

July 17, 2013

Filed via Electronic Submittal (E-File)

Honorable Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

SUBJECT: Yuba River Development Project
FERC Project No. 2246-058 - California
Response to CDFW's Request for
Narrows 2 Power Intake Entrainment Study

Dear Secretary Bose:

This letter provides the Yuba County Water Agency's (YCWA or Licensee) comments on the California Department of Fish and Wildlife's (CDFW) July 3, 2013 request for a new study in support of YCWA's relicensing of its Yuba River Development Project, Federal Energy Regulatory Commission (FERC) Project Number 2246 (Project).

YCWA notes that the United States Department of Interior, Fish and Wildlife Service (USFWS) filed a similar request, but with a different focus¹ with FERC on July 3, 2013. YCWA comments on USFWS's request in a separate letter filed with FERC.

COMMENTS

YCWA organized its comments to address the criteria for a new study identified by FERC in 18 CFR § 5.15(e).

§ 5.15(e)(1). Any material changes in the law or regulations applicable to the information request

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

¹ CDFW's study request focused on resident trout in Englebright Reservoir, whereas USFWS' request focused on anadromous fish in Englebright Reservoir.

§ 5.15(e)(2). Why the goals and objectives of any approved study could not be met with the approved study methodology

CDFW stated “*The methods used for data collection in Study 3.7 are incompatible with the goals and objectives described in Study 3.11.*” More specifically, CDFW states “*This method of data collection can only provide presence or absence information in the vicinity of the Narrows 2 powerhouse intake and cannot be used to determine whether entrainment into project facilities is occurring or to quantify entrainment rates as outlined in the goals and objectives of Study 3.11.*”

CDFW has misstated the goal of Study 3.11 regarding the Narrows 2 Power intake. The FERC-approved study’s stated goal was to “*characterize the occurrence of fish in the deeper portions of New Bullards Bar*” to determine if the potential for entrainment into the intake warranted further investigation. The goal was not to “*determine whether entrainment into project facilities is occurring or to quantify entrainment rates,*” as stated by CDFW. YCWA suspects that CDFW confused the Study 3.11 goal regarding entrainment at the Lohman Ridge and Camptonville diversion tunnels, which was to quantify entrainment rates at those particular locations.

The goal and objective of Study 3.11 with regards to the Narrows 2 Power Tunnel intake were met by the approved study methodology. As described below, the study characterized the occurrence of fish in the deeper portions of Englebright Reservoir. Since a very small number of fish was captured in the vicinity of the intake, representing species that have been regularly stocked for recreational fishing in the reservoir, YCWA believes an extensive entrainment study at the Narrows 2 Power Tunnel intake is not needed.

§ 5.15(e)(3). Why the request was not made earlier

The request for a Narrows 2 Power Tunnel intake entrainment study was made earlier by CDFW. In fact, CDFW has requested the study at every possible opportunity in the proceeding, as described below.

CDFW’s Request in Response to YCWA’s Pre-Application Document

In its November 2010 Pre-Application Document, YCWA proposed to perform a study (Study 3.11) to supplement existing, relevant and reasonably available information regarding the effects on fish populations due to entrainment into Project intakes. YCWA’s study plan specifically excluded the Narrows 2 Power Tunnel from the study for four reasons: 1) lack of any information that suggested entrainment was an issue; 2) the large size of United States Army Corps of Engineers’ (USACE) Englebright Reservoir, and the relatively deep location of the intake, which together would limit the susceptibility of fish to entrainment; 3) only one special-

status fish species, hardhead minnow (*Mylopharodon conocephalus*)² occurs in the reservoir, and that species frequents shallow habitat; and 4) the fact that the reservoir is heavily stocked.³

In its March 2, 2011 comments on YCWA's Pre-Application Document, CDFW requested the study be modified to include entrainment monitoring into the Narrows 2 Power Intake from April 15 through August 15 using a combination of echosounders, acoustic cameras and Vaki-type fish counters.

CDFW's Request in Response to YCWA's Proposed Study Plan

YCWA did not adopt CDFW's requested study modification in its April 2011 Proposed Study Plan, but proposed to collect additional information near the Narrows 2 Power Tunnel intake. Specifically, YCWA proposed to include in its Study 3.7, *Reservoir Fish Population*, that placement of gill nets as near as reasonably possible to the Narrows 2 Power Tunnel intake to help characterize the likelihood of fish entrainment into the intake, which would help inform any future discussions of entrainment into the intake.

In its July 12, 2011 comments on YCWA's Proposed Study Plan, CDFW stated it believed YCWA's modification was inadequate, and requested YCWA modify the study to include entrainment monitoring into the Narrows 2 Intake for 1 year using a Didson-type acoustic camera.

CDFW's Request in Response to YCWA's Revised Study Plan

YCWA did not adopt CDFW's requested modification in its August 2011 Revised Study Plan because it believed existing information, as augmented by the proposed gill netting, was adequate to inform license requirements. Given this, YCWA stated the high cost of CDFW's requested modification, and the fact that the methods were experimental at best, was not warranted. The cost of renting a DIDSON camera is \$12,000 per month. In addition, deploying it in deepwater requires significant preparation and is potentially a high risk operation. To further elaborate, camera installation would involve construction by divers at significant depth during Project outages. It could require variances from minimum instream flows if those flows exceeded the capacity of the Narrows 1 Powerhouse. It may require a coordination agreement between PG&E (the owners and operators of Narrows 1 Powerhouse) and YCWA to arrange for operations during the study, which could affect the maintenance schedules for both projects. It would require the cooperation of the California Independent System Operator to allow the required outages and reduced generation. Both the Narrows 2 Powerhouse and Bypass operate off the same intake, so all flow would have to be through the Narrows 1 Powerhouse during Didson installation, maintenance and removal. There could be an additional risk to downstream listed fish species if the powerhouse needs to be regularly shut down over the course of a year to

² CDFW considers hardhead minnow a species of special concern.

³ The study plan stated "*CDFG stocking records indicate that fish plantings in the USACE's Englebright Reservoir have taken place from 1965 through 2007. During this period, just over 756,000 rainbow trout, 228,320 kokanee salmon, 6,973 lake trout, nearly 28,000 brown trout (Salmo trutta), 4,000 Eagle Lake rainbow trout, 2,640 brook trout, 45 white crappie (Pomoxis annularis), and 80 black crappie (P. nigromaculatus) were planted (CDFG 2007). Stocked species were primarily from the Shasta and San Joaquin hatcheries.*" In 2008, CDFG stocked approximately 10,000 rainbow trout and 3,500 brown trout in the reservoir. Stocking by CDFG ceased for a period after 2008, pending a pre-stocking evaluation (CDFG 2008), but resumed in 2011, with the planting of 5,000 triploid (sterile) rainbow trout. In 2012, CDFW stocked 8,000 triploid rainbow trout in Englebright Reservoir.

install, check and remove the camera when flows in the Yuba River are higher than can be accommodated through the Narrows 1 Powerhouse. It would probably not be safe to deploy divers during spills over Englebright Dam, so camera installation or removal during these periods would be extremely difficult. The camera offers a narrow frame of view and would likely only cover 50 to 60 percent of the intake at any given time if placed at a distance that allows for identifying fish presence.

CDFW repeated its request for Didson-type monitoring for a year at the Narrows 2 Power Tunnel intake in its August 30, 2011 comments on YCWA's Revised Study Plan.

In its September 30, 2011 Study Plan Determination, FERC did not adopt CDFW's request for entrainment monitoring at the Narrows 2 Power Tunnel intake stating YCWA's proposal to use the results from Study 3.7 to inform future decisions on the need for entrainment monitoring at that location was reasonable.⁴

CDFW's Request in Response to YCWA's Initial Study Report

YCWA filed its Initial Study Report, which did not include a proposal for Narrows 2 Power Tunnel entrainment monitoring, in December 2012.

Prior to filing the report, YCWA issued Technical Memorandum 3-7, *Reservoir Fish Populations*, which provided the results of YCWA's sampling in Englebright Reservoir. Nine sites were sampled: five by boat electrofishing and four by gillnetting, with one gill net set 50 feet east of the Narrows 2 Power Tunnel intake and extended perpendicular to the shore. The net was set at approximately 20 feet from shore and extended 125 feet into the reservoir at an estimated depth of 70 feet (as advised by operators prior to fieldwork). The surface elevation for Englebright Reservoir fluctuated between 517 feet and 523 feet during the 2012 sampling period. The intake centerline is at 439 feet of elevation. This translated to a center line depth ranging from 78 feet (68 – 88 ft depth) to 84 ft (74 to 94 ft). The net sampled depth was 70 to 90 ft, generally covering an average area of 80 percent of the intake area. The placement of this net location was specifically selected through consultation with CDFW staff who were onsite prior to field implementation.

⁴ YCWA's Study 3.11, *Entrainment*, was subsequently modified by FERC on May 14, 2012 and March 29, 2013, but the modifications did not pertain to entrainment into the Narrows 2 Power Tunnel intake.



Figure 1. Placement of the deepwater gillnet in Englebright Reservoir near the Narrows 2 Power Tunnel intake. Orange buoys show the orientation of the net, the top of which was at a depth of approximately 70 feet.

A total of 362 fish comprised of 11 different species was collected by electrofishing (i.e., 283 fish, representing 78% of the total catch) and gillnetting (i.e., 79 and 22%) in Englebright Reservoir. The majority of the fishes collected were warmwater (i.e., 3 of 11 species, representing 52% of the total catch by number) and non-native (i.e., 6 of 11 species representing 38% of the total catch by number). Species found, in order of abundance, were Sacramento sucker (*Catostomus occidentalis*) (31.5% of the total catch), spotted bass (*Micropterus punctulatus*) (26.5%), hardhead (13.5%), rainbow trout (*Oncorhynchus mykiss*) (8.3%), bluegill (*Lepomis macrochirus*) (7.5%), Sacramento pikeminnow (*Ptychocheilus grandis*) (6.9%), common carp (*Cyprinus carpio*) (1.9%), brown trout (*Salmo trutta*) (1.7%), smallmouth bass (*Micropterus dolomieu*) (1.4%), green sunfish (*Lepomis cyanellus*) (0.65%) and redear sunfish (*Lepomis microlophus*) (0.3%).⁵ Rainbow trout and brown trout have been stocked in the reservoir for many years by CDFW, with rainbow trout stocked as recently as 2012, and brown trout as recently as 2008, as described in footnote 2. Three fish, two rainbow trout and one brown trout, were captured in the deepwater gillnet near the Narrows 2 Power Tunnel intake. Trout ranged in fork length from 217 to 305 millimeters (mm).

⁵ Fishes which have been reported to occur in the reservoir and not found by YCWA's 2012 study include three species planted by CDFW: kokanee (*Oncorhynchus nerka*) planted in 1965, 1966 and 1977; brook trout (*Salvelinus fontinalis*) planted in 1986; and lake trout (*S. namaycush*) planted in 1965 and 1966; and the following four warmwater species: channel catfish (*Ictalurus punctatus*); largemouth bass (*Micropterus salmoides*); various crappies (*Pomoxis* sp.); and yellow perch (*Perca flavensis*).

YCWA summarized these results in its November 2012 Interim Technical Memorandum 3-11, *Entrainment*.

In its Initial Study Report meeting, YCWA encouraged Relicensing Participants to request any and all study modifications and new studies the Relicensing Participants considered warranted, but noted study-specific consultations, including regarding Study 3.11, were ongoing.

Only one Relicensing Participant requested Narrows 2 Power Tunnel entrainment monitoring in comments on the Initial Study Report. The United States Department of Interior, Fish and Wildlife Service (USFWS) requested a study of fish entrainment at the Narrows 2 Power Tunnel intake “for determining Project effects on salmonid outmigration.”

FERC’s March 29, 2013 Determination did not adopt USFWS’s request stating:

Study 3.7, *Reservoir Fish Populations* is complete. The study reported that the majority of the *O. mykiss* captured in Englebright reservoir were taken near the surface by electrofishing. Temperatures near the surface never exceeded 20°C making it unlikely that the fish needed to seek deeper water to find preferred temperature and DO conditions. The fish caught in deep water, near the intake, included two rainbow trout and one brown trout, representing 20 percent of the catch at that site, suggesting that only a small portion of fish capable of frequenting deep water would be found in proximity of the intake.

CDFW’s Request in Response to Study 3.11 Study-specific Consultation

As required by Study 3.11, YCWA scheduled meetings with Relicensing Participants to discuss the results of the gillnetting and the need for additional Narrows 2 Power Tunnel entrainment monitoring. The meetings occurred on January 10, February 8, March 11, April 11, June 5 and June 10, 2013. In many of the earlier meetings, CDFW advised YCWA that it was considering the need for additional entrainment monitoring at the Narrows 2 Power Tunnel intake. YCWA stated it believed existing information was adequate, specifically noting: 1) the high level of stocking, especially of rainbow trout, that occurs in the reservoir; 2) the large size of the reservoir and relatively deep location of the intake, which together limit the susceptibility of fish to entrainment; 3) that only one special-status fish species, hardhead minnow, occurs in the reservoir and it frequents shallow habitats, which are not near the intake; 4) the fact that the majority of rainbow trout found in the reservoir in Study 3.7 were near the surface; 5) the high cost of studies suggested to reliably sample 100 percent of the flow into the intake as compared to the low value of the information that would be developed; and 6) the fact that trout of the sizes captured in the deep gillnetting site could easily avoid entrainment into the intake.⁶

Further, YCWA stated that if entrainment were to occur, survival through the Francis turbines in the Narrows 2 Powerhouse would be relatively high. The Narrows 2 Powerhouse turbine is

⁶ The velocity at the Narrows 2 Power Tunnel intake is 10.8 ft/sec at the maximum capacity (i.e., 3,400 cfs). Measured adult rainbow trout burst speed is 13.4 fish-lengths/sec (i.e., for a 12-inch long fish, the burst speed is 13.4 ft/sec). The entrainment velocity decreases rapidly with distance from the intake.

130 inches in diameter, contains 15 buckets, and rotates at 163.6 revolutions per minute (rpm). In 2007, PG&E conducted a survival test on their similar turbine unit for the McCloud-Pit Project (P-2106).⁷ That turbine unit is 216 inches in diameter, contains 15 buckets and rotates at 138.4 rpm. PG&E found 93.9 percent survival in smaller rainbow trout (i.e., fork length of 103 to 178 mm) and 83.5 percent survival in larger rainbow trout (i.e., fork length of 282 to 383 mm). All of the surviving larger rainbow trout were malady-free (i.e., did not show signs of injury) and 89.8 percent of the smaller surviving rainbow trout were malady free. Overall, the study showed reasonably high survival results and provides an excellent indication of survivorship of the few rainbow trout that pass through the Narrows 2 Powerhouse.

At the June 5, 2013 meeting, CDFW proposed a new Narrows 2 Power Tunnel intake entrainment study. For the reasons noted above, YCWA did not agree with the need for the study.

§ 5.15(e)(4). Significant changes in the project proposal or that significant new information material to the study objectives has become available

CDFW did not base its request on changes in the proposed Project. YCWA has not proposed changes to the Project that would warrant the requested new study.

CDFW justified its request, in large part, on the “new” information from YCWA’s Study 3.7. CDFW stated, *“This is significant new information because it documents the presence of salmonid species in deep water habitat in proximity to the Narrows 2 intake. These species are therefore at risk of entrainment into the Narrows 2 intake.”* CDFW discussed the relevance of this new information under *Background and Existing Information* in its letter. YCWA addresses this “new” information here.

YCWA believes that a number of conclusions drawn by CDFW based on the new information warrant clarification.

First, CDFW stated *“a single sampling event can do little more than provide presence or absence data and does not take into account temporal or spatial life history behavior of resident aquatic species.”* YCWA agrees, which is why it is important to consider other existing and known scientific information. Rainbow trout and brown trout during their early life history generally occupy low velocity, littoral habitat and are not commonly found in pelagic or deep water, which is where the Narrows 2 Power Tunnel intake is located. This was confirmed during Study 3.7. Larger fish that may be found in pelagic, deepwater habitat are capable of significantly greater swim speeds, as stated earlier a 12 inch fish would be capable of burst swimming speeds of 13.4 ft/sec. Fish would have to be in the immediate vicinity of the trashrack to be exposed to sufficient velocity to pose any entrainment risk. Further, if entrained, the potential for survival was 93.1 percent in studies monitoring similar Francis turbines.

⁷ PG&E. 2007. Fish Survival and Condition after Passage through Pit 6 Turbine (FA-S7). Link: <http://www.eurekasw.com/MCP/Technical%20Memos/TM-17%20FA-S7%20Entrainment%20Survival.pdf>

Finally, CDFW annually stocks thousands of rainbow trout in Englebright Reservoir, one of the only two species found (at low numbers) near the intake, to sustain a recreational fishery. One angler's daily legal catch in the reservoir is more than the number of fish seen at the vicinity of the intake over the period that the gillnet was fished. Brown trout, the species represented by the other single individual found at that location, has apparently not been stocked in the reservoir since 2008. Since Narrows 2 Powerhouse has been operating during the intervening period and brown trout are still found (2% of the total catch) in the reservoir, this population has been surviving or self-sustaining despite any potential entrainment or ongoing angler harvesting. All of these factors provide sufficient additional information to add context for the results of the single sample event to help support the conclusion that an entrainment study below the Narrows 2 Powerhouse is unnecessary.

Second, CDFW stated "*Results reported in TM 3.7 demonstrate that rainbow and brown trout are found in close proximity to the Narrows 2 intake structure (YCWA table 3.0-1).*" Stating that nets were in 'close proximity' is misleading. The sample nets were placed in an area that was considered safe, but close enough to suggest that collected fish were in the area where the intake occurred. The nets were 50 ft from the actual intake and 20 ft offshore (Figure 1). To place the nets within 'close proximity' or the influence of entrainment (i.e., less than 5 ft from the intake) was not prudent or acceptable to YCWA operators. Agencies agreed to the location and the placement was collaborative. Therefore, a more accurate description is that nets were in the vicinity of the Power Tunnel intake.

Third, CDFW stated "*rainbow trout comprised the majority of species caught in all deep water net sets*" and "*An overwhelming majority of all salmonids caught by gill net in Englebright were observed in deep water nets.*" A full analysis of the "new" information, however, shows that of the 362 fish collected in Englebright Reservoir during Study 3.7, rainbow trout comprised only 8.3 percent of the total catch, and only two (~4%) of the 45 rainbow trout captured were found in the deepwater gillnet near the Narrows 2 Power Tunnel intake. The vast majority of rainbow trout was found in shallow waters, where they are not subject to entrainment. Only one additional fish was collected in deepwater nets, meaning about 5 percent of the total population collected for all sites occupied deepwater.

YCWA also found CDFW's pie graph displaying that 100 percent of brown trout occupied deepwater habitat in Englebright Reservoir misleading. Only one 1 brown trout was collected for the entire study in Englebright Reservoir.

In summary, the "new" information cited by CDFW shows that only a small portion of fish capable of frequenting deep water in Englebright Reservoir would be found in the vicinity of the intake, and these fish are fully capable of actively avoiding entrainment.

§ 5.15(e)(5). Why the new study request satisfies the study criteria in § 5.9(b)

§ 5.9(b)(1). Describe the goals and objectives of each study proposal and the information to be obtained

CDFW states that *“The goal of this study is to evaluate and quantify entrainment risks at the Narrows 2 intake and to determine whether the withdrawal of water at the project's primary intake at Englebright Reservoir is likely to have adverse effects on native and nonnative fish populations.*

“Objectives in support of this goal include:

- 1. Quantify rates of entrainment at the Narrows 2 intake;*
- 2. Evaluate mortality risk of salmonid species that are entrained downstream of Englebright through the Narrows 2 powerhouse; and*
- 3. Evaluate adfluvial migration of native trout species.”*

As stated above, YCWA believes that even if the small number of fish found in the vicinity of the Narrows 2 Power Tunnel intake were to be entrained and not survive passage downstream, it is unlikely that this would adversely affect the large annually stocked population of rainbow trout or the brown trout which have been surviving there since the last stocking in 2008. YCWA therefore believes existing information is adequate to inform license requirements regarding entrainment at Narrows 2 Power Tunnel intake and the risk of salmonid mortality through the Narrows 2 Powerhouse.

YCWA is confused by CDFW's third objective regarding 'adfluvial' migration of native trout species. The only native trout species in Englebright Reservoir is rainbow trout, and this species has been heavily stocked in the reservoir for almost 50 years.⁸ An adfluvial fish is commonly defined as a species or subspecies that resides in lakes, but moves upstream into rivers to spawn (Slaney 2005).⁹ A common example of this life history is found within subpopulations of bull trout (*Salvelinus confluentus*) in the northwest. YCWA cannot envision how an entrainment study at Narrows 2 Power Tunnel intake would provide information on rainbow trout migrating upstream into tributaries from Englebright Reservoir.

§ 5.9(b)(2). If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied

YCWA has no comment regarding this criterion.

§ 5.9(b)(3). If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study

YCWA has no comment regarding this criterion.

§ 5.9(b)(4). Describe existing information concerning the subject of the study proposal, and the need for additional information

⁸ See Footnote 3 for a description of fish stocking in Englebright Reservoir since 1965.

⁹ Slaney, P. and J. Roberts. 2005. Coastal Cutthroat Trout as Sentinels of Lower Mainland Watershed Health. Ministry of Environment Lower Mainland Region 2 Surrey, B.C. 104 pgs.

CDFW based the need for the additional information on the new information provided by YCWA's Study 3.7. YCWA addresses the "new" information from Study 3.7 under criterion § 5.15(e)(4) above.

§ 5.9(b)(5). Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements

CDFW provided two areas of nexus to the Project and how the study results would inform the development of license requirements. First, CDFW stated "*Study 3.7 Reservoir fish, have demonstrated that native and non-native salmonid species are present in the vicinity of the Narrows 2 intake at Englebright reservoir.*" As discussed above, Study 3.7 shows that only a small portion of fish capable of frequenting deep water in Englebright Reservoir would be found in vicinity of the intake. Therefore, the information from the requested study, which would be developed at significant cost as described below, would not provide substantial information to inform license requirements.

Second, CDFW stated "*An earlier study (Garza and Pearse 2008) has demonstrated the mixed origin of rainbow trout in the lower Yuba River, including the upper Yuba River genotype, and indicates that hatchery rainbow trout and resident rainbow trout could be passing through the Narrows 2 powerhouse.*"¹⁰ CDFW's argument is flawed for at least two reasons. First, CDFW implies that the results of a genetic study that loosely suggested that there may be a possibility of genetic relatedness between fish in the upper Yuba River and fish in the upper Feather River means rainbow trout are entrained at the Narrows 2 Power Tunnel intake. The study made the comment with a low level of confidence.

Second, CDFW puts forth a substantial implication ignoring a suite of compounding factors, even if genetic mixing were to be assumed a proven fact. Upstream rainbow trout have the potential to pass downstream of Englebright Dam by means other than entrainment into the Narrows 2 Power Tunnel intake. For instance, the fish could pass over Englebright Dam when it spills, which occurs almost every year, and through PG&E's Narrows 1 Powerhouse.

§ 5.9(b)(6). Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field season(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

CDFW proposes that its requested study would focus on resident rainbow trout; the study period would be 1 year; and the sampling would occur using large tapered nets that would survey the entire flow in the Narrows 2 tailrace. CDFW proposes the sampling occur in two phases. The first phase would occur for two to four weeks in June and July, and would be conducted for four days per week, 24 hours per day. The second phase would extend from

¹⁰ CDFW rightly does not cite Garza and Pearse (2008) as "new" information since it was available as early as 2008.

August through May and sampling would occur five to six days each month. The goal of the sampling is a confidence interval of ± 50 percent of the sampling mean.

YCWA has serious reservation concerning placing tapered nets to sample the full flow in the Narrows 2 Powerhouse tailrace for three reasons. First, the tailrace has a very irregular profile, so designing nets to match the profile and sample 100 percent of the flow would be very difficult.

Second, the tailrace is over 75 feet wide, spanning the Yuba River. To place and retrieve nets in the tailrace would require constructing a structure over the tailrace (e.g., a bridge working platform) from which the nets would be deployed and retrieved. This would be a very costly endeavor and require numerous permits (e.g., Clean Water Act Sections 404 and 401 permits, a Section 1601 permit from CDFW, and probably permits from NMFS since ESA-listed fishes could be affected).

Third, to sample the full flow in the Narrows 2 tailrace would require sampling potentially up to 180,000 cubic feet per second (cfs).¹¹ This is due in good part to spills over Englebright Dam, which occurs in most years. Figure 2 shows typical conditions and flows in the tailrace when Englebright Dam is spilling. Working large nets during spill conditions would be extremely difficult and dangerous, but could be necessary if trying to perform entrainment sampling over an entire year, or to ascertain the relative proportion of fish passing over Englebright Dam.

¹¹ On December 22, 1964, the flow in the tailrace was measured at 180,000 cfs. Recently (i.e., from 2002 through 2012), the flow in the Narrows 2 tailrace has been as high as 104,261 cfs.



Figure 2. Typical conditions in the Narrows 2 tailrace when Englebright Dam spills.

As an alternative to placing nets across the entire tailrace to capture Englebright Dam spill, one could place nets at the three outlets from the Narrows 2 Power Tunnel: 1) the Narrows 2 Powerhouse, which has a maximum discharge capacity of 3,400 cfs; 2) the Narrows 2 Partial Bypass, which has a maximum discharge of 650 cfs; and 3) the Narrows 2 Full Bypass, which has a maximum discharge of 3,000 cfs. However, the configuration and flows through these outlets would make deploying and retrieving entrainment sampling nets, as well as efficiently sampling fish (i.e., nets large enough to withstand the flow and not damage fish), very difficult. Figure 3 shows the locations and typical operations of these facilities.



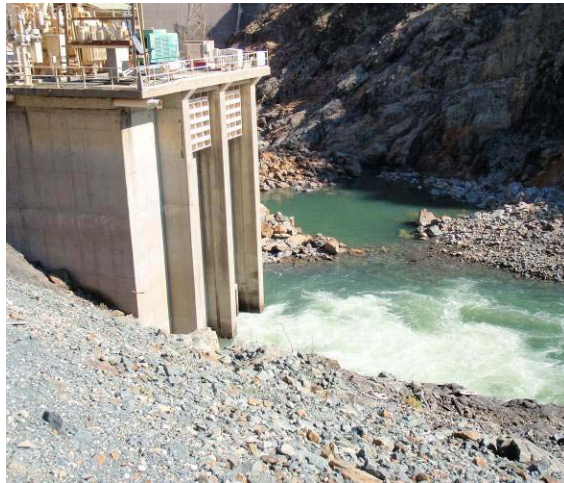
Partial Bypass



Partial Bypass



Narrows 2 Powerhouse



Narrows 2 Powerhouse



Full Bypass



Full Bypass

Figure 3. Photos showing configuration of discharge and typical operations of Narrows 2 Powerhouse, Narrows 2 Powerhouse Partial Bypass and Narrows 2 Powerhouse Full Bypass.

Besides these logistic issues, which YCWA believes in and of themselves makes CDFW's requested study not feasible, other questions can be raised regarding the study protocol. For instance, CDFW has provided no rationale for its sampling phases and frequencies.

§ 5.9(b)(7). Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs

CDFW states that the cost to perform its requested study is between \$250,000 and \$300,000. YCWA believes this is a drastic underestimation of cost based simply on the logistic issues raised above.

As an example of how unreasonable CDFW's estimated cost is, as part of Nevada Irrigation District's Yuba-Bear Hydroelectric Project (FERC Project No. 2266) relicensing, NID performed an entrainment study in the Dutch Flat 2 Canal. The canal is a raised, wooden box flume (approximately 6 feet square), with straight sides and bottom, easy access and a maximum capacity of 800 cfs. NID built a structure over the flume to deploy and retrieve nets and sampled a couple of times each week for about 6 months. The cost to perform that study was nearly \$1 million. In comparison, CDFW's requested study includes sampling up to about 105,000 cfs over an irregular-shaped, natural channel for a year. Just designing and constructing structures on which to deploy and retrieve nets would cost over \$1 million dollars, without considering configuring the nets to capture 100 percent of the flow in the tailrace.

YCWA believes existing information is adequate to inform license requirements, and that CDFW's extremely expensive study, would not provide additional information commensurate with the cost of the information.

For the reasons stated above, YCWA requests that FERC reject CDFW's request for a new Narrows 2 Power Tunnel intake entrainment study.

If you have any questions regarding these comments, please contact me.

Sincerely,

YUBA COUNTY WATER AGENCY



Curt Aikens
General Manager

Secretary Bose

July 17, 2013

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cc: Alan Mitchnick – FERC DC
Ken Hogan – FERC DC
Relicensing Participants on YCWA's Yuba River Development Project's
Relicensing E-Mail Contact List (via e-mail)