would be neither legally defensible nor equitable.[64]

The Commission has obligations under NEPA and FPA to assess the project's direct and cumulative effects on the environment and to *develop and adopt* appropriate protection, mitigation or enhancement measures to mitigate the adverse effects of the project. Pursuant to the FPA, a license may be granted only if it is "subject to conditions that the Commission finds best suited for power development and other public uses of the nation's waters." *Am. Rivers v. F.E.R.C.*, 201 F.3d 1186, 1191 (9th Cir. 1999). The FPA "requires the Commission to consider *all* beneficial public uses when it grants a license." *Confederated Tribes & Bands of Yakima Indian Nation v. F.E.R.C.*, 746 F.2d 466, 471 (9th Cir. 1984) ("*Confederated Tribes*") (emphasis added). Specifically, these beneficial public uses include "the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat), and . . .

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[61] Several actions have been brought under the public nuisance doctrine seeking to hold multiple defendants jointly and severally liable for creating, contributing to and maintaining a public nuisance (which has included climate change, air pollution and water pollution). *See Illinois v. Milwaukee*, 406 US 91 (1972) (interstate water pollution); *Cox v. City of Dallas, Tex*. 256 F. 3d 281, 291 (5th Cir. 2001) ("the theory of nuisance lends itself naturally to combating the harms created by environmental problems)"; and *Native Vill. Of Kivalina v. ExxonMobil Corp.,* No. CV-08-1138 (N.D. Cal. Filed Feb. 26, 2008). Other tort liability theories include joint and several liability, alternative liability, strict liability and international environmental liability theories such as polluter pays principle.

[62] An example is the doctrine of alternative liability, which provides flexibility in assignment of responsibility and includes consideration of equity. Generally, a party accused of causing harm bears the burden of proving 1) the harm is capable of being divided and 2) there is a reasonable basis to do so. *See Burlington Northern v. United States*, 556 U.S. 599 (2009). Alternative liability theory holds liable actors causing harm *if* they cannot absolve themselves of liability. In other words, it is the burden of the one causing harm to justify why they should not be held accountable for the harms. *See Summers v. Tice*, 33 Cal. 2d 80 (1947). In contrast, under CERCLA, the default is that anyone that has contributed to the harm can be responsible for mitigating the *entirety* of the harm unless an exception applies where the mitigation obligations can be apportioned. This is a harsh, though effective, legal deterrent. In response, case law and states have gradually moved away from the CERCLA strict liability regime towards a more equitable and proportional approach.

[63] *See Summers v. Tice*, 33 Cal. 2d 80 (1947), which articulated the doctrine of "alternative liability" that is widely used in tort actions to hold liable those causing harm if they cannot absolve themselves of liability.

[64] *Summers*, 33 Cal.2d at 88 ("[E]ach defendant is liable for the whole damage whether they are deemed to be acting in concert or independently.") *See also Martin v. Abbott Labs*., 102 Wn.2d 581, 591 (1984) (Defendants who are unable to prove that they have not caused the harm are held jointly and severally liable.)

irrigation, flood control, water supply, and recreational and other purposes . . .." 16 U.S.C. § 803(a)(1). Pursuant to NEPA, the Commission must analyze any reasonable measures that would mitigate the project's adverse effects. The Commission's EIS must "discuss the extent to which adverse effects can be avoided." *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 352 (1989). This required step is a crucial aspect of the NEPA analysis. "To be sure, one important ingredient of an EIS is the discussion of steps that can be taken to mitigate adverse environmental consequences." *Id.*

Staff's proposal to require no mitigation for project effects on channel condition, the physical composition of the riparian corridor, and the flow of the lower Yuba River does not constitute "adequate" protection or mitigation of fish and wildlife beneficial uses, nor does it constitute an equitable approach to addressing the continuing harm to these uses. In contrast, the non-flow and flow recommendations of CDFW, FWS and FWN, working in combination, present a reasonable yet effective proposal that would mitigate project effects in a proportional manner while considering the needs and constraints of the licensee. The Commission has the opportunity in this case to prevent a "tragedy of commons" in the lower Yuba.[65] Pursuant to its obligations under the FPA to balance the beneficial uses of the waterways consistent with the public interest[66], and under NEPA to analyze and propose mitigation measures for project effects, and informed by accepted legal principles of equity and fairness, the Commission must consider the strategies and measures recommended by the Network and resource agencies that promote an equitable, sustainable water management strategy for the Yuba River.

II. The economic analyses in the DEIS are outdated and inadequate for use in evaluating the costs and benefits of proposed mitigation, protection and enhancement measures.

A. The economic evaluation in the DEIS of different proposals for closing Lohman Ridge Tunnel does not fairly compare the costs of power foregone.

In the DEIS, FERC staff accepts the proposal of the licensee and the USFS to close the Lohman Ridge Tunnel in Wet water years, starting in early April. The DEIS rejects the proposal of CDFW, USFWS, and FWN ("CDFW proposal") to expand the proposed measure to also require the licensee to close Lohman Ridge Tunnel in Above Normal water years, also starting in April.

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[65] Hardin, Garrett. "The Tragedy of the Commons." *Science* 13 Dec 1968: Vol. 162, Issue 3859, 1243-1248. DOI: 10.1126/science.162.3859.1243 "In a reverse way, the tragedy of the commons reappears in problems of pollution … Since this is true for everyone, we are locked into a system of "fouling our own nest," so long as we behave only as independent, rational, free-enterprisers."

[66] *See Mingo Logan Coal Company Inc., v. U.S. Environmental Protection* Agency, 70 F.Supp.3d 151 (2014), at. 160-161. "Under the APA, a court must 'hold unlawful and set aside agency action, findings, and conclusions' that are 'arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law,' 5.U.S.C. § 706(2)(A), in excess of statutory authority, id. § 706(2)(C), or 'without observance of procedures required by law.' Id. § 706(2)(D). A court must be satisfied, though, that the agency has examined the relevant data and articulated a satisfactory explanation for its action, 'including a rational connection between the facts found and the choice made.' *Alpharma, Inc. v. Leavitt*, 460 F.3d 1, 6 (D.C.Cir.2006) (citations omitted) (internal quotation marks omitted)."

The REA comments of FWN and CDFW provided detailed analysis that showed that the cost of closing Lohman Ridge Tunnel in Above Normal years was consistent with the cost, on a per-acre-foot basis, of the proposal from the licensee. Additionally, FWN and CDFW explained how the CDFW proposal for tunnel closures would increase the ability of the project to provide ancillary services. As we discussed in our REA comments, ancillary services will become increasingly valuable in the future.[67]

The DEIS offers no response to our analysis. The sole rationale that the DEIS offers for rejecting the CDFW proposal on additional tunnel closures is that the estimated levelized annual cost of $457,090 is not worth the benefit to the river.

Restoring the flow of the Middle Yuba River back into this diverted river reach in Above Normal years will have many biological benefits. Because of its limited size and storage capacity, Our House Dam has limited ability to control the large flow fluctuations that occur in the spring. Having the diversion take the bottom 800 cfs off the hydrograph only exacerbates the problem. In the DEIS for the Yuba Bear and Drum Spaulding project, FERC staff highlighted the issues associated with rapid flow fluctuations in the spring.

> Rapid changes in streamflow associated with management of spill conditions at dams can have a significant effect on aquatic habitat and the organisms that depend on that habitat. Frequently, dams are operated to sharply curtail flow when inflow decreases to a level when the dam stops spilling at the end of an uncontrolled spill event; the resulting quick decrease in discharge can rapidly dewater habitat and strand aquatic organisms below the dam. Less mobile early life stages such as eggs and tadpoles of foothill yellow-legged frog are particularly vulnerable to stranding and desiccation at these times.[68]

Additionally, the REA comments and conditions filed by the U.S. Forest Service, CDFW and FWS in the present proceeding all point to significant improvements to entrainment, stranding, and channel morphology.[69] The literature on the benefits of natural flow regimes is robust.[70] More years without diversions into the Lohman Ridge Tunnel Middle Yuba, as provided in the CDFW proposal, is certainly better than fewer years.

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[67] Joachim Seel, Andrew D. Mills and Ryan H. Wiser, *Impacts of High Variable Renewable Energy Futures on Wholesale Electricity Prices, and on Electric-Sector Decision Making* (Seel et al.), available at: https://emp.lbl.gov/publications/impacts-high-variable-renewable.

[68] *Draft Environmental Impact Statement for the Relicensing of the Yuba-Bear and Drum-Spaulding Projects,* pp. 226-227, eLibrary no. 20130517-4001.

[69] USDA Forest Service *Preliminary Terms and Conditions and Recommendations, Yuba River Development Project, FERC no. 2246-065,* eLibrary no. 20170825-5050; US Department of the Interior, *Comments, Recommendations, Terms and Conditions, and Prescriptions – Notice Ready for Environmental Analysis for the Yuba River Development Project,* (DOI REA Response) eLibrary no. 20170825-5196; and CDFW Rationale Report, *op. cit.*

[70] Five critical components of the flow regime regulate ecological processes in river ecosystems are: the magnitude, frequency, duration, timing and rate of change of hydrologic conditions (Poff and Ward 1989, Richter et al. 1996, Walker et al. 1995).

The real discussion of this issue needs to focus on the economic benefit of the diverted water. FWN provided substantial analysis on this topic in our REA comments for this project.[71] FWN determined that the value of water left in the Middle Yuba River in Wet water year types under the Licensee/USFS proposal was less than $30 per acre-foot. We found that the value of the water in the CDFW proposal, which would include tunnel closures in Above Normal water years, was also less than $30 per acre-foot and was consistent with the per-acre-foot cost of water in the licensee/USFS proposal. Evaluating the marginal cost, as we have done, is the standard economic practice for determining the optimization of a resource. Using a total cost as a benchmark for the suitability of any potential measure, as staff does in the DEIS, is without foundation. The DEIS offers no rationale for why the annualized cost of the Licensee's proposal of $295,110 is acceptable, while the CDFW proposal, with an annual cost of $457,090, would be too expensive. The FEIS needs to provide a rationale that explains why the purported additional annualized expense of $161,980 would be greater than the value of including Above Normal years in the tunnel closure condition.

B. The DEIS overstates the cost of the CDFW proposal to close Lohman Ridge Tunnel in Above Normal years.

The operations model for this project, used by the licensee and by FERC in determining generation value, is better than most operations models that FWN member organizations have previously encountered in relicensing. In addition, the licensee created a post-processing tool that uses 2016 pricing data to allocate generation to the most valuable hours of the day. This provides a much better analysis than simply multiplying an average power value by the annual amount of foregone generation.

However, the licensee's operations model and its post-processing tool will always allocate available water towards generation. While this may have made sense in the past, on the premise that it was always better to generate than not, substantial increases in solar power have significantly reduced the need for midday generation from other resources. The reduced need for midday generation substantially reduces the value of that generation, which at times can even go negative and force an operator to actually pay to generate power.

As a result of these changes, revenue streams for power facilities like New Colgate Powerhouse will tilt toward ancillary services and away from maximizing generation.[72] This means that maxing out generation anytime water is available will not be the standard practice in the future. If the fast ramping capabilities of the Colgate Powerhouse are to be utilized in the late afternoon as solar generation drops, power generation will need to remain low during the

[71] FWN REA Comments, p. 78.
[72] Seel, et al., *op. cit*., p. 5:

> As a result, ancillary service prices are thought to rise with higher variable renewable energy (VRE) penetration, in particular for regulation services – non-spin (and to some extent spinning) reserves seem to be less affected (Deetjen et al., 2016; Hummon et al., 2013; LCG Consulting, 2016; Levin & Botterud, 2015). Finally, because of the aforementioned decrease in average wholesale energy prices, studies find an increase in the relative revenue from ancillary service and capacity markets, and scarcity price events.

middle of the day.[73] This also means that if New Bullards Bar Reservoir is at capacity in the spring, then more water will be spilled into the North Yuba River downstream.

The operations model does not capture these new features of energy markets. The operations model will always allocate water towards generation rather than spilling or otherwise releasing water without generating power. As shown in a sample Wet year (1982) in Figure 10, the New Colgate powerhouse is at its maximum generation capacity when NBB is spilling or at capacity. While the model will allocate water to the highest value hours, it will still divert water for generation when power values are extremely low, or even negative. In the real world, the licensee would choose to spill water rather than generate when power prices were very low or negative. This would be particularly true if operating at less than powerhouse capacity would allow the licensee to provide ancillary services with a net value greater than the "lost" low-value baseload power. This combination of circumstances is most likely to occur in the spring of Wet and Above Normal water years, precisely when the CDFW proposal for tunnel closure would be in effect.[74]

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[73] *Id.*, p. 24:

> The ubiquity of such low-priced hours has significant impacts on all participants in the electricity market, which motivates further exploration of the impact of high VRE scenarios on electric sector decisions. The low prices signify that generation during those hours has very little value. Flexible generators that can ramp down during low-priced hours can lower their variable fuel costs, while inflexible generators will sell power at a loss.

[74] *Id.*, p. 25:

> Those price-decreasing effects do not necessarily have the largest magnitude in the summer at peak solar production, but occur, for example, in CAISO during the spring season when overall electric demand is lower and hydropower output is substantial (the price-decreasing effect of the solar generation is actually the smallest over the summer months in CAISO, as higher load-levels and lower non-VRE generation compensate for the solar production increase). In fact, across all regions, the solar price-effect is obvious over more hours in the spring than in the summer.

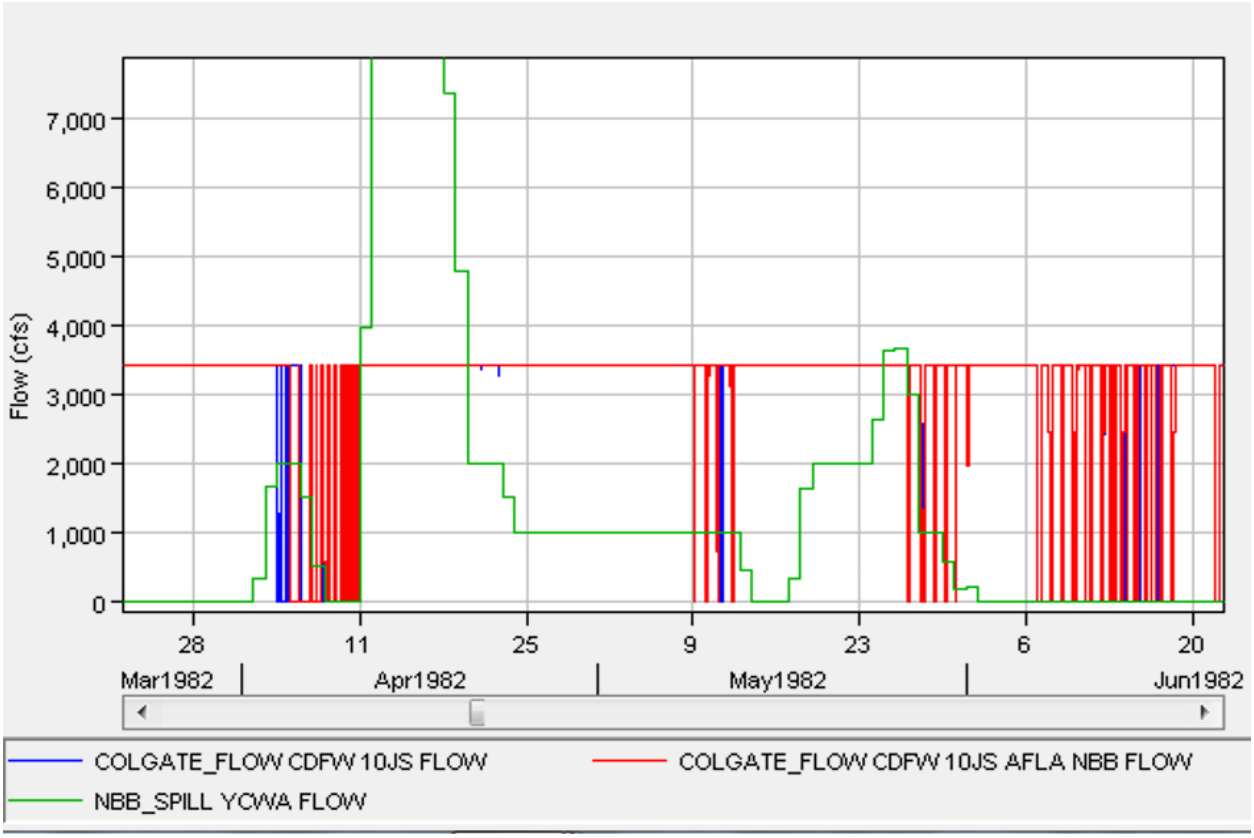

Figure 10: YRDP Operations model output showing long periods of maximum flow through New Colgate Powerhouse. Blue line represents implementation of all CDFW flow recommendations. Red line represents implementation of all CDFW flow recommendations except flows for North Yuba River downstream of New Bullards Bar Dam. Green line represents spill from New Bullards Bar Reservoir.

During a sample Wet spring period, the 2016 pricing data in Figure 11 shows substantial price variability, with several days where the price approached zero. This means that while the grid was experiencing dramatic changes in the need for power, both increases and decreases, the model was operating the powerhouse for much of this period in a baseload capacity, providing no grid regulation services.

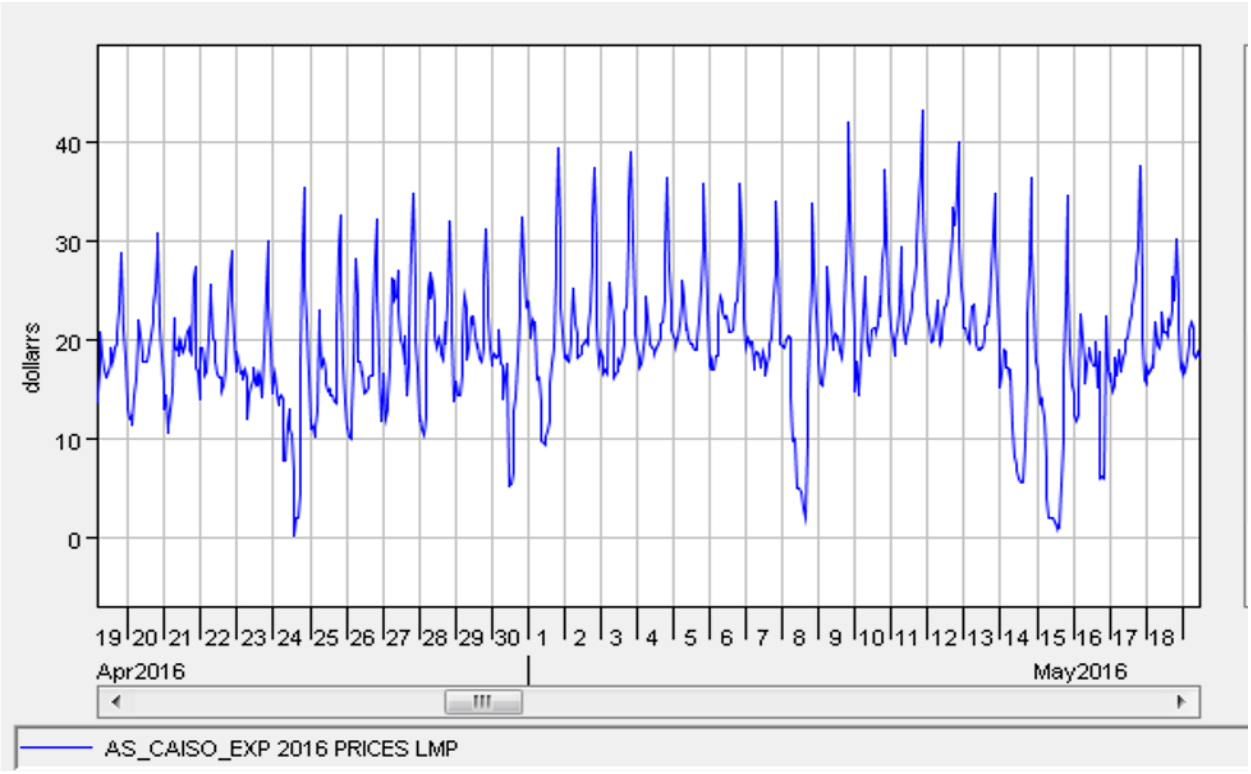

Figure 11: California intra-daily of electricity prices, April 19 – May 19, 2016. Source: California Independent System Operator, http://oasis.caiso.com/mrioasis/logon.do

If the project is operated to maximize its grid-regulating capabilities in the future, as it should be, it will not maximize generation at New Colgate Powerhouse for long periods of time. Most importantly, the powerhouse will not use as much water in maximizing grid regulation as it would in maximizing power generation.

Because of this new response to energy market dynamics, it is very likely that the additional years of tunnel closure in the CDFW proposal would have far smaller cost than the operations model and the analysis in the DEIS suggest. FWN believes that water would have more benefit left in the Middle Yuba River under the CDFW proposal for tunnel closures than it would if diverted to New Bullards Bar and either spilled or run through New Colgate Powerhouse for minimal and decreasing generation revenue.

C. The DEIS likely overstates the economic impacts of flows proposed by CDFW, USFWS, and FWN for the North Yuba River downstream of New Bullards Bar Dam.

The analysis of energy values in changing markets described above also has applicability to the flows recommended by the CDFW, USFWS and FWN for the North Yuba River downstream of New Bullards Bar Dam.

Power foregone due to increased flows in the New Bullards Bar reach would be distributed throughout the year. It is reasonable to expect that the licensee would apportion the

loss of power over the season, as well as over the course of each day, to the times at which the value of power is lowest. However, it is also true that apportioning generation over the season or within any given day is not a precise exercise. It is fair to assume that the unpredictability of power prices would apply roughly equally to generation and generation foregone.

The licensee's post-processing tool seeks to simulate power prices over the course of the season as well as within the day. It seeks to allocate power-foregone to the least valuable times to generate. Conceptually, this makes sense, and is methodologically superior to simply applying an average unit cost to each MWH and multiplying by the unit cost by the number of hours foregone. The question lies in the future price of the least valuable generation. This is particularly germane to the YRDP because the CDFW-FWS-FWN proposed flow measures would reduce the overall generation by only about 5.5%, 2.2% more than the licensee's proposal, for a stated average annual power revenue cost of $1.1 million more than the cost of YCWA's proposal.[75] The licensee's post-processing tool at present assigns the least valuable generation an average of about $26.00 per MWH, roughly three-quarters of the value of average generation. Given the increasing variation of intra-daily power prices, and the apparently shortening time period with each day that peak prices apply, FWN questions the validity of the finding that the cost of power foregone to meet the New Bullards Bar reach flows will reach a level three-quarters that of the average price of project power. Thus, it is likely that the $578,090 annualized cost of providing additional flows in the North Yuba River downstream of NBB dam stated in YCWA's Response to Comments and in the DEIS overestimates the cost of foregone generation revenue.

The California Independent System Operator (CAISO) has introduced special pricing for power facilities that can provide fast ramping to meet the late afternoon need for power. This suggests that the timing and flexibility of New Colgate generation will likely increase the relative value of the most valuable generation at that facility and shorten the duration in which the most valuable generation occurs, partly mitigating any revenue loss from increased North Yuba River flows.

The CDFW-FWS-FWN proposed flows in the New Bullards Bar reach would in no way reduce the flexible capacity of the project. Because this water would reach Englebright reservoir the same day as water released through Colgate Powerhouse, it would not impact YCWA's ability to make in-basin consumptive deliveries or out-of-basin water transfers.

D. Power generation needs and energy markets will continue to change

Energy markets are continuing to change rapidly in California and across the country. Increases in renewable energy in California are not speculative: they are mandated by the state. Yet this DEIS provides almost no acknowledgment of this changing landscape.

The DEIS does acknowledge that the YRDP has unique capabilities in the services that it can provide helping to manage the grid.

[75] YCWA Response to REA Comments, Appendix 6, Table 2-2, p. 4.

The New Colgate Powerhouse is used for a combination of peaking, ancillary services, and some baseload generation. Depending on energy demand, the New Colgate Powerhouse generation can ramp up (or down) from a minimum of 1 MW with only one unit operating to the nameplate capacity of 315 MW with both units operating in less than 10 minutes. The ability to rapidly fluctuate generation, together with substantial storage available in New Bullards Bar Reservoir, makes the project unique to Northern California and important to grid stability.[76]

Given this fact, it is surprising that the DEIS provides no analysis of how the various flow measures impact, or benefit, the project's ability to provide these important grid services.

Instead, the first page of the Developmental Analysis section of the DEIS provides the standard reference to FERC policy regarding economic analysis:

> Under the Commission's approach to evaluating the economics of hydropower projects, as articulated in *Mead Corp.*, the Commission compares the current project cost to an estimate of the cost of obtaining the same amount of energy and capacity using the likely alternative source of power for the region (cost of alternative power). In keeping with Commission policy as described in *Mead Corp.*, our economic analysis is based on current electric power cost conditions and does not consider future escalation of fuel prices in valuing the hydropower project's power benefits.[77]

This recitation of a twenty-three-year-old order applies a policy that has become purely and simply inaccurate for evaluating current power market realities in California and across the country. The statement assumes that fuel costs will rise in the future. However, the increase of wind and solar generation, both of which have zero fuel cost, is driving down average energy prices.[78] The DEIS provides no analysis of how alternatives will change grid regulation capacity or how the increased need for that capacity will change operations. In keeping with the existing Commission policy, staff needs to evaluate how alternatives will change the capacity of the project.

The 1995 Order from which the cited policy derives left the door open to improved analysis:

> We recognize that there may be other, equally valid approaches that we could employ. We remain open new ideas on this subject, and to suggestions on further improvements in our analysis.[79]

The problem of making decisions for the future based upon past realities is unfortunately common.

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[76] DEIS, p. 2-11.
[77] DEIS, p. 4-1.
[78] Herman K. Trabish, *Prognosis negative: How California is dealing with below-zero power market prices*, Utility Dive, May 11. 2017. Available at: http://www.utilitydive.com/news/prognosis-negative-how-california-is-dealing-with-below-zero-power- market/442130/
[79] *See Order Issuing New License*, the Escanaba Project, FERC no. 2506, licensee the Mead Corporation, July 13, 1995, eLibrary no. 19950714-3057, p. 11.

> Many long-lasting decisions for supply- and demand-side electricity infrastructure and programs are based on historical observations or assuming a business-as-usual future with low shares of variable renewable energy (VRE).[80]

The time for the Commission to reevaluate how it values hydropower projects is now. Relying on this twenty-three-year-old order, which does not consider the future of energy markets, and does not serve energy needs, hydropower operators, or river systems today, will fail on an ever-increasing scale in the future.

E. The DEIS relies on the licensee's valuations of water transfers without independent analysis or citation adequate to reconstruct essential assumptions.

The DEIS's table of costs for each proposed measure shows on page 4-16, item 4 that the annual and annualized cost to the licensee of implementing the CDFW-FWS-FWN-proposed flows for the lower Yuba River is between $3 million and a whopping $50 million dollars. The footnotes on pp. 4-32 and 4-33 of the DEIS provide the sources of staff's economic evaluation of the costs of various proposed measures, and show that the source of these costs estimates is an unspecified statement by the licensee. The high end of these costs is unsupported by substantial evidence and is frankly hyperbolic.

It is not clear from which passages in YCWA's documents staff drew to arrive at the stated figure of $50 million. One can surmise that 80% of this figure came from the unsubstantiated claim in YCWA's Appendix 9 of its Response to REA Comments that the CDFW-FWS-FWS flows would have caused the loss of $40 million in water transfer revenues in 2014.[81] The other $10 million of alleged losses may have originated from the addition of the largest single year ascribed loss of power revenue (purportedly $7.6 million in 2009,[82] a different year than 2014) and another $2 million from an unknown cause. The DEIS offers no hint how staff arrived at such a fine round number as $50 million.

YCWA's assertion that it would have lost $40 million in transfer revenue in 2014 has no modeling support because the modeling period of record ends in 2010. Appendix 9 of YCWA's Response to Comments claims without explanation that CDFW, FWS and FWN would have deprived YCWA of the ability to transfer "almost all" of a total of 162,000 acre-feet that it actually sold on the transfer market in 2014.[83] It is difficult to understand why that particular volume of water would not have been available. Within the year 2014, there would be a difference in flow requirements downstream of Englebright Dam between YCWA's proposed flows and those proposed by CDFW, FWS and FWN of 7500 acre-feet in a Schedule 6 year.[84] The argument may be that there would have been 162,000 minus 7500 acre-feet less water in

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[80] Trabish, *op. cit.*, p. 1.
[81] YCWA Response to REA Comments, Appendix 9, p. 30.
[82] *Id.*, p. 31.
[83] *Id.*, p. 30.
[84] YCWA claims that with the CDFW-FWS-FWN flow requirements for the lower Yuba River in place, 2014 would have become a Schedule 6 year instead of a Schedule 5 year. *Id.*

storage in 2014 because of operations in 2013, but the rationale for the difference (154,500 acre-feet) is unsupported and fraught with unstated assumptions.

One could speculate that reduced storage in 2014 might have been attributable to a 117,000 acre-foot increased flow requirement from April 1-May 15 of 2013, a Schedule 2 year. If one assumed that YCWA would simply have released that additional water in 2013 and otherwise kept operations the same, this would potentially account for 76% of the hypothetically unavailable water. However, the actual average release of water in April and the first half of May in 2013, as shown in YCWA's Figure 10,[85] was about 1000 cfs, not the required 700 cfs in April or 800 cfs in the first half of May; this actual practice reduces the speculative unavailable water to about 102,000 acre-feet, or about 66% of the hypothetically unavailable water.[86] This still leaves 52,000 acre-feet of allegedly unavailable water unaccounted for.

Attributing reduced transfer water in 2014 to operations in 2013 embodies other assumptions. This operation does not seem consistent with YCWA's target storage operation, and it may be that YCWA would have retained more water in storage into the autumn of 2013 if compelled to release more in April and May of 2013. This retained storage might have reduced 2013 transfers, some of which would possibly have been available for transfer in 2014 at a higher unit cost. Alternatively, additional water released as required flow in 2013 might have been made up by decreased local deliveries, with local farmers electing to pump groundwater and retain the proceeds of water sales.

Additional groundwater pumping in 2013 seems one likely response to reduced New Bullards Bar storage. The DEIS claims that in 2013 and 2014, YCWA's sales from water transfers were $60 million, "$58 million of which went to groundwater pumping entities (Creasey, 2016)."[87] Assuming the approximate correctness of the claim that groundwater pumpers are the recipients of virtually all transfer revenues, groundwater pumpers would reap revenues from these transfers far greater than the costs of pumping groundwater to irrigate their crops. The DEIS claims, without reference, that YCWA reimbursed farmers in 2015 $35/acre-foot to pump groundwater to offset the cost of unavailable surface water deliveries.[88] If this unsupported figure is indeed accurate, the value to the farmers of the transfer water would make pumping groundwater a wise short-term business decision.

One cannot attribute water unavailable in 2014 back to storage reductions in 2012. In December of 2012, there were storms that by December 31 had 794,000 acre-feet of water in

[85] This Figure is in YCWA Response to REA Comments, Appendix 9, p. 30.
[86] Since YCWA based its analysis/argument of 2014 water transfers under the CDFW-FWS-FWN flows requirements on historical rather than modeled operations, it is appropriate to use historical releases in reconstructing the hypothetical water transfer scenario. This assumes that YCWA would have continued to make these transfers in 2013, an assumption that appears supported by YCWA's claim that impacts to water transfers in 2013 would have been $2.5 million.
[87] DEIS, p. 3-396. This incorporates still another assumption. The reliability of these figures is not based on substantial evidence. "Creasey, 2016" refers to a newspaper article in the Marysville Appeal-Democrat that attributes these financial figures to a (subsequently elected) candidate for the YCWA Board of Directors during a campaign debate. The DEIS should have cited to a more reliable source, such as YCWA financial reports, or should have directed YCWA to provide relevant information in an Additional Information Request.
[88] DEIS, p. 3-400.

New Bullards Bar, effectively at the maximum reservoir level allowed under the reservoir's flood reservation (Figure 12).

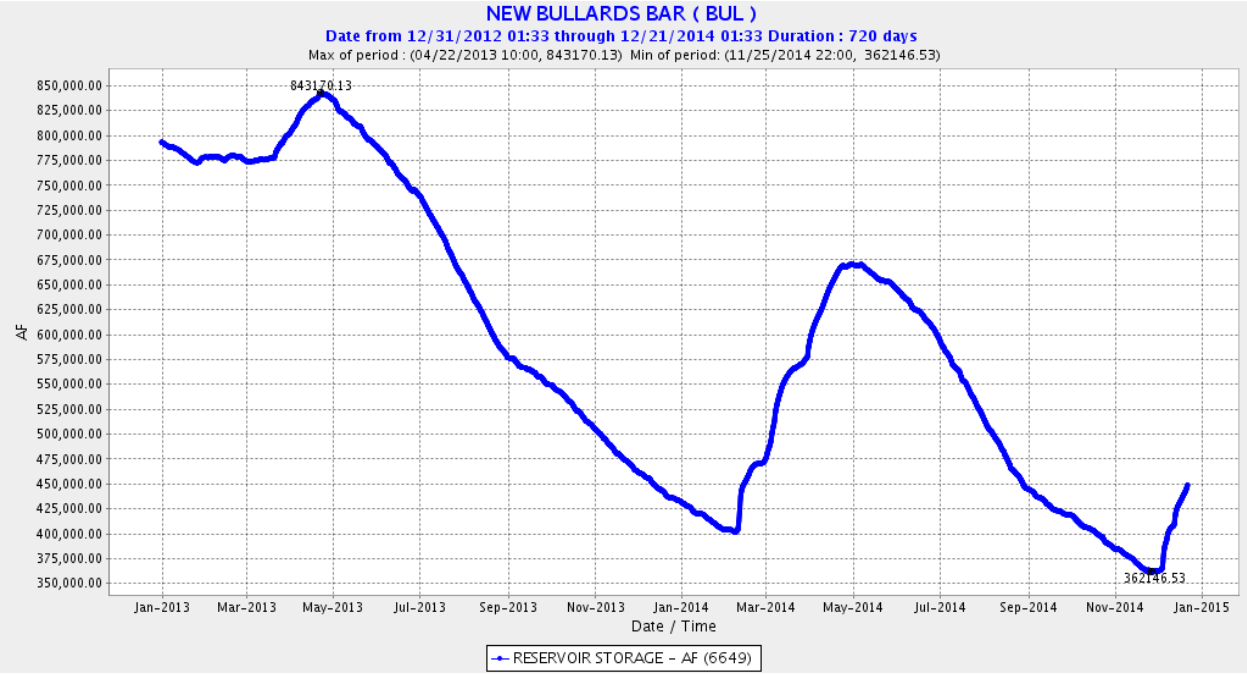

Figure 12: New Bullards Bar Reservoir actual storage December 30, 2012 to December 21, 2014. Source: California Data Exchange Center

Figure 12 shows that in actual operations in both 2013 and 2014, New Bullards Bar end-of-September storage (about 575,000 acre-feet in 2013 and 440,000 acre-feet in 2014) was well below that lower target operating line of 650,000 acre-feet. This lower-than-desired storage level responded both to exceptionally dry conditions in calendar years 2013 and 2014 and no doubt to lucrative transfer opportunities during those years, at a time when water available for transfer elsewhere in the state started out limited and ended up extremely scarce. This deviation in practice from default operations begs the question, what other actions would YCWA take to reasonably optimize transfer revenue opportunities in sequential dry years?

Based on figures that YCWA provides in Appendix 9 of its Response to REA Comments, YCWA transferred 162,000 acre-feet of water in 2014 for total revenue of $40,000,000.[89] This averages to a price per acre-foot of $247. However, the price per acre-foot was almost certainly not uniform. In addition, on October 10, 2014, DWR announced a new price schedule effective September 30, 2015 for contracted Yuba Accord transfer water, at a stated price of up to $350 per acre-foot in "Sequential Dry or Critical years."[90] Still further, a document from the

[89] YCWA Response to REA Comments, Appendix 9, p. 30.
[90] *Notice to State and Federal Water Contractors Participating in the Dry Year Water Purchase Program Pursuant to the Yuba River Accord Water Purchase Agreement* (hereinafter, Notice to Contractors), p. 2. Available at http://sire.cvwd.org/cache/2/310ch204utitiygy4aoqd1zv/28907072720180154021 56.PDF

Metropolitan Water District of Southern California (MWD) from May, 2015 shows MWD paying $665 per acre-foot to YCWA for transfer water in 2015.[91]

Finally, it bears noting that 2013-2015 were some of the driest water years on record. In this type of dry year sequence, various management actions specific to those years become the norm. These actions may include requests for flow variances. They may also include short-term reliance on groundwater pumping at a level that would not be sustainable on a long-term basis. Hypotheses about what an entity might do or might have done under different initial storage conditions is much more speculative than under conditions where water resources are less stretched. Throughout the relicensing process, YCWA's water resources staff reminded relicensing participants that in the "real world," operation at the edge of stated boundaries is generally more conservative than modeling represents. When conditions reach 98% or 99% exceedance, such disclaimers generally become even stronger: in years like 2014 and 2015, many modelers argue that model results become unrepresentative of how water managers would respond.

YCWA is in the very unusual position of having water available that is surplus to local water supply needs and that is thus for sale in almost all years. Dry year sequences offer YCWA high revenue opportunities as well as water management problems. Almost every other California water purveyor would be thrilled to be in the water-rich position in which YCWA found itself in 2013-2015, when the issue was as much how much money YCWA and its farmers could make on transfers as it was how much water local deliveries were going to be short. The Network finds it hard to accept that YCWA is entitled to a $40 million windfall during severe drought conditions at the cost of reasonable flow improvements in a previous year, a year in which YCWA also transferred substantial amounts of water and in which the estimated cost in transfer revenues of those flow improvements would have been $2.5 million.[92] It is even less reasonable to short Schedule 2 year flows on the planning basis that the following year might be the second driest year in a forty-five year period of record and that lucrative water sales could be reduced in that event.

In conclusion, the Network freely admits that the analysis we present here of the alleged $50 million bookend cost of the CDFW-FWS-FWN flow proposal is disjointed and hard to follow. First, this is because neither the DEIS nor YCWA's Response to REA Comments presents all the relevant parts needed to conduct a simple analysis, let alone make a determination on balancing the uses of the waterway consistent with § 10(a) of the Federal Power Act. Second, it is due to the fact that both YCWA and the DEIS present their information on impacts to water sales in a disorganized and selective way. In neither document is there a coherent statement of the relevant facts, such as tables showing water sales or agreements, or an analysis that derives from them. The result is a statement of impacts to a largely undescribed and unknown practice and interest.

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[91] May 11, 2015 presentation to Metropolitan Water District Board of Directors, slide 5. Available at: http://mwdh2o.granicus.com/MetaViewer.php?view_id=12&clip_id=4529&meta_id=103887

[92] YCWA Response to REA Comments, Appendix 9, p. 30. Neither the DEIS nor YCWA in its Response to REA comments states the revenue benefits of water transfers.

The DEIS starts from YCWA's incomplete hypothetical of a worst-case scenario of impacts to water sales. That scenario appears to the Network to have been designed to present the largest impact possible. The DEIS displays no evident effort to reproduce YCWA's reasoning or to present the relevant information, let alone verify it or even qualify it. The DEIS simply accepts YCWA's advocacy as fact and does not meet the test of substantial evidence.

F. The DEIS overstates the impact to YCWA from the loss of water sales due to instream flow requirements because it does not account for the likelihood of increasing demand for transfer water and reduced supply from other sources.

The State Board's previously cited Framework *for the Sacramento/Delta Update to the Bay-Delta Plan* (Framework), released on July 6, 2018, sets forth the expectation that inflow to the Sacramento – San Joaquin Delta will be a minimum of 55% of the unimpaired inflow in all months. The Framework sets forth the expectation that as a default each tributary to the Sacramento River and each "eastside" tributary to the Delta will contribute 55% of its individual flow in order to contribute to meeting the overall inflow requirement.[93] The Framework articulates the purpose and need for the update of the Bay-Delta Plan as follows:

> Populations of native aquatic species in the Bay-Delta watershed have shown significant signs of decline since the last major update and implementation of the Bay-Delta Plan in the 1990s. While natural conditions have not existed in the Bay-Delta watershed for more than a hundred years, many of the native fish and wildlife species that are now at the verge of extinction maintained healthy populations until the past several decades when water development intensified. While there are also other factors involved in the decline of these species, water diversions and the corresponding reduction in flows those diversions cause, are significant contributing factors. A significant and compelling amount of scientific information indicates that restoration of natural flow functions is needed now to halt and reverse these declines in an integrated fashion with physical habitat improvements.[94]

The point here is not to argue the eventual determinations of the update of the Bay Delta-Plan or its implementation. Rather, it is simply to point out that as more water in the future (in whatever amount) is dedicated to Delta inflow and outflow, there will likely be an increasing demand for transfer water and a decreasing supply. Urban water agencies in the transfer market, which are traditionally able to pay two to three times the price offered by agricultural purchasers, are likely to increase in number and need. Among those urban agencies likely to increase reliance on transfer markets are the San Francisco Public Utilities Commission, Zone 7 Water Agency, and the Metropolitan Water District of Southern California.

YCWA already has regularly scheduled re-evaluations of transfer price structure.[95] It is reasonable to expect that due to increased demand and decreased supply, YCWA's transfer sales

[93] Framework, p. 2.
[94] *Id.*, pp. 5-6.
[95] Notice to Contractors, *op. cit.*, pp. 3 and 6.

will increase in value per acre-foot over time. The revenues that derive from this increase in unit cost are likely to overwhelm any reduction in YCWA's available supply.

The DEIS's limited geographic scope for water resources does not account for these broader trends affecting impacts to YCWA's transfer revenues. The transfer market in which YCWA operates is statewide. The FEIS should expand the geographic scope of its analysis of water resources in order to properly situate YCWA's water transfer operations and more accurately analyze the long-term prognosis for YCWA's water transfer revenue stream.

III. The DEIS appropriately recognizes the project's role in limiting large woody material in the lower Yuba River, and the Staff Alternative's recommended mitigation measure will have important benefits to fish.

Pages 3-187 of the DEIS describes the project's impacts on limiting large woody material in the lower Yuba River. Pages 3-187 and 3-188 describe the prospective value of a license requirement to establish a large woody material augmentation program. Though we disagree with the comment that large woody material should not involve "non-natural anchoring systems"[96] in any cases, we generally agree with the analysis in the DEIS of the need for augmentation of large wood in the lower Yuba River.

The DEIS notes the differences in the recommendations of the FWS and National Marine Fisheries Service (NMFS). The Staff Alternative, and recommends that the licensee (apparently) develop and implement a Large Woody Material plan "in consultation with the resource agencies and the Commission."[97] The Network offers its objection that staff envisions plan development without the participation of the Network or other NGO stakeholders or members of the public. The development and implementation of such a plan and the associated reviews recommended in the DEIS are perfectly suited to the Ecological Group proposed by FWN and the agencies, and agreed to by the licensee.

It is unclear to the Network whether the estimated cost of developing and implementing a Large Woody Material plan is accurate, because the DEIS does not provide guidance on the level of effort that staff anticipates. The FEIS should provide guidance on staff's expected range of number of pieces, size and characteristics of wood, and geographic focus. It is not advisable to approach development of a plan when there may be widely differing visions of both need and expectations.

IV. The Network supports and appreciates inclusion in the Staff Alternative of reasonable public access to the North Yuba River Downstream of New Bullards Bar Dam and inclusion of other measures to improve river recreation.

The DEIS very clearly describes the rationale for requiring vehicular access to the North Yuba River downstream of New Bullards Bar Dam:

[96] DEIS, p. 3-187.
[97] DEIS, p, 3-188.

> Providing vehicular access as the agencies and FWN recommend would be reasonable because it appears that: (1) access is likely constraining river-based recreation; (2) providing public vehicular use on the access road can be provided concurrent with providing security at project infrastructure; and (3) improved access is necessary to support whitewater boating and other river-based recreation uses downstream of New Bullards Bar Dam.[98]

The Network supports Staff's analysis and feels that this description accurately depicts the reality on the ground.

In the FWN REA Comments, the Network raised a concern over lack of clarity on the responsibility of the USFS and YCWA to support and fund recreational use at the Oregon Creek Day Use Area. The Network appreciates the fact that DEIS directs the licensee to revise the Recreation Facilities Plan to clarify this responsibility to operate and maintain the Oregon Creek Day Use Area to support whitewater boating.[99]

American Whitewater and YCWA reached a pragmatic and workable agreement on access, particularly for boaters, at Our House Dam. This outcome is discussed in the Recreation Facilities Plan dated March, 2018.[100]

American Whitewater and the licensee also reached agreement to provide whitewater boating flows of 600 to 2,000 cfs below Our House Diversion Dam on weekends between October 1 and March 31, with the frequency and flow amount determined by water year type (RR3). This measure will improve whitewater recreation on this popular run by providing some flow opportunities in most years.

The Network supports the recommendations for river access for whitewater boating and other river recreation opportunities.[101] As part of the proposed Recreation Facilities Plan (RR1), YCWA would improve access at the New Colgate Powerhouse (take-out downstream of the confluence) by constructing a river access trail from the existing parking area. Additionally, YCWA and American Whitewater reached agreement to provide a shuttle service across New Bullards Bar Reservoir (take-out for boating upstream of New Bullards Bar Reservoir).[102] We are appreciative of the acknowledgement in the DEIS of the difficulty that whitewater paddlers might experience by being required to paddle more than 10 miles across New Bullards Bar Reservoir to reach the takeout on the reservoir shoreline.[103] The Network thanks YCWA for its work in reaching these agreements and thanks staff for its acknowledgment.

The Network additionally supports and agrees with the staff acknowledgment of the foreseeable socioeconomic benefits related to improved recreational access and increased whitewater boating opportunities. The DEIS notes that additional visitation as result of the

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[98] DEIS, pp. 3-324 and 3-325.
[99] DEIS, p. 5-29.
[100] DEIS p. 2-31.
[101] DEIS, p. 3-326.
[102] DEIS, p. 3-325.
[103] DEIS, p. 3-326.

proposed upgrades to campgrounds and trails would be associated with local and regional spending that would benefit the local economy through purchase of gas, food, lodging, and supplies. Similarly, new recreation opportunities provided by whitewater boating flows would result in other beneficial effects on local area economies.[104]

A. Consultation with interested whitewater boating parties regarding woody material and sediment enhancement is important for maintaining safe access to and recreational navigation of whitewater sections on the North Yuba River.

The Network agrees with the agencies' recommendation that would require YCWA to plan the locations for anchoring LWM in consultation with others, including interested whitewater boating parties. Such planning is critical for minimizing the likelihood that boaters will encounter large wood boating hazards in the reach.[105] Such hazards could increase the risk to boaters of a rescue or life-threatening event.

We strongly support the staff recommendation in the DEIS that states:

> [W]e recommend that YCWA, in consultation with FWS, NMFS, the Forest Service, and California DFW, develop a LWM enhancement plan that: (1) identifies sources of LWM in the project reservoirs; (2) includes provisions for storing and transporting collected LWM; (3) identifies suitable LWM size classes for placement; (4) identifies locations for placement in the lower Yuba River; (5) details a consultation process to determine LWM placement that includes relevant agencies and whitewater boating interests (e.g., American Whitewater); and (6) contains a monitoring and mapping process to provide an indication of the stability of these enhancements and inform the need for future placement activities.[106]

B. Publicly available and reliable real-time flow information is important for maintaining recreation opportunities on various reaches downstream of project facilities.

The lack of reliable and publicly available flow information constrains recreational boating and other river recreation in various reaches downstream of project facilities. In this regard, the DEIS notes: "The Forest Service recommends (10(a) recommendation 18) providing public flow information from gages on the North Yuba River downstream of New Bullards Bar Dam and the Yuba River at Smartsville and Marysville.[107]

The Network supports and appreciates the staff recommendation that YCWA provide to the public recreation flow information and provisional forecasts for the Middle Yuba River, North Yuba River, and lower Yuba River on a real-time basis. The Network appreciates the staff

[104] DEIS, p. xlii.
[105] DEIS, p. 3-335.
[106] DEIS, p. 5-22.
[107] DEIS, p. 3-328.

acknowledgment that this measure would provide a benefit to recreational boaters, anglers, and other river recreational users.[108]

C. FWN supports development of a plan for management of, allotment for, and public notification about whitewater recreational releases below Our House Dam.

The Network agrees with staff that the project affects whitewater boating opportunities on the reaches downstream of New Bullards Bar Dam and Our House Diversion Dam.[109] The Network supports the staff recommendation that YCWA, in consultation with others, develop a plan to specify scheduling, flow, duration, and method of public notification of flows for the reach downstream of Our House Diversion Dam.[110] A collaboratively developed plan will allow whitewater boaters to take advantage of the new recreational opportunities on sections of river downstream of Our House Dam. It will also promote implementation of a reasonable, timely public notification system for announcement of recreational releases and flow information.

V. Relicensing participants resolved several issues analyzed in the DEIS while the DEIS was in preparation.

In April, 2018, relicensing participants resolved a disagreement regarding the duration of the recession rate downstream of Englebright Dam. The licensee filed a description of this agreement with the Commission on April 27, 2018.[111] The Network thanks YCWA for the agreement and recommends that the FEIS analyze this measure as agreed to.

Also in April, 2018, relicensing participants resolved a disagreement regarding the reevaluation of water year types for the lower Yuba River in Februaries following Schedule 5, 6 and 7 years. The licensee filed a description of this agreement with the Commission, also on April 27, 2018.[112] The Network thanks YCWA for the agreement and recommends that the FEIS analyze this measure as agreed to.

VI. The DEIS inappropriately rejects aquatic protection measures proposed by CDFW, FWS and FWN for the North Yuba River downstream of New Bullards Bar Dam

A. The new license should require augmentation of gravel and large wood in the North Yuba River downstream of New Bullards Bar Dam.

The project directly cuts off sediment and wood from the reach of the North Yuba River downstream of New Bullards Bar Dam. The adoption of measures recommended by FWN, CDFW, FWS and the State Board to augment gravel and wood in the New Bullards Bar reach of

[108] DEIS, p. 5-30
[109] DEIS, p. 529
[110] DEIS, p. 5-29
[111] Letter from James Lynch to Secretary Bose, April 27, 2018, eLibrary no. 20180427-5220.
[112] Letter from James Lynch to Secretary Bose, April 27, 2018, eLibrary no. 20180427-5223.

the North Yuba River would create habitat for fish and wildlife in an otherwise exposed and sediment-starved reach of the river.

The DEIS applies an average rise-over-run metric for the entire 2.4-mile reach below New Bullards Bar Dam, finding as a result that placement of large wood and gravel would be ineffective.[113] However, the slope of much of this reach is largely flat, broken up by several steep drop-offs. The flat areas could retain sediment and large wood for a longer period of time than the DEIS suggests.

The DEIS suggests that adding large wood and sediment to the New Bullards Bar Reach would be too expensive considering the benefit.[114] However, the licensee could implement this measure by using a tube-type apparatus similar to that which the Army Corps uses to augment gravel in the lower Yuba River. The DEIS did not estimate the cost of this measure based on this type of design. Rather, the DEIS appears to have used cost estimates based exclusively on helicopter transport, a very expensive method of augmenting gravel.

The DEIS states that adding large woody material to the New Bullards Bar Reach would not improve "the angling quality for the overall reach would probably remain low because the steep canyon walls and predominance of private land limit access up and down the river shoreline for angling."[115] However, the Bear Yuba Land Trust has been actively acquiring parcels in this area and is in the process of building a trail for use by fisherman and other recreationists.[116] A map of this trail is depicted in Figure 13, showing access to the New Bullards Bar Reach. The trail provides new and remarkable access to this reach, offering the public access to a previously unreachable stretch of river. Photos of the river view from the bottom of the trail are provided in Figure 14.

[113] DEIS, pp. 5-41 and 5-42.
[114] DEIS, p. 3-20; DEIS, p. 5-42.
[115] DEIS, p. 3-335.
[116] Erin Tarr, Bear Yuba Land Trust, Executive Director, pers. comm.

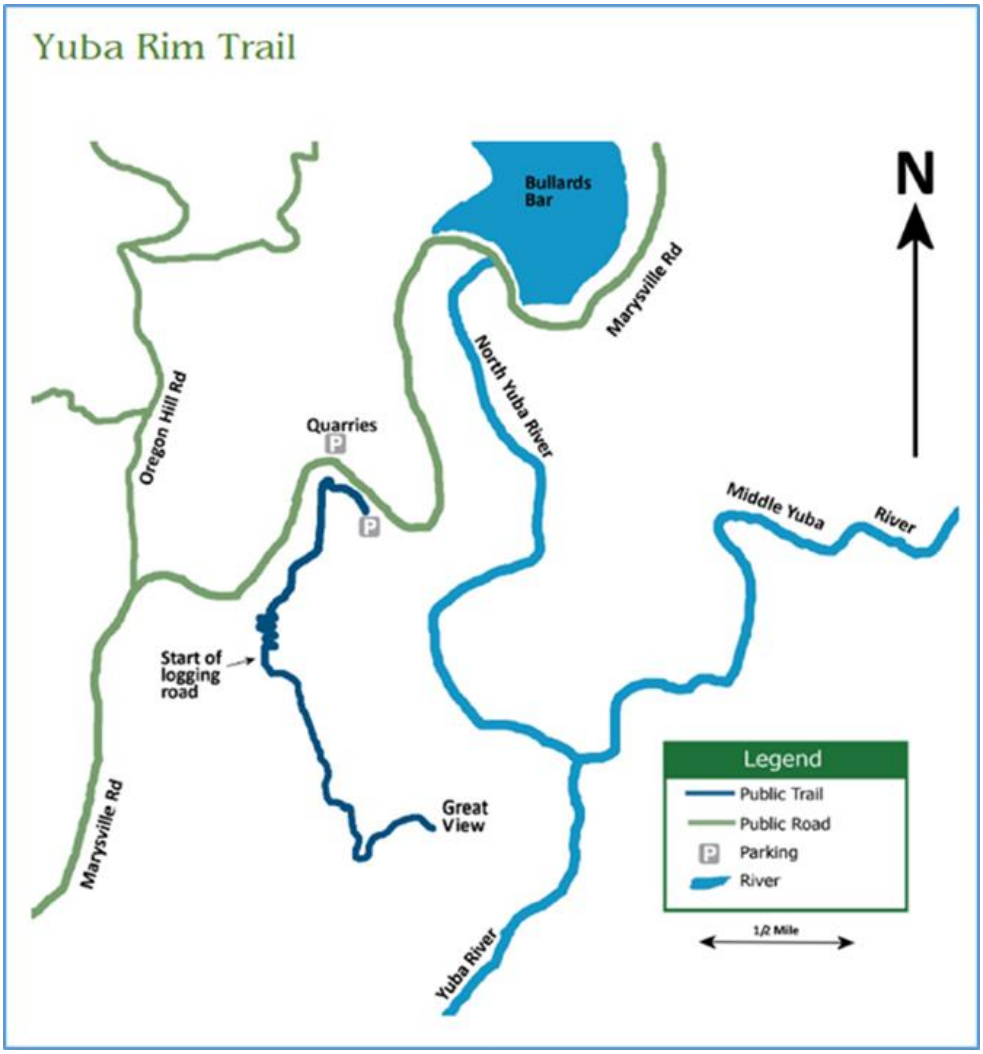

Figure 13: Map of Yuba Rim Trail, newly constructed.
Provided by the Bear Yuba Land Trust.

Figure 14: Photos from the bottom of the Yuba Rim Trail. Photo Credit: Bear Yuba Land Trust. Note that current required flow is 5 cfs.

In addition, the Network recommends baseline monitoring and long-term monitoring of both the gravel and wood in the reach. This will allow quantification of the benefits of gravel and wood placement and support decisions about the need to increase or decrease future placement.

B. The new license should require implementation of the flows recommended by CDFW, FWS and FWN in the North Yuba River downstream of New Bullards Bar Dam.

Figure 10 of YCWA's Response to REA Comments shows that the flows recommended by CDFW-FWS-FWN for the North Yuba River downstream of New Bullards Bar Dam would create 4 miles of reliable cold water habitat in August in the upper main Yuba River, downstream of the confluence of the North Yuba River and the Middle Yuba River.[117] YCWA argues that this measure is not warranted for several reasons. The DEIS acknowledges several of these reasons, including power cost and possible effects to reservoir recreation. We have responded in turn to the arguments about impacts to reservoir recreation in Section (I)(F), above. We have also responded to the alleged power costs in Section (II)(C) above. Since these appear to be the controlling reasons for staff's decision not to adopt the flows recommended by CDFW-FWS-FWN, we request that staff re-evaluate this decision in the FEIS.

We also answer some of YCWA's supplemental argument here and offer a few affirmative reasons why leaving the river reaches between New Bullards Bar Dam and the outfall of New Colgate Powerhouse as an aquatic throwaway is neither justified nor warranted.

CDFW's rationale describes the rationale for recommended flow release into the North Yuba River downstream of New Bullards Bar Dam:

> [T]he Resource Agencies balanced the benefit of higher releases for more instream habitat with the need to keep appropriate temperatures in the North Yuba River below New Bullards Bar Dam and the reach of the Yuba River below the confluence of the North and Middle Yuba Rivers. The Resource Agencies struck a compromise between making temperatures too cold in the North Yuba River while still providing enough cold water through the reach to provide a benefit to the reach of the Yuba River downstream. Any additional water released in the North Yuba River below New Bullards Bar Dam would make temperatures too cold for sufficient adult and juvenile trout growth, any less water would not provide a sufficient benefit to the confluence reach.[118]

Though this comment attributes the analysis to the resource agencies, the Network participated in many of the meetings that developed the recommendation and discussed this rationale extensively. The DEIS does not answer or mention this cogent description; the FEIS should respond to it.

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[117] YCWA Response to REA Comments, p. 109.
[118] CDFW 10(j) Rationale, *op. cit.*, p. 76. More generally, see analysis pp. 64-77.

YCWA's Response to REA Comments make five arguments regarding flow releases to the North Yuba River downstream of New Bullards Bar Dam.[119]

First, YCWA argues that it should not be required to mitigate for lack of cold water habitat because the reach was not cold water habitat pre-project. However, project operation inundates up to 13 miles of the North Yuba River, some of which would have been cold water habitat, at least in some years. The project also blocks access to cold water habitat further upstream in the North Yuba and Middle Yuba rivers. As a fallback, YCWA says that as an enhancement, the flow augmentation would not be worth it. We answer in part below.

Second, YCWA argues that the recommended flows would make the North Yuba River above the confluence too cold. However, that water becomes warmer as it moves downstream in the 2.3-mile reach of the North Yuba, and four miles of the upper main Yuba River becomes too warm with the flows recommended by the licensee.[120] YCWA says that its proposed flows "maintain preferred rainbow trout habitat."[121] This effort to paint the landscape in aquatic hues dismisses the fact that weighted usable area for adult rainbow trout in the reach is 10% of maximum. YCWA's proposed flows would increase it 0%-3%; the CDFW-FWS-FWN proposed flows would increase it 38%-61%.[122]

Third, YCWA says that the proposed flows would make the water too cold for foothill yellow legged frogs (FYLF). YCWA argues: "YCWA's proposed condition would provide for breeding and growth of FYLF in the reach, which is another reason why FERC should not adopt the FWS, CDFW, FWN, FS, and BLM recommendation."[123] However, to our knowledge, no FYLF have been detected in the reach. There is almost no tributary habitat that would provide over-wintering for FYLF. The Forest Service has not expressed any concerns. Spring spill events from the project are likely to have contributed to the extirpation of any FYLF that may once have been present. Yellow frogs in this context appear to be red herrings.

Fourth, YCWA argues that because the cold water released from New Bullards Bar Dam would not cool the entire reach between confluence and New Colgate Powerhouse, the release is not worth it. The Network believes that 4 miles of remote but increasingly accessible trout habitat has value.

Fifth and last, YCWA argues that the benefits don't justify the costs, which we have discussed in part above. We contrast the cost of completely devaluing a substantial length of river.

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[119] YCWA Response to REA Comments, pp. 101-111.
[120] *Id.*, p. 76, figure at top of page.
[121] YCWA Response to REA Comments, p. 111.
[122] DEIS, tables 3-32 and 3-33, pp. 3-129 to 3-132.
[123] *Id.*, pp. 106-107.

VII. The new license should include the monitoring plans agreed to by YCWA and other relicensing participants.

The Staff Alternative would exclude important monitoring plans agreed to by YCWA, the resource agencies, and the Network. Perhaps most notably, it would not require water temperature monitoring. The DEIS explains:

> We do not recommend a Water Temperature Monitoring Plan because YCWA's proposed flow-related measures are expected to generally maintain or reduce water temperatures in project-affected waters and support resident and anadromous coldwater fishes, similar to what has occurred under existing operation. … There would be no value, from a license compliance perspective, to a comprehensive, long-term water temperature record that would result from YCWA's proposal and the Water Board's specification.[124]

While the Network understands the general expectation, general improvement is general and not quantifiable. License compliance is not the only rationale for monitoring plans. The unexpected may happen. There may be times when there is a water temperature problem downstream of Englebright Dam in a reach full of anadromous fish. This may be due to climate change hydrology, drought, other anomalous weather conditions, or facility failure or malfunction. Such times require the ability to respond in real time. Such times do not always allow the luxury of time to install equipment or establish water temperature monitoring protocols in order to respond in real time.

When the unexpected happens, project operators need to understand the current water temperatures, how operations have affected water temperatures in the past, how operations under unexpected conditions are likely to affect water temperatures in the moment, and how operations affect water temperatures in practice. General expectations are not grounds to forego technical capability and understanding when it is needed.

The Staff Alternative would also decline to include other monitoring plans agreed to by relicensing participants, including the Upper Yuba Aquatic Monitoring Plan and key parts of the Lower Yuba Aquatic Monitoring Plan, including adult fish passage past Daguerre Point Dam, spawning surveys, and evaluation of riparian structure.[125] The fish passage and spawning surveys are essential basic data needs gathered on almost every major salmonid-bearing river in the Central Valley. On the Mokelumne River, licensee EBMUD has successfully used gathered information of the type that the Staff Alternative would disallow on the Yuba to make great improvements in salmon returns with small but important modifications to discretionary operations.[126] Extensive debate and controversy exists over the causes of overall salmon declines in the Sacramento and San Joaquin valleys. Absent data, these debates become unproductive and acrimonious.

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[124] DEIS p. 2-37.
[125] DEIS, p. xxxiii.
[126] See EBMUD fisheries reports, https://www.ebmud.com/recreation/protecting-natural-habitat/fisheries-and-wildlife-division-reports/.

The apparent gatekeeper for the monitoring plans is whether the monitoring would assist in evaluating license compliance. A more appropriate criterion would be whether the monitoring improves aquatic performance in license implementation. Nonetheless, the Network describes a more structured framework immediately below that may provide staff more confidence that the agreed-to monitoring is worth the effort.

VIII. The new license should require establishment of an Ecological Group and definition of its responsibilities.

Both the Network and the California Hydropower Reform Coalition consistently advocated in multiple proceedings for an organized committee that provides a defined role in license implementation for NGO's and other advocates for the public interest, in addition to the roles assigned to the resource agencies.

In perhaps our most comprehensive statement of the benefits of such committees, the Network described in September 12, 2012 reply comments (in the Yuba-Bear/Drum Spaulding relicensing) the value of such committees and case studies that demonstrate the value.[127] In that filing, we provided examples from the El Dorado Project (P-184) and the Rock Creek – Cresta Project (P-1962) of the positive benefits of NGO participation in license implementation groups, in both ordinary and extraordinary implementation circumstances. We could equally have provided positive examples from the Mokelumne Project (P-137) and the Lower Mokelumne Project (P-2916). In our September 12, 2012 filing, we also provided an example of unnecessary conflict that arose on the Pit 1 Project (P-2687) in the absence of such a committee.

As we stated in our REA comments:

> The Ecological Group will create a platform for dialogue. It will present two types of opportunity to participants, in particular to NGO's and members of the public who would not otherwise have such opportunities. First, it will provide a forum for NGO's and others to directly hear about issues and concerns of the licensee and resource agencies in a form that is direct and allows questions and dialogue. Second, it will allow NGO's and other interested persons to make suggestions and express concerns on a less-than-formal basis, also in a form that allows questions and dialogue. As the Forest Service points out in its comments, it will also benefit the licensee by creating a "standing group" that "facilitates expedient review" of "any license compliance issues."[128]

This is a major issue for the Network. Considering its importance, we respond explicitly to two of the passages in the DEIS regarding the proposed Ecological Group and to some of staff's concerns. We also suggest potential resolution of some of those concerns.

The DEIS states:

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[127] FWN, Comments on Alternative Conditions Filed by the Licensees and Comments on Comments by Other Parties on the Notice of Ready for Environmental Analysis for Yuba-Bear Project (#2266-102) and Drum-Spaulding Project (#2310-193), September12, 2012, eLibrary no. 20120912-5224, pp. 5-11.
[128] FWN REA Comments, p. 60.

> We do not recommend organizing an ecological group meeting because standard Commission practices would require YCWA to consult with agencies during the preparation of monitoring reports that are components of Commission-approved management plans, and annual meetings alone would not provide additional benefits to environmental resources to warrant the cost.[129]

The Network's first and overarching concern in these statements is the suggestion that consultation *with the agencies* makes the proposed measure unnecessary. While we respect the agencies and value our collaboration with their staff, the agencies do not entirely represent the interests of the Network or the public. "Standard Commission practices" have not always served the Commission well. The Commission should recognize that the engagement of informed stakeholders with hydropower managers, operators and regulators is in the interest of those entities, in the public interest, and in the interest of the Commission. The presence and participation of the Network and other engaged stakeholders in license implementation has value.

A second apparent issue concerns the requirement for "annual meetings alone." The requirement for an annual meeting was a frequency negotiated by the Network and the resource agencies with the licensee. Relicensing participants generally agreed that there could be the need for more frequent meetings. However, the licensee did not want to commit to additional meetings in the license for fear that more frequent meetings might be unneeded or inefficient. However, this does not mean that greater meeting frequency is precluded if the need arises.

Later in the document, staff elaborates:

> While the requirement for an annual ecological group meeting would be beneficial, and GEN1 (Forest Service 4(e) condition 2) is frequently referenced by the resource agencies and conservation groups as the best opportunity to review project activities and effects, it is not clear how such a meeting would specifically affect sensitive resources because the objectives of such a meeting are poorly defined and the outcome uncertain. YCWA's proposed plan include the preparation of annual reports that would be submitted for agency review prior to being filed with the Commission. This provides a mechanism for YCWA to inform California DFW and the Forest Service of project activities, and for the agencies to comment on monitoring results and make recommendations to the Commission regarding needs for additional measures or modifications. Therefore, a separate annual meeting would be redundant.[130]

The DEIS is correct that the Ecological Group "is frequently referenced by the resource agencies and conservation groups as the best opportunity to review project activities and effects…." The Network, CDFW and FWS recommend that the Ecological Group consult and review numerous specific issues, most notably implementation of large wood and other habitat actions in the lower Yuba River and in the New Bullards Bar reach. Even if the new license

[129] DEIS, p. 2-37.
[130] DEIS, p. 3-248.

orders a lesser level of physical habitat improvements than those recommended by the Network, coordination with other entities engaged in such activities would be beneficial to all stakeholders.

Perhaps part of the problem is that no one collected all of the potential activities of the Ecological Group in one place. In response, CDFW has developed, in discussion with the Network, a new recommendation that the license require YCWA, in consultation the Ecological Group, to develop a Yuba River Adaptive Management Plan (YRAMP). We support CDFW's recommendation, and reproduce it here:

> The Department recommends FERC staff include a measure requiring a Yuba River Adaptive Management Plan (YRAMP) to be developed within a two years of license issuance. The YRAMP should be developed by the Ecological Group and include:
>
> - Annual review (by the Ecological Group) of the biological, water quality, and water temperature monitoring results from the previous year, including impacts from this project and possible cumulative impacts from other projects in the watershed;
> - Annual discussion of the effectiveness of habitat mitigation projects in the Lower Yuba River and opportunities for developing restoration partnerships;
> - Annual discussion of the sediment passage, wood and gravel restoration projects effectiveness in the Yuba River above Englebright dam;
> - Annual discussion of the water temperature management and biological response to water temperature conditions, including recommended annual operation of the two intakes to Colgate Powerhouse;
> - A structured decision-making process that allows (every 5 years) for members of the Ecological Group to collaboratively recommend changes to the timing of spring inundation flows, pulse flows, wood supplementation, gravel supplementation, and habitat mitigation measures to FERC and the State Water Resources Control Board (SWRCB).[131]

The Network also looks forward to discussing this proposed measure with YCWA and with other relicensing participants and hopes that it may be possible to submit agreed-to language for it.

IX. A Coordinated Operations Plan for YRDP and Narrows 1 is necessary to assure compliance with instream flow requirements downstream of Englebright Dam.

The DEIS states staff's opinion that it is unnecessary to include a requirement in the YRDP license that YCWA conclude a Coordinated Operations Plan for the YRDP and the Narrows 1 Project: "We also do not recommend the coordinated operations plan because it is not needed to implement the other proposed measures and because any conflicts between YCWA's Yuba River Development Project and PG&E's Narrows Project would be addressed through standard Commission practices."[132]

[131] CDFW comments on the DEIS, eLibrary no. 20180730-5050, pp. 3-4.
[132] DEIS, p. 2-37.

We disagree. A coordinated operations plan is needed to implement spill cessation and ramping rates downstream of Englebright Dam. A plan is needed to meet minimum instream flows downstream of Englebright Dam when Narrows 2 Powerhouse is not operating. A plan would also be needed in the event that the Water Quality Certification, a revised Staff Alternative, or other instrument required minimum instream flows downstream of Englebright Dam that were greater than the outlet capacity of Narrow 2 Powerhouse and bypass. Licensees YCWA and PG&E have already concluded a short-term plan for coordinated operations.[133]

X. The new license should require rehabilitation of the upper level intake to the New Colgate power tunnel and annual evaluation of the use of two intakes at New Bullards Bar Reservoir.

CDFW, supported by FWS, the State Board, and FWN, proposed Condition 10 in its preliminary 10(j) conditions, which would require the use of the upper intake to the New Colgate power tunnel in the months of March through May. The purpose of this use would be to provide greater certainty of cold water habitat conditions during the fall spawning season for spring-run and fall-run Chinook salmon.

The DEIS points out that in some cases, the water surface elevation at New Bullards Bar Reservoir would not be adequate to allow use of the upper intake.[134] The DEIS also concludes: "The model results also indicate that YCWA's proposed operations would not typically deplete water from the coldwater pool in New Bullards Bar Reservoir."[135]

In response, CDFW recommends in its comments on the DEIS that its proposed measure be modified so that the operation of intakes to the New Colgate power tunnel would be managed each spring by the Ecological Group, presumably based on anticipated hydrologic conditions toward the end of the water year.[136] CDFW also provides additional analysis in support of the value of the proposed measure.[137]

The Network believes CDFW's proposed modification Condition 10 makes sense, and that CDFW's supporting analysis is compelling. The Network also agrees with CDFW that the licensee should restore its infrastructure to working condition.

Therefore, FWN recommends that the FEIS analyze the CDFW's revised 10(j) Condition 10, incorporating the analysis that CDFW provides in its comments on the DEIS.

XI. FERC should hold a workshop on Section 7 Consultation for YRDP and YBDS.

In the FEIS for the relicensing of the Yuba-Bear, Drum-Spaulding, Deer Creek and Lower Drum projects, FERC announced it would consider the Biological Opinion for these projects after evaluating likely actions for the YRDP, which is downstream of portions of the

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[133] *Narrows 1 and Narrows 2 Coordinated Operations Plan*, April 19, 2016, eLibrary no. 20160425-5156.
[134] DEIS, Table 3-30, p. 3-116.
[135] *Id.*, p. 3-118.
[136] CDFW comments on the DEIS, pp. 24-25.
[137] *Id.*, pp. 18-24.

Yuba-Bear and Drum-Spaulding projects. At the public meeting for the DEIS for the YRDP, staff asked for recommendations about how it might proceed with the Section 7 Endangered Species Act consultations for all these projects.

The Network believes there would be value in FERC convening a workshop in California to discuss these consultations. Stakeholders in both proceedings could express their opinions about procedural steps that would assure both durable outcomes and timely consultations. The Network is particularly concerned that the consultations proceed expeditiously on a defined path. While not binding, a workshop may assist the Commission, resource agency, and licensee staff in making necessary procedural decisions.

XII. The DEIS does not analyze a reasonable range of alternatives.

The Commission has substantive obligations under the FPA § 10(a)(1), 16 U.S.C. § 803(a), and § 15(a)(2), 16 U.S.C. § 808(a)(2), to undertake a thorough study of alternatives as the basis for its required finding that a new license is best adapted to a comprehensive plan of development and to serve the public interest. *See Scenic Hudson Pres. Conference v. Fed. Power Comm'n*, 354 F.2d 608, 612 (2d Cir. 1965); *Green Island Power Auth. v. F.E.R.C.*, 577 F.3d 148, 168 (2d Cir. 2009) ("*Green Island*"). In addition to the substantive obligations to analyze alternatives under the FPA, the Commission is subject to parallel, procedural obligations under NEPA to analyze a reasonable range of alternatives.[138] NEPA requires that the Commission offer and analyze a *variety* of project alternatives, and *consider* a reasonable amount of meaningful alternatives. *See Vermont Yankee Nuclear Power v. NRDC*, 435 U.S. 519 (1978) (emphasis added). Additionally, mitigation measures within the alternatives need to be described with the level of specificity so all impacts, including intended or unintended consequences, are evaluated.[1] It is critical that the Commission's NEPA document contain a robust alternatives analysis-- the "heart" of NEPA -- to provide "a clear basis for choice among options by the decision-maker and the public."[139]

The Commission's NEPA document is intended to support its final licensing decision as well as the decisions of other jurisdictional agencies, including FWS, NMFS and the State Water Resources Control Board. While the State Board has traditionally prepared its own environmental document under the California Environmental Quality Act to support its issuance of water quality certifications, its practice is to rely as appropriate on the Commission's NEPA document.[140] Accordingly, the FEIS should consider a range of operational alternatives that the State Board will likely consider in making its Clean Water Act section 401 decision.

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[138] Although the Commission need not consider speculative or experimental technologies, it is generally required to consider all reasonable alternatives, *whether or not* the alternatives are within the authority of that agency. *See NRDC v. Morton*, 458 F.2d 827 (D.C. Cir. 1972) (emphasis added).

[139] *See*, e.g., *Simmons v. U.S. Army Corps*, 120 F.3d 664 (7th Cir. 1997); *Davis v. Mineta*, 302 F.3d 1104, 1118 (10th Cir. 2002); *see also* 40 CFR 1502.14.

[140] *See* Initial Study and Mitigated Negative Declaration for the Poe Project *available at* https://www.waterboards.ca.gov/waterrights/water_issues/programs/water_quality_cert/docs/poe_ferc2107/poe_final_mnd_stamped.pdf, noting that:
"CEQA Guidelines section 15221 states that when a project requires compliance with both CEQA and NEPA, state agencies should use the Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI) rather than preparing an Environmental Impact Report or Negative Declaration if the EIS or FONSI complies with the

At present, the FEIS analyzes a No Action Alternative, an Applicant's Proposal Alternative, the Staff Alternative, and a Staff Alternative with Mandatory Conditions. This range of alternatives is not sufficiently varied. It contains no alternatives that would adequately mitigate project effects to the lower Yuba River and its river corridor. In addition, important actions related to the project suggest two additional alternatives that the Commission should add.

For reasons discussed in section I(G) above, the FEIS should include as an alternative the lower Yuba River flow and habitat recommendations of the Network, CDFW, and FWS.

The FEIS should also include an alternative more specifically tailored to meet the objectives of the State Water Resources Control Board's Bay-Delta Water Quality Control Plan (Bay-Delta Plan). Recent developments in the State Board's proceeding make this Plan more specific and feasible to analyze. Since the Plan could intersect with or even overwhelm flows required for the lower Yuba River, it will be useful to the Commission, the State Board, the licensee and other stakeholders to be able to compare the likely effects of implementing this Plan as currently envisioned with other proposed options for lower Yuba River flow.

The FEIS should also include an alternative centered on the inclusion of the Narrows 1 Project as part of the YRDP.

A. **CDFW-FWS-FWN Joint Recommendations Alternative**

The FEIS should evaluate as a single NEPA alternative the joint recommendations of CDFW, FWS and FWN, as modified by noted subsequent agreements with the licensee and changes recommended by CDFW and FWN in comments on the DEIS. The DEIS contrasts various elements of the CDFW-FWS-FWN recommendations with the Staff Alternative, but does not analyze the CDFW-FWN-FWS recommendations as a block.

The recommendations of CDFW, FWS and FWN represent the product of several years of collaboration among diverse agency and NGO staff, who designed these recommendations to address numerous concerns articulated by licensee. Additionally, they are narrowly tailored to mitigate for impacts from the project within the context of a river that has other causes of impacts. Accordingly, the recommendations represent balanced measures to restore habitat conditions and improve salmonid and other aquatic populations without substantial impacts to project operations. Combined, they constitute a reasonable alternative to the measures proposed by the licensee, and the FEIS should analyze them as a NEPA alternative.

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provisions of CEQA. Consistent with this section, this IS refers to appropriate sections of the final EA to avoid repetition of information. This IS was prepared in compliance with CEQA and assesses the environmental effects of the Proposed Project. To the extent that the Proposed Project incorporates conditions to ensure that potential impacts have been mitigated to insignificance, the applicant agreed to incorporate the conditions into the Proposed Project. The IS includes information necessary to comply with CEQA not included in the final EA."

B. Bay-Delta Water Quality Control Plan Alternative

The Commission should include an alternative that evaluates project operations that would require release of 45%, 55%, 65% or 75% of the year-round unimpaired flow of the Yuba River past the Marysville gage, consistent with recent developments in the State Board's update of the Bay-Delta Plan.

The State Board, on July 6, 2018, released a "*July 2018 Framework for the Sacramento/Delta Update to the Bay-Delta Plan*" (Framework).[141] The Framework announces a forthcoming "Staff Report" that will propose for each Sacramento River and Eastside tributary year-round monthly flow objectives: "Based on analyses prepared for the Staff Report, including analysis of expected benefits and water supply effects, the Staff Report will propose an inflow level of 45-65% of unimpaired flow, with a starting point of 55%.[142] The State Board's 2010 *Delta Flow Criteria Report*[143] identified 75% of unimpaired flow in many months as a desired flow target for Delta inflow and outflow.

The update of the Plan may have a significant effect on the Yuba watershed and project storage and operations. However, the DEIS fails to mention the State Board's update of the Bay-Delta Plan at all. In light of the greater definition that the Framework provides to the update, this omission is even less warranted.

The contours of the Sacramento/Delta portion of the update of the Bay/Delta Plan are sufficiently developed to permit analysis of this alternative. This alternative will facilitate an understanding of how project operations would be modified in response to a State Board requirement that the Yuba River release 45%, 55%, 65% or 75% of the unimpaired flow on a year-round basis. The Commission may also wish to evaluate modifications to these flow requirements in critically dry years or dry year sequences, using the type of analysis CSPA and FWN used in developing flow proposals for this relicensing.[144]

As part of this analysis, the Commission should include information related to the effects to aquatic resources, cold-water pool levels, frequency of flood events, magnitude and frequency of water transfers, and timing and quantity of water available for diversion to licensee's customers as a result of modifying operations to meet prospective State Board requirements.

Inclusion of this alternative will help ensure more efficient consideration and issuance of the 401 certification for the project by the State Board. The State Board must comply with the California Environmental Quality Act (CEQA) prior to issuing the necessary 401 certification for the project. The State Board's CEQA analysis should include discussion on the ability of the

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[141] The Framework is available at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/docs/sed/sac_delta_framework_070618%20.pdf
[142] Framework, pp. 1 and 2.
[143] *Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem*, State Water Resources Control Board Staff Technical Report, adopted by the State Water Board, August 2010. Available at: https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/deltaflow/docs/final_rpt080310.pdf
[144] See FWN REA Comments, pp. 13-28.

project to meet water quality objectives including those contained in the Bay-Delta Plan. The public and decision-makers will be better served if this information is included within the FEIS and compared with the other NEPA alternatives.

This alternative will also provide a useful contrast to the lower Yuba River flow component CDFW-FWS-FWN Combined Alternative, serving to highlight different approaches that might be employed to meet Bay-Delta Plan requirements and their respective effect on project operations.

C. The FEIS should include an alternative in which Narrows 1 development is included as part of YRDP.

On December 20, 2017, PG&E, licensee of the Narrows 1 Project (P-1403) filed a request with the Commission for a three-year license extension for the Narrows 1 Project.[145] This extension has as one practical effect a three-year delay in the commencement of relicensing, which was scheduled for January, 2018.

As a rationale for its request, PG&E stated:

> PG&E has been pursuing the potential transfer of Narrows to the Yuba County Water Agency ("YCWA"). PG&E and YCWA are well advanced in their negotiations for the potential transfer of Narrows to YCWA, as evidenced by the fact that late this year they executed a term sheet governing the parameters of the transaction. It is the parties' expectation that, upon the transfer of Narrows to YCWA, YCWA will seek to incorporate Narrows into YCWA's existing Yuba River Development Project No. 2246 and fold relicensing of Narrows into the ongoing relicensing proceeding for Project No. 2246.[146]

On December 21, 2017, the Commission issued a Notice of an application for the extension of the license term.[147] Several parties intervened, generally in support of PG&E's application. Among the intervenors were FWN and many of its member groups.[148] FWN generally supported the application, but expressed concern that it could delay relicensing of the YRDP.

On January 26, 2016, the Commission issued an Order extending the license term for the Narrows 1 Project by three years.[149] In explaining this decision, the Commission stated:

> Extending the license term for the Narrows Project will give PG&E and Yuba County additional time to complete their sales negotiations and file a joint application to transfer

[145] *Pacific Gas and Electric Company's Request for a Three-Year Extension of the Term of the Existing License for the Narrows Project No. 1403*, December 20, 2017, eLibrary no. 20171220-5201.
[146] *Id.*, p. 2.
[147] *Notice of Application Accepted for Filing, Soliciting Comments, Protests and Motions to Intervene*, P-1403-063.
[148] *Motion to Intervene of Foothills Water Network, California Sportfishing Protection Alliance, American Whitewater, South Yuba River Citizens League, Trout Unlimited, and Sierra Club*, P-1403-063, January 17, 2018, eLibrary no. 20180117-5105.
[149] *Order Extending License Term and Amending Fisheries Enhancement Plan*, P-1403-063, January 26, 2018, eLibrary no. 20180126-3023.

> the Narrows Project to Yuba County. Although this order cannot prejudge a Commission decision on the anticipated joint transfer application, staff sees merit in extending the license term by three years so PG&E and Yuba County have the time necessary to file that application for Commission consideration before a Notice of Intent on relicensing is required.[150]

The Order also responded to the concern expressed by FWN and others that the transfer of Narrows 1 could delay the YRDP relicensing proceeding:

> Regarding the concern that extending the license term could delay relicensing of the Yuba River Project; on June 26, 2017, the Commission issued notice of Yuba County's license application for the Yuba River Project that included a schedule for the relicensing process. According to the schedule, the next major milestone is the Commission's issuance of a draft environmental impact statement (DEIS) for the project in March 2018. Commission staff intend to continue moving forward with the DEIS for the Yuba River Project on that schedule.[151]

Though the Commission ultimately issued the instant DEIS on May 30, 2018, it did not incorporate any analysis of the prospective incorporation of the Narrows 1 Project into the YRDP.

The Network believes that it would be efficient and beneficial to stakeholders of both the YRDP and the Narrows 1 Project for the FEIS to include an alternative that analyzes the effects of incorporating the Narrows 1 Project into the YRDP. The likelihood that YCWA will seek such incorporation places it beyond the realm of the speculative. While it may become necessary for supplemental analysis depending on future procedural decisions by licensees and the Commission regarding the licensing of Narrows 1, analysis in the FEIS would pre-empt potential procedural tangles that might occur in related proceedings such as the Water Quality Certification for the YRDP and biological opinions for the YRDP. In the event that the Commission responds affirmatively to this recommendation, it could notice a formal comment period on the FEIS, similar to the process the Commission used when licensee PG&E elected late in relicensing to divide the Drum-Spaulding Project (P-2310) into three separate projects for the purpose of facilitating future ownership transfers.[152]

XIII. The DEIS does not adequately analyze cumulative effects

Staff's analysis of the measures for the lower Yuba River proposed by CDFW, FWS and FWN does not meet the Commission's responsibility under NEPA to analyze direct, indirect and cumulative project effects.

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[150] *Id.*, p. 3.
[151] *Id.*
[152] *Notice of Availability of the Final Environmental Impact Statement for the Upper Drum-Spaulding, Lower Drum, Deer Creek, and Yuba-Bear Hydroelectric Projects*, Project No. 2310-193, Project No. 14351-000, Project No. 14350-000, Project No. 2266-102, December 19, 2014, eLibrary no. 20141219-3005, p. 2.

NEPA requires that the Commission's environmental document address cumulative effects, which are defined as "[t]he impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions."[153]

The Commission's policy is to "address and consider cumulative impact issues at original licensing and relicensing *to the fullest extent possible* consistent with the Commission's statutory responsibility to avoid undue delay in the relicensing process and to avoid undue delay in the amelioration of individual project impacts at relicensing."[154]

Over the past ten years, courts have increasingly emphasized cumulative effects as an important part of NEPA analysis.[155] Additionally, Commission policy requires proper analysis and inclusion of cumulative effects in accordance with NEPA's broad definition. The Interagency Task Force Report on NEPA Procedures in FERC Hydroelectric Licensing issued May 5, 2000 states on page 5:

> Past Conditions/Effects for Cumulatively Affected Resources-
> In accordance with the Council on Environmental Quality's regulations, FERC will include and utilize information regarding past conditions/effects, where applicable, in its cumulative effects analyses. FERC will request this information and include it in its cumulative effects analysis and in its evaluation of measures appropriate to protect, mitigate damages to, and enhance resources affected by the project.[156]

The *Report* continues on page 6:

> Scope of Cumulative Assessment-
> Where relevant, the NEPA document will identify other watershed activities including hydropower projects and will analyze the effects of the proposed project and alternatives in combination with other projects and activities.[157]

The project cumulatively affects fish and wildlife and recreation resources. Yet the DEIS avoids taking a "hard look" at these effects by either conflating cumulative effects with indirect or non-project effects or by failing to include sufficient information regarding other present and/or reasonably foreseeable future actions to facilitate a robust evaluation of the Project's cumulative effects.

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[153] 40 C.F.R. § 1508.7.
[154] 18 C.F.R. § 2.23 (emphasis added).
[155] *See, e.g. City of Carmel-By-The-Sea v. United States Dept. of Transp.*, 123 F.3d 1142, 1160-61 (9th Cir. 1997). The case addressed many aspects of NEPA, including cumulative effects, the Court stated "The Final Environmental Impact Statement/Report fails both to catalogue adequately past projects in the area, and to provide any useful analysis of the cumulative impact of past, present and future projects and the Hatton Canyon freeway on the wetlands, Monterey pine and Hickman's onion."
[156] *See* Network Comments for Yuba Bear Drum Spaulding DEIS p. 23; citing Work Group on the Coordination of Federal Mandates, *The Interagency Task Force Report on NEPA Procedures in FERC Hydroelectric Licensing*, May 22, 2000.
[157] *Id.*

For instance, the DEIS does not use one consistent application or definition for project effects throughout the entire document. Instead, the DEIS conflates "project effects," "non-project effects," and other environmental consequences associated with the project, bypassing legal requirements and shielding the licensee from mitigation obligations. For example, staff rejects continuous monitoring program recommendations put forward by the Network, the licensee and resource agencies. In the case of the Upper Yuba River Aquatic Monitoring Plan, the DEIS opines,

> [W]e do not recommend an Upper Yuba River Aquatic Monitoring Plan because the proposed plan includes monitoring, but does not provide any mechanisms for isolating project effects from non-project effects on monitored resources.[158]

This is but one of many examples in which staff rejects reasonable mitigation measures for the project's direct and cumulative effects by relegating effects to the "non-project" category without justification or meaningful analysis.

Additionally, the DEIS fails to include sufficient information regarding other present and/or reasonably foreseeable future actions needed to facilitate the Commission's evaluation of the project's cumulative effects. For instance, the DEIS does not include sufficient information on efforts to restore fish access above Englebright Dam, foreseeable changed operations at Oroville Dam, or the proposed WaterFix (Delta tunnels) project. Where the DEIS identifies such actions, it discounts substantive analysis under the rationale that they lack detail. For instance, staff declines to analyze fish passage or introduction actions because "negotiations regarding all reintroduction actions remain ongoing, and the cost and feasibility of any reintroduction actions (e.g., fish ladders or fish-collection facilities) continue to be evaluated."[159]

The DEIS apparently uses a standard that an action is reasonably foreseeable only if specific details of the action are known and only if the action will actually be implemented. This interpretation of the reasonable foreseeability standard is not supported by CEQ's regulations or applicable case law, which expressly reject efforts to impose a higher threshold of certainty in a cumulative effects analysis. The duty to analyze cumulative impacts is not limited to actual proposals.[160] The cumulative impacts of a proposal must be analyzed even if certain details of the proposal remain unknown. The duty remains even if there is no guarantee that the proposal will ever be implemented. In other words, a defined timeline for implementation is not required for a proposal to be deemed reasonably foreseeable.[161]

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[158] DEIS, p. xxxii.
[159] DEIS at 3-206.
[160] *See Texas Committee on Natural Resources Van Winkle,* 197 F. Supp.2d 586, 617 (2002)(*citing Oregon Natural Res. Council v. Marsh*, 832 F.2d 1498 (9th Cir. 1987), *rev'd on other grounds,* 490 U.S. 360 (1989).
[161] *See Sierra Club v. U.S. Dept. of Energy, 255 F.Supp.2d 1177 (D. CO 2002)* (The court considered whether a mine should have been analyzed as a cumulative impact of an easement grant because it was a "reasonably foreseeable future action." In its analysis the court noted that it is not pertinent when the mining company will begin operations, as long as action is "still reasonably foreseeable."[161] In other words, the uncertain timeline for implementation of the proposal did not preclude the possibility that it was a reasonably foreseeable action.)

Accordingly, the EIS must analyze the Network's proposed alternatives and recommended mitigation measures to determine if they would avoid or better mitigate project effects, including cumulative effects. There is sufficient information in the record and publicly available regarding the actions below to necessitate their inclusion in the cumulative effects analysis. The Network requests that staff utilize all available sources to inform its cumulative effects discussion in the FEIS consistent with the comments below.

A. The FEIS should include analysis of cumulative effects of fish passage to upper Yuba watershed.

The DEIS's failure to meet the legal obligation to analyze cumulative effects is particularly pronounced in regards to fish passage to the upper Yuba watershed. The DEIS acknowledges that Englebright Dam is a complete barrier to fish migration: "Englebright Dam was built without fish passage facilities, and it continues to be a complete barrier to the historic Chinook salmon, steelhead, and green sturgeon spawning grounds in the upper Yuba Watershed."[162] And it acknowledges that NMFS considers Englebright Dam's continued presence to be the primary effect on listed salmonids in the Yuba watershed.

> NMFS (2014a) considers the elimination of access to historical spawning and rearing habitat upstream of Englebright Dam to be the greatest effect on listed salmonids in the Yuba River Watershed. In its 2009 Public Draft Recovery Plan for Central Valley Salmon and Steelhead, NMFS identified Englebright Dam as one of the dams where fish passage would contribute to recovery of the Central Valley spring-run Chinook salmon ESU and the Central Valley steelhead Distinct Population Segment (DPS).[163]

Yet the DEIS does not meaningfully consider fish passage above Englebright Dam in the cumulative effects analysis, presumably, in part, because reintroduction discussions are ongoing.

> However, negotiations regarding all reintroduction actions remain ongoing, and the cost and feasibility of any reintroduction actions (e.g., fish ladders or fish-collection facilities) continue to be evaluated. The goal of the Yuba Salmon Partnership Initiative is to collaboratively develop, fund, and implement a cost-effective program that continues to expand the Yuba River Watershed's contribution to recovery of anadromous salmonids in the Central Valley. These goals would be accomplished through implementation of anadromous salmonid habitat actions in the lower Yuba River and are consistent with the recovery actions included in the NMFS recovery plan (e.g., including improving spawning habitat in the Yuba River downstream Englebright Dam) and with YCWA's proposed minimum instream flows for the Yuba River downstream of Englebright Dam.[164]

The DEIS also seeks to avoid this analysis through a narrow project description that does not include Englebright Dam. While the rationale for excluding Englebright Dam from the

[162] DEIS at 3-54.
[163] DEIS at 3-268.
[164] DEIS at 3-206.

project description is faulty as discussed below, it also reflects a fundamental misunderstanding of the proper scope of a cumulative effects analysis. Even if Englebright Dam is appropriately omitted from the project description, the Commission must still consider and identify mitigation for the incremental impact that the project contributes to the past, present and reasonably foreseeable future impacts associated with the presence and use of Englebright Dam.

The DEIS states,

> Although the Narrows 2 Powerhouse uses flows from the Englebright Reservoir, the Corps operates and maintains the Englebright Dam and Reservoir. Neither the Englebright Dam nor Reservoir are licensed as part of the Yuba River Development Project. Pacific Gas and Electric (PG&E) also uses flows from the Englebright Reservoir to operate and maintain its Narrows 1 Powerhouse under a separate license.[165]

However, under the list in the DEIS of "Land use permits and easements obtained by YCWA for the normal project operation and maintenance" is the "1966 Agreement between YCWA and United States California Debris Commission for Use of Englebright Reservoir. Under this agreement, YCWA has the right to construct and maintain project facilities, including the Narrows 2 intake, and store and release water from Englebright Reservoir…."[166]

There is no meaningful sense to the statement that the Army Corps of Engineers operates Englebright Reservoir. YCWA determines and/or manages flows into and out of Englebright Reservoir. YCWA pays the Corps for an easement to do so. The Corps has no water rights to store water in Englebright Reservoir. YCWA even manages the flows through Narrows 1 Powerhouse, under an April 19, 2016 Coordinated Operations Plan filed with the Commission in the docket for P-1403 on April 25, 2016.[167]

Further, YCWA effectively "operates" Englebright Dam and Reservoir by using it as the afterbay for operation of the New Colgate Powerhouse as well as the forebay for the Narrows I and II powerhouses. By doing so, YCWA is able to derive significantly more value from the project as a result of the presence of Englebright Dam.

> Through the use of Englebright Reservoir as a buffer to avoid fluctuating flows in the lower Yuba River, YCWA can operate the New Colgate Powerhouse in a manner to provide hydroelectric generation at times when it has more value than if YCWA was unable to use Englebright Reservoir. Similarly, it provides YCWA with the ability to regulate releases from the New Colgate Powerhouse to account for variability in flow on the Middle Yuba River above Our House Dam and from the South Yuba River; without Englebright Reservoir, YCWA would need to operate the New Colgate Powerhouse without consideration for inflow from the Middle Yuba River and South Yuba River, reducing available storage in New Bullards Bar Reservoir, creating greater variability in Yuba River flow below the Narrows II Powerhouse and Narrows II Bypass, and

[165] DEIS, p. 71/2-9.
[166] DEIS, pp. 3-345 and 3-346.
[167] *Narrows 1 and Narrows 2 Coordinated Operations Plan*, April 19, 2016, *op. cit.*

> decreasing the ability of the New Colgate Powerhouse to provide significant regulation and stability for the Northern California power grid."[168]

As the Network states in comments on the Draft License Application and in the FWN REA Comments, Englebright Dam is appropriately part of the project and the Commission has the authority to condition its use. The Commission also has an obligation to include information in the FEIS sufficient to inform an impacts analysis of the continuing and incremental impacts of the project and to develop appropriate mitigation measures that reduce the impacts attributable to the existence and use of Englebright Dam.

The Network understands that there is not a specific proposal for fish passage above Englebright Dam at this time. However, over the past decade, there have been several different initiatives to develop engineering alternatives to allow passage upstream of Englebright Dam, develop reintroduction plans, and collaborate with watershed stakeholders to develop a reintroduction strategy.[169] The level of legal, political, regulatory, and technical engagement demonstrates that reintroduction of salmon and steelhead to the upper Yuba River is a priority for a wide range of stakeholders, many of whom have been working on this issue for more than a decade. Additionally, the National Marine Fisheries Service Final Recovery Plan for Salmon and Steelhead directs NMFS to "[d]evelop and implement a program to reintroduce spring-run Chinook salmon and steelhead to historic habitats upstream of Englebright Dam" and includes the action as a top tier priority.[170]

The Commission should consider the totality of information suggesting that reintroduction of salmon and/or steelhead above Englebright Dam is a strong possibility over the term of the new license. Including such an action in the cumulative effects analysis of the FEIS would help inform discussions surrounding appropriate mitigation for the project's impact on fish passage. Uncertainty regarding the mechanics of passage should not deter the Commission from its obligation under the NEPA to consider this action in the cumulative effects analysis.

B. The FEIS should include analysis of cumulative effects of Feather River operations on Yuba River fisheries.

The licensee's Biological Assessment (BA) explains how flow releases from the Feather River can affect resources in the Yuba River. For instance, high spring releases and low temperatures from the Yuba River, particularly when combined with low flow releases from the Feather River, can attract Feather River fish to the Yuba.

> [T]he higher the Yuba River flows relative to Feather River flows, combined with the lower the Yuba River water temperatures relative to Feather River water temperatures,

[168] YCWA, Draft License Application for the YRDP, eLibrary no. 20131202-5097, p. E3.3.2-125.
[169] For instance, the Yuba Salmon Forum found that suitable habitat for anadromous fish exists in Middle Yuba River.
[170] Recovery Plan for the Evolutionarily Significant Units of Sacramento River Winter-run Chinook Salmon and Central Valley Spring-run Chinook Salmon and the Distinct Population Segment of California Central Valley Steelhead. National Marine Fisheries Service. July 2014. p. 253.

> the higher the percentage of fin-clipped Chinook salmon passing upstream of Daguerre Point Dam 6 weeks later."[171]

Despite the connection between the Feather River and Yuba River and their respective resources, the DEIS does not discuss any reasonably foreseeable changes at Oroville Dam.

As discussed above, the State Board is updating its Bay-Delta Water Quality Control Plan and the details of that update are sufficiently developed to warrant consideration in the cumulative effects analysis of the FEIS. Specifically, the FEIS should consider how project operations at Oroville would be modified in response to a State Board requirement that the Yuba River and/or Feather River release 45%, 55%, 65% or 75% of year-round unimpaired flow.

In addition, the FEIS should analyze the effects of Feather River operations on the Yuba River/Feather River salmon and steelhead populations and associated mitigation measures. Spring flow and temperature conditions combined with physical and volitional upstream migration problems in Feather downstream of confluence with Yuba (especially at Shanghai Bend) negatively impact the fitness of anadromous fish populations. The FEIS should analyze how flow releases from Oroville affect anadromous fish populations and should consider potential measures that would increase the fitness and resiliency of Yuba River salmon and steelhead from increased Feather River flows. For instance, the FEIS should evaluate measures that would decrease the straying of Feather River hatchery fish into the lower Yuba River.

The BA notes that it is questionable whether the Yuba River spring-run stock represents an independent population. However,

> "…[I]t may be possible to preserve some additional component of the ancestral Central Valley spring-run Chinook salmon genomic variation through careful management of this stock that can contribute to the recovery of the ESA-listed Central Valley spring-run Chinook salmon ESU…."[172]

To date, requirements for addressing limiting factors in the Yuba River have been developed and implemented without consideration of, or coordination with, Feather River operations. Such coordination is necessary to provide the careful management that will facilitate the preservation of spring-run genetic variety and minimize the straying of Feather River hatchery fish into the lower Yuba River.

C. The FEIS should include analysis of the cumulative effects of the proposed California WaterFix (Delta tunnels) if implemented.

The DEIS does not mention the California WaterFix project at all. The California WaterFix project proposes north Delta diversions for the State Water Project and Central Valley Project, with water conveyance through newly constructed tunnels under the Sacramento – San Joaquin Delta. The FEIS should include California WaterFix in the cumulative effects analysis.

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[171] Draft Biological Assessment for the YRDP relicensing, eLibrary no. 20170605-5050, p. 5-54.
[172] *Id.*, p. E5-52.

It is reasonably foreseeable that WaterFix may be implemented. Hearings before the State Board to consider modifications to water rights to facilitate its implementation are ongoing.[173] If implemented, WaterFix would increase the amount of water that could be reliably conveyed through the Delta each year by the construction of three North Delta diversion intakes with a capacity of 3000 cfs each. This would likely create a greater demand for Yuba River transfer water for export south of the Delta. It could also increase the transfer window in the spring, during which time current pumping restrictions in the South Delta limit export capacity. Mitigations for WaterFix might create additional rearing habitat in the Delta or engineered floodplains or access to floodplains. On the other hand, WaterFix might increase entrainment or otherwise reduce success of Yuba River and other Sacramento River watershed salmon and steelhead endeavoring to outmigrate past WaterFix's proposed North Delta intakes. In any event, the Waterfix proposal currently contains sufficient structure to permit analysis and therefore should be included in the cumulative effects analysis of the FEIS.

XIV. Conclusion

The Network thanks the Commission and staff for the opportunity to comment on the Draft Environmental Impact Statement for the relicensing of the Yuba River Development Project. The Network requests that staff incorporate the comments and recommendations herein in the Final Environmental Impact Statement, and that the Commission order a license consistent with our recommendations.

Respectfully submitted,

Foothills Water Network

Traci Sheehan Van Thull
Coordinator, Foothills Water Network
PO Box 573, Coloma, CA 95613
(530) 919-3219
traci@foothillswaternetwork.org

[173] *See* https://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/california_waterfix/ for the latest updates on the process.

Chris Shutes
FERC Projects Director
California Sportfishing Protection Alliance
1608 Francisco St., Berkeley, CA 94703
(510) 421-2405
blancapaloma@msn.com

Melinda Booth
Executive Director
South Yuba River Citizens League
313 Railroad Avenue #101
Nevada City, CA 95959
(530) 265-5961
melinda@yubariver.org

Chandra Ferrari
Senior Water Policy Director
Trout Unlimited
4221 Hollis St., Emeryville, CA 94608
(916) 214-9731
cferrari@tu.org

Dave Steindorf
California Field Staff
American Whitewater
4 Baroni Dr., Chico, CA 95928
(530) 343-1871
dave@amwhitewater.org

Sierra Foothills Audubon

Donald I Rivenes

Don Rivenes
Conservation Chair
Sierra Foothills Audubon Society
PO Box 1937, Grass Valley, CA 95945
rivenes@sbcglobal.net

American Rivers
Rivers Connect Us®

Steve Rothert

Steve Rothert
California Regional Director
American Rivers
120 Union St., Nevada City, CA 95959
srothert@americanrivers.org

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PO Box 401
Coloma, CA 95613

Nathan Rangel
President, California Outdoors
P.O. Box 401, Coloma, CA 95613
nathanjrangel@gmail.com

Friends of the River
Since 1973

Ronald Stork
Senior Policy Advocate
Friends of the River
1418 20th Street, Suite 100
Sacramento, CA 95811-5206
(916) 442-3155 x 220
rstork@friendsoftheriver.org

Dr. Mark Rockwell
Conservation Chair
Gold Country Fly Fishers
19757 Wildwood West Drive
Penn Valley, CA 95946
530-559-5759
Mrockwell1945@gmail.com

Frank Rinella
V.P. of Education
Northern California Federation of Fly Fishers
303 Vista Ridge Dr., Meadow Vista, CA 95722
sierraguide@sbcglobal.net

Jack Sanchez
President and Coordinator
Save Auburn Ravine Salmon and Steelhead
P.O. Box 4269, Auburn, CA 95604
Jlsanchez39@gmail.com

Allan Eberhart
Sierra Club - Mother Lode Chapter
24084 Clayton Rd., Grass Valley, CA 95949
vallialli@wildblue.net

Shelly Covert
Tribal Council Secretary and Spokesperson
Nevada City Rancheria Nisenan Tribe
P.O. Box 574, Grass Valley, CA 95945
(530) 570-0846
shelly@nevadacityrancheria.org

References Cited Without Footnotes

Add: Poff and Ward 1989, Richter et al. 1996, Walker et al. 1995

Ahearn, DS, JH Viers, JF Mount, and RA Dahlgren. 2006. Priming the productivity pump: flood pulse driven trends in suspended algal biomass distribution across a restored floodplain. Freshwater Biology 51(8): 1417-1433.

Ahilan, S, M Guan, A Sleigh, N Wright, H Chang. 2016. The influence of floodplain restoration on flow and sediment dynamics in an urban river. Journal of Flood Risk Management 11: S986-S1001. https://doi.org/10.1111/jfr3.12251

Archer D. 1989. Flood wave attenuation due to channel and floodplain storage and effects on flood frequency. In: K. Beven & P.A. Carling , eds. Floods: hydrological, sedimentological and geomorphological implications. Chichester: John Wiley & Sons, p. 37–46.

Auble GT, ML Scott ML, JM Friedman, J Back VJ Lee. 1997. Constraints on establishment of plains cottonwood in an urban riparian preserve. Wetlands 17:138-148.

Beasley G and P Kneale. 2002. Reviewing the impact of metals and PAHs on macro invertebrates in urban watercourses. Prog Phys Geogr 26(2):236–270.

Dosskey, MG, P Vidon, NP Gurwick, CJ Allan, TP Dubal, R Lowrance. 2010 The Role of Riparian Vegetation in Protecting and Improving Chemical Water Quality in Streams. Journal of

Jeffres, C, JJ Opperman, and PB Moyle. 2008. Ephemeral floodplain habitats provide best growth conditions for juvenile Chinook salmon in a California River. Environmental Biology of Fishes 83(4). 10.1007/s10641-008-9367-1

Johnson WC. 1994. Woodland expansion in the Platte River, Nebraska: Patterns and causes. Ecological Monographs 64:45-84.

Kiedrzynska, E, M Kiedrzynski, and M Zalewski. 2015. Sustainable floodplain management for flood prevention and water quality improvement. Natural Hazards 76(2):955-977.

Merz, JE, and L Ochikubo-Chan. 2005. Effects of gravel augmentation on macroinvertebrate assemblages in a regulated California river. River Research and Applications, 21(1):61-74.

Moyle, PB, PK Crain, and K Whitener. 2007. Patterns in the Use of a Restored California Floodplain by Native and Alien Fishes. San Francisco Estuary and Watershed Science 5(3). https://cloudfront.escholarship.org/dist/prd/content/qt6fq2f838/qt6fq2f838.pdf?t=ncgsnr

O'Sullivan JJ, S Ahilan, and M Bruen. 2012 A modified Muskingum routing approach for floodplain flows: theory and practice. J Hydrol 470–471, 239–254.

Poff, NL and JV Ward. 1989. Implications of Streamflow Variability and Predictability for Loctic Community Structure: A Regional Analysis of Streamflow Patterns. Canadian Journal of Fisheries and Aquatic Sciences. 46(1):1805-1818. https://doi.org/10.1139/f89-228

Poff NL, JD Allan, MB Bain, JR Karr, KL Prestegaard, BD Richter, RE Sparks, JC Stromberg. 1997. The natural flow regime: A paradigm for river conservation and restoration. BioScience 47: 769–784.

Richter, BD, JV Baumgartner, J Powell, DP Braun. 1996. A Method for assessing hydrologic alteration within ecosystems. Conservation Biology 10(4):1163-1174. https://doi.org/10.1046/j.1523-1739.1996.10041163.x

Rood SB and JM Mahoney. 2000. Revised instream flow regulation enables cottonwood recruitment along the St. Mary River, Alberta, Canada. Rivers 7: 109–125.

Rood, SB and JM Mahoney. 1990. Collapse of riparian poplar forests downstream from dams in western prairies: Probable causes and prospects for mitigation. Environmental Management. 14(4): 451-464.

Schemel LE, TR Sommer, AB Müller-Solger, WC Harrell. 2004. Hydrologic variability, water chemistry, and phytoplankton biomass in a large floodplain of the Sacramento River, CA, USA. Hydrobiologia 513(1–3):129–39.

Stromberg JC, R Tiller, B Richter. 1996. Effects of groundwater on riparian vegetation of semiarid regions: San Pedro, Arizona. Ecological Applications 6:113-131.

Walker, KF, F. Sheldon, JT Puckridge. 1995. An ecological perspective on large dryland rivers. Regulated Rivers Research and Management. 11:95-104.

Ward, JV. 1998. Riverine landscapes: Biodiversity patterns, disturbance regimes, and aquatic conservation. Biological Conservation 83(3): 269-278.

Wolff CG and SJ Burges. 1994. An analysis of the influence of river channel properties on flood frequency. J Hydrol 153:317–337.

BEFORE THE
UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Yuba County Water Agency	**)**	**Yuba River Development Project** **Project No. 2246-065**

Certificate of Service

I hereby certify that the foregoing Comments and Recommendations on the Draft Environmental Impact Statement for the relicensing of the Yuba River Development Project of the Foothills Water Network, American Rivers, American Whitewater, California Outdoors, California Sportfishing Protection Alliance, Friends of the River, Gold Country Fly Fishers, Northern California Council Federation of Fly Fishers, Save Auburn Ravine Salmon and Steelhead, Sierra Club, Sierra Foothills Audubon Society, South Yuba River Citizens League, Trout Unlimited, and the Nevada City Rancheria, Nisenan Tribe in the above-captioned proceedings has this day been filed online with the Federal Energy Regulatory Commission and served via email or surface mail upon each person designated on the Service List compiled by the Commission Secretary for these Projects.

Dated at Berkeley, California this 30th day of July, 2018.

Chris Shutes
FERC Projects Director
California Sportfishing Protection Alliance