



FOOTHILLS WATER NETWORK

Via Electronic Submittal

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

December 20, 2010

**RE: COMMENTS ON PLACER COUNTY WATER AGENCY'S
DRAFT LICENSE APPLICATION FOR THE MIDDLE FORK AMERICAN
HYDROELECTRIC PROJECT #2079**

Dear Secretary Bose:

The Foothills Water Network submits this letter in response to Placer County Water Agency's September 27, 2010 submission of its Draft License Application for project # 2079.

Foothills Water Network

This response was jointly developed and has been signed by non-governmental organizations and by individuals participating in the Middle Fork American Relicensing. The Foothills Water Network represents a broad group of non-governmental organizations 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 the FERC relicensing processes.

The following members of the Middle Fork American Work Group of the Foothills Water Network are signatories to these comments.

Bill Carnazzo, Federation of Flyfishers, Upper American River Foundation, and Foothill Angler Coalition
Chris Shutes, California Sportfishing Protection Alliance
Dave Steindorf, American Whitewater,
Gary Estes, Protect American River Canyons
Hilde Schweitzer, Private Boater
John Donovan, Member of the Public
Julie Leimbach, Foothills Water Network

Nate Rangel, California Outdoors,
 Thomas Bartos, Foothill Angler Coalition and Horseshoe Bar Fish and Game Preserve
 Inc.

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1 General Comments

1.1 PCWA's Collaborative Approach

PCWA has made a good faith effort to provide a collaborative relicensing process. It has worked closely with an impartial facilitator to plan and carry out a process that allows a real opportunity for relicensing participants to reach a collaborative agreement. PCWA's relicensing team has been well prepared for our numerous meetings. The team has prepared materials in advance and presented those materials in an understandable and organized way. In addition, PCWA has kept the process looking forward with proposed timelines and topics for future meetings. We value PCWA's advance preparation in such a long and data-driven regulatory process.

Generally, PCWA has also been forthcoming with their interests, scientific rationales, data, and analysis. They have provided days of scientific review and facilitated negotiations with the goal of coming to consensus on the interpretation of information. Upon request, PCWA has modeled the Foothills Water Network's flow scenarios to foster fact-finding investigation and inform flow proposals and negotiations. When it could improve joint understanding of the issues, PCWA has also conducted analysis in addition to the formal study results. PCWA also developed a user-friendly Excel-based tool for modeling flows in the project's Peaking Reach, and provided training for using this tool. This tool has helped our group to reach a better understanding of the system constraints, and to develop solutions that address our interests. Finally, PCWA has provided on its own and upon request an enormous amount of information on its website.

The PCWA Draft License Application is a serious proposal, and an effort to meet the many interests represented in this relicensing. In general response to the DLA, the Foothills Water Network thinks that we are relatively close to agreement on many issues. With that background in mind, we are providing the following recommendations and comments on the Draft License Application.

1.2 Inadequate Negotiation Time on Peaking Reach

The collaborative negotiations on the Peaking Reach prior to PCWA's submission of the DLA only consisted of two days. In comparison, we spent several months negotiating conditions for the bypass reaches. The two days were clearly insufficient to present all interests, objectives, arrive at an understanding of study results as they relate to the potential license conditions, and negotiate collaborative resolutions. Because we value the Peaking Reach and the many interests in its natural and recreational resources, we expect to spend a significant amount of our remaining negotiation time addressing the Peaking Reach. Based on the commitment of PCWA and other relicensing participants to reaching collaborative agreement, we expect to reconvene our collaborative relicensing meetings in order to further negotiate license conditions for the Peaking Reach.

1.3 Analysis of Enhancements

The No-Action Alternative only reflects the paper reality of PCWA's license condition minimum, not the operational reality of existing conditions resulting from voluntary

release of higher minimum flows. Accordingly, the comparison between the No-Action Alternative and the Proposed Action often does not describe improvements that we will actually see in the river. In some cases the DLA low flows conditions would actually create a diminished condition of the river and environment. A comparison between actual existing conditions and operations and the Proposed Action Alternative would present a picture of much smaller improvements for the ecosystem than is portrayed in the DLA. Relicensing studies are examinations of the existing conditions of the natural resources resulting from recent historic operations, not from paper minimums stated in the current FERC license. We request PCWA include in its Final License Application a more accurate portrayal of any enhancement to be achieved by the Proposed Action Alternative that compares the existing condition created by actual recent operations with the Proposed Action Alternative.

1.4 Wild & Scenic Eligibility

We recommend PCWA manage the Project in such a manner as to not hinder designation of the Rubicon River and the Middle Fork American River as suitable for inclusion in the National Wild and Scenic Rivers System as they have been found eligible. We must protect the outstanding and remarkable values of these river reaches to protect their potential for being designated Wild & Scenic in the future.

1.5 Dispute Resolution

In the DLA, PCWA proposes that a dispute between resource agency and PCWA be addressed following a specified procedure.¹ We request that PCWA revise this section so that the Final License Application includes non-governmental organizations involved in the relicensing and private citizens in the dispute resolution procedure.

2 Bypass Reaches

The Foothills Water Network thinks we are relatively close to agreement with PCWA's Draft License Application flows on the bypass reaches. We provide the following comments and recommendations.

2.1 Foothills Water Network Objectives

The Foothills Water Network's objectives for the bypass reaches on the Middle Fork American River below French Meadows Dam and below Interbay Dam, and on the Rubicon River below Hell Hole Dam include:

1. Enhance whitewater boating opportunities.
2. Protect Foothill Yellow-Legged Frog populations in existing reaches below Interbay Dam and Hell Hole Reservoir.
3. Enhance Rainbow Trout in all life stages, with particular emphasis on spawning and rearing.

¹ PCWA, DLA. Section 11.0

4. Enhance benthic macroinvertebrates below French Meadows Reservoir, Interbay Dam, and Hell Hole Reservoir, thereby enhancing the Rainbow Trout fishery as well as angling opportunities.
5. Protect aquatic organisms during PCWA's annual maintenance and emergency outages.

2.2 Minimum Instream Flows

Closure of Diversion on Duncan Creek

In its DLA, PCWA proposes to close the diversion structure on Duncan Creek on July 1st.

During our negotiations on March 10, 2010, Foothill Angler Coalition, a Foothills Water Network member, proposed that PCWA close the diversion on May 15th for each of the three small streams (Duncan Creek, and North and South Forks of Long Canyon Creek). Foothills Water Network still believes that changing the closure date of the diversion on Duncan Creek to May 15th would benefit the watershed by providing greater wetted area and more area for fish and benthic macroinvertebrates, and that this would therefore enhance the angling experience. However, if PCWA is willing to agree to the Network's proposed increased minimum flows for Duncan Creek (as compared to flow proposed in the DLA), we are willing to consider accepting PCWA's proposed diversion closure date of July 1st.

Duncan Creek Minimum Flows

The Network agrees with PCWA's proposal that required flows in Duncan Creek be the lesser of the stated numeric minimum flow or the actual inflow to Duncan Diversion. Operating under this principle, the flow below the Duncan Creek Diversion will often be less than the stated numeric minimum flow.

The Foothills Water Network recommends higher minimum instream flows in Duncan Creek than those proposed in the DLA. In its DLA, PCWA proposes to modify the outlet works on Duncan Creek Diversion to eliminate clogging of the diversion.² The elimination of this clogging will reduce leakage, therefore decreasing the actual flow below Duncan Creek Diversion when compared to historic conditions. The Network's slightly increased proposed minimum flows attempts to offset this on-the-ground reduction in releases from Duncan Diversion.

Our recommended increase of stated minimum flows will retain the existing wetted perimeter to the benefit of benthic macroinvertebrates, which will in turn benefit fish. In addition, our proposed flows will maintain the current angling experience for the winter months through July 1st, PCWA's proposed shutoff date for the diversion. A reduction in actual streamflow would reduce habitat for Rainbow Trout. For instance, the difference between 4 cfs (DLA) and 6 cfs (FWN) in Critically Dry years is 10% of the Weighted Useable Area.

The chart below compares the Network's flow recommendations for Duncan Creek to PCWA's proposed flows in the DLA. We have placed a dash wherever the Foothills Water Network's proposed flows are the same as flows proposed in the DLA.

² PCWA DLA, Exhibit E, Section 8.3.1.1, and in the BA/BE, Section 6.0

Figure 1 Duncan Creek Minimum Instream Flows

Months	PCWA CD	FWN CD	PCWA Dry	FWN Dry	PCWA BN	FWN BN	PCWA AN	FWN AN	PCWA Wet	FWN Wet
Oct	4	6	8	10	8	10	8	10	8	10
Nov	4	6	8	10	8	10	8	10	8	10
Dec	4	6	8	10	8	10	8	10	8	10
Jan	4	6	8	10	8	10	8	10	8	10
Feb	4	6	8	10	8	10	8	10	8	10
March 1-14	4	6	8	10	8	10	8	10	8	10
March 15-30	8.5	-	11	11.5	12.5	-	16	-	16	-
April	13	-	14	-	17	-	24	-	24	-
May	13	-	14	-	17	-	24	-	24	-
June	6.5	8	7	12	8.5	12	12	14.5	12	14.5
July	PCWA DLA proposes ending diversions July 1st; Minimum Instream Flow or Inflow									
August										
Sept										

Rubicon River Minimum Flows

In Wet and Above Normal years, we recommend increasing minimum instream flows in the Rubicon River below Hell Hole Reservoir from June 15 through September 30. This small flow increase provides an important benefit for Rainbow Trout rearing and holding through the hotter summer months of the year.

In the chart below, we have included the Network’s proposal for increased flows for Wet and Above Normal years as compared to PCWA’s proposed flows in the DLA. We have placed a dash wherever the Foothills Water Network’s proposed flows for Above Normal and Wet years are the same as flows proposed in the DLA.

Figure 2 Rubicon River Minimum Instream Flows

Months	CD	D	BN	PCWA AN	FWN AN	PCWA Wet	FWN Wet
Oct	15	20	20	25	-	25	-
Nov	15	20	20	25	-	25	-
Dec	15	20	20	25	-	25	-
Jan	15	20	20	25	-	25	-
Feb	15	20	20	25	-	25	-
March 1-14	15	20	20	25	-	25	-
March 15-30	31	35	42	55	-	60	-
April	31	35	42	55	-	60	-
May	23	35	42	55	-	60	-
Jun 1-14	19	28	31	50	-	50	-
Jun 15-30	15	20	20	40	45	40	45
July	15	20	20	30	40	30	40
August	15	20	20	30	40	30	40
Sept	15	20	20	30	35	30	35

Middle Fork American River below French Meadows Reservoir Minimum Flows

The Foothills Water Network recommends increasing minimum instream flows in the Middle Fork American River below French Meadows Reservoir in the summer months of Wet years. In the chart below, we have included our proposal for increased flows for Wet years as compared to PCWA’s proposed flows in the DLA. We have placed a dash wherever Wet year flows are the same as flows proposed in the DLA.

Figure 3 French Meadows Minimum Instream Flows

Months	CD	D	BN	PCWA AN	PCWA Wet	FWN Wet
Oct	8	9	10	11	13	-
Nov	8	9	10	11	13	-
Dec	8	9	10	11	13	-
Jan	8	9	10	11	13	-
Feb	8	9	10	11	13	-
March 1-14	8	9	10	11	13	-
March 15-30	11	11	11.5	15.5	16.5	-
April	11	13	13	20	20	-
May	11	13	13	20	20	-
June	8	11	11.5	15.5	16.5	20
July	8	9	10	11	16.5	20
August	8	9	10	11	16.5	20
Sept	8	9	10	11	16.5	15

2.3 Pulse Flows

Flows that more closely mimic the natural hydrograph are extremely important to maintain the health of the ecosystem; particularly the bypass reaches on this project.³ The Foothills Water Network appreciates and supports PCWA’s objective of emulating the spring snowmelt recession limb of the hydrograph. Our discussions and negotiations on this issue have been positive and fruitful; PCWA’s inclusion of the pulse flows to emulate the snowmelt recession in the DLA is a testament to our joint commitment to this mitigation. The Network offers these comments on PCWA’s approach to providing a snowmelt recession limb that emulates the natural spring snowmelt recession.

The Foothills Water Network recommends consistency in our ramping rates to mimic the snowmelt recession across the bypass reaches. In some cases the schedule proposed in the DLA to ramp down flows coming off of pulse and spill events, is too fast to avoid adverse effects on Foothill Yellow-Legged Frogs. Recent analysis by scientists at University of California at Davis suggests that a 9% per day recession rate is the limit for flow changes that is protective of Foothill Yellow-Legged Frogs.⁴ Therefore, we recommend that PCWA slow the rate of ramping down off pulse flows so the recession limb more closely emulates the unimpaired snowmelt recession rate and meets this criteria of 9%/day. This rate should be applied globally across the bypass reaches for pulses and down-ramping from spill. Mimicking the snowmelt recession will benefit aquatic organisms including Foothill Yellow-Legged Frogs, Rainbow Trout and benthic macroinvertebrates.

The Foothills Water Network members recommend PCWA provide a pulse flow that emulates the spring snowmelt pulse and associated recession rates in Wet, Above Normal, and Below Normal year types. PCWA only proposes pulse flows in Wet and Above Normal year types in its DLA. However, the unimpaired hydrology shows that snowmelt pulses occurred in all water year types. The spring pulse flows are important to initiate motion of gravels, reduce encroachment of riparian vegetation, and provide spawning flows for Rainbow Trout. Though we think the pulses

³ Yarnell, Sarah M., Viers, Josh H., Mount, Jeff F. Ecology and Management of the Spring Snowmelt Recession. *BioScience* Vol 60. ISSN 0006-3568, electronic ISSN 1525-3244. 2010. American Institute of Biological Sciences. p. 114-127.

⁴ Pers. comm, Sarah Yarnell, UC Davis.

are important in all year types, we are not asking for a snowmelt recession pulse in Dry and Critically Dry years. This is in consideration of foregone power and reduced water availability for water supply.

French Meadows

The Foothills Water Network recommends that PCWA's Final License Application include a pulse flow in the Middle Fork American River below French Meadows Reservoir in Below Normal years, in addition to the pulse flows in Wet and Above Normal years proposed in the DLA.

In addition, we recommend that PCWA modify its proposed ramp rate for pulse flow below French Meadows in its Final License Application. The ramp rate should be slowed to 9%/day to limit encroachment of riparian vegetation and benefit aquatic organisms including Rainbow Trout and benthic macroinvertebrates. The slowed ramping rate will also have the added benefit of providing more opportunity days for boaters at around 200 cfs.

Interbay

The Foothills Water Network recommends that PCWA's Final License Application include a pulse flow in the Middle Fork American River below Interbay Dam in Below Normal years, in addition to the pulse flows in Wet and Above Normal years proposed in the DLA.

For the Interbay whitewater boating reach, the Proposed Action proposes less boatable opportunity days than the No-Action Alternative it appears that this is due to the fact the proposed ramping rate from spills is actually faster than the rates applied under historical operations. The Network recommends that PCWA's Final License Application include a pulse flow that provides equal to or more whitewater boating opportunity days than the No-Action Alternative.

We request that in its Final License Application, PCWA clarify its level of control on releases from Interbay to inform the ability to refine its ramp down schedule.

We request that PCWA's Final License Application assess boatable opportunity days based on the optimum flows resulting from the PCWA test flow study below Interbay Dam⁵. Results from this study show that optimum boatable flows were identified as the range between 400 and 500 cfs. The metrics in the PCWA DLA that assess boater opportunity days for this reach are based on a much larger flow range of 200-800 cfs. We request that these metrics be revised so we can better understand the effects of the Proposed Alternative on the boatable opportunity days below Interbay.

Duncan Creek Pulse Flows

The Foothills Water Network recommends that PCWA include in its Final License Application a pulse flow in Duncan Creek below Duncan Diversion in Below Normal years, in addition to the pulse flows in Wet and Above Normal years proposed in the DLA. The spring pulse flows are important to initiate motion of gravels and vegetative management in all water year types.

⁵ REC4 Contingency Whitewater Boating Study Report.

In addition, we recommend slowing PCWA's proposed snowmelt recession rate to limit encroachment of riparian vegetation. The duration of pulse flows are particularly important on Duncan Creek because inundating the vegetation under the high water mark will, in the long term, help in keeping riparian vegetation from continuing its encroachment into the stream channel. Riparian vegetation encroachment makes wading difficult and reduces mobilization of cobble bars along the creek. A slow recession rate following a pulse will benefit aquatic organisms including Rainbow Trout and benthic macroinvertebrates.

Rubicon River Pulse Flows

In the DLA, PCWA proposes different recession rates coming off of spills when there is more than one spill in any year. We recommend that in its Final License Application, PCWA simplify this requirement so that the recession rate following any spill is the same as the rate prescribed for the year's first spill. Part of our concern stems from the fact that it may be difficult to define when a first spill event has actually occurred. This would make compliance requirements difficult to determine. We have additional concerns that a more accelerated ramping off a second spill event could adversely affect Foothill Yellow-Legged Frogs.

The Network also recommends that in its FLA, PCWA apply its proposed Above Normal Pulse Flow schedule to the Below Normal Year Type. The rationale is that the snowmelt recession rate is important to species protection in all year types. Late snowmelt or rain events cause flow peaks that can quickly change stage and adversely affect Foothill Yellow-Legged Frogs egg masses and stages of tadpole emergence. We understand that releasing the pulse in Below Normal years might not be possible using a combination of spill gates and the instream flow valve because the water might not reach the spill gates until a time when its release would adversely affect the eggs and emergence of Foothill Yellow-Legged Frogs below Hell Hole Dam. Accordingly, we look forward to continuing our discussion with PCWA on their proposed valve testing and alternative plans to provide pulse flows that meet the geomorphologic range of flows that can initiate motion.

In addition, pulse flows are important to more frequently inundate the banks and mid-channel bars to reduce encroachment of vegetation. Please see aerial photos comparing the North Fork American at Moonshine Ravine below Euchre Bar at 1,842 feet elevation and the Rubicon downstream of the South Fork Rubicon at 1,822 feet elevation. The North Fork American, which is unimpaired, has banks that are free of vegetation and open cobble bars under the high water mark. In contrast, the Rubicon has banks and mid-channel bars covered with vegetation that had time to grow between more infrequent high flow events. (See Appendix A Comparison of Riparian on Rubicon River and North Fork American) The seasonal storage betterment, Hell Hole Reservoir will require an additional 7,600 af to spill, delaying the spill even more than under current operations and facilities. The betterment will reduce the spill events for Below Normal water years further justifying the need to schedule pulse flows in Below Normal years.

The Network requests that PCWA move its start date for Rubicon pulse flows to the first weekend of May. The rationale for this change is so that boaters can more easily take advantage of boatable flows on the weekend rather than weekdays. Additionally, we would like a pulse flow regime that sets a predictable schedule including a minimum of two days of whitewater

boating flows in Wet, Above Normal, and Below Normal year types. Historically, boatable flows have occurred in Below Normal years.

We do not agree with PCWA's proposal in the DLA that we fix the volume of water available for the pulse flow below Rubicon at this time due to lack of information regarding boatable flows. We request that in its FLA, if PCWA proposes to set the volumes for the pulse flows and recession rate, they also include a criterion that the pulse will provide adequate boating opportunity days. In the DLA, PCWA proposes to set the volume of water available for the pulse flow to 15,808 acre-feet in a Wet year and 7,081 acre-feet in an Above Normal year as well as retain the proposed ramping rates in the event that we increase the magnitude of the pulse itself. However, at this time, we do not have verified optimum boatable flows for the Rubicon River. If, based on successful testing of the Hell Hole valve at higher flows, the pulse flow increases from 200 to 400 or 600 cfs, we don't expect the proposed volumetric constraints to meet all the interests. In particular, we don't expect that the proposed volumes for Above Normal year types will allow for a reshaping of the pulse flow to meet the threshold for initiation of motion and boatable flows as well as the proposed ramping rates. That said, we lack the boating flow information to test our hypothesis.

As discussed during negotiations, the boatable flow for the Rubicon River below Ellicotts Bridge still needs testing. Historically, boaters have had to estimate the flow because there was no publicly available gauging information. Most boaters participating in the consultation did not have the actual dates they boated the Rubicon so their flow estimates could not be correlated with actual historic hydrology for verification. PCWA's Contingency Whitewater Boating Study results state that the minimum boatable flow is 400 cfs, but it is clear from the study data that this is an unverified flow estimate collected from boater interviews and consultation.⁶ Subsequent to filing the DLA, stakeholders provided data to PCWA with date-certain whitewater boating runs correlated with spill volume and volume estimates for the South Fork Rubicon. These data indicate that a minimum flow much greater than the 400 cfs flow that appears in the REC 4 Contingency Whitewater Boating Study would be more appropriate optimum flow. The negotiations and tradeoffs surrounding the pulse flows to be released from Hell Hole require more precise information from a test flow boating study in order to come to collaborative agreement.

Accordingly, we appreciate PCWA's willingness to conduct a test boating flow study on the Rubicon River below Ellicotts Bridge. PCWA has agreed that if Hell Hole spills from April 1 to May 1, 2011 then PCWA will organize a whitewater boating test flow for the Rubicon Run. Based on the timing of the Foothill Yellow-Legged Frog tadpole emergence, this timing should not adversely affect Foothill Yellow-Legged Frog populations in the Rubicon River.

If Hell Hole doesn't spill or is not projected to spill at least 400 cfs between April 15 and May 1, 2011, then PCWA will purchase water from Sacramento Municipal Utility District (SMUD) to be released down the South Fork Rubicon to provide the test flow for the study.

⁶ PCWA DLA, Technical Study Reports, REC 4: Streambased Recreation Opportunities, Contingency Whitewater Boating Study Report.

2.4 Hell Hole Feasibility Study

The Network does not agree to the criteria PCWA sets forth constraining the volume of the pulse flows after future valve testing. We request that in its FLA, PCWA include additional criteria that the pulse flow must accommodate at least a 2-day boatable flow as well as ecologically appropriate ramping rate.⁷ At this time, we lack information on optimum boatable flows for the Rubicon Run. In particular, we are concerned that PCWA's DLA pulse flows volumes for an Above Normal year will not accommodate potential pulse magnitudes of 400 and 600 cfs, 2 consecutive boatable opportunity days, and an appropriate ramp down rate.

We recommend that in its FLA, PCWA include a back-up alternative or set of alternatives for PCWA to provide the pulse flows should the valve fail to test high enough to provide geomorphologic and optimum boating flows. One option is that PCWA could supplement flows on the Rubicon River with water purchased from the Sacramento Municipal Utility District (SMUD) which operates the Upper American River Project.

The Whitewater Boating Test Flow Study on the Rubicon River below Ellicotts Bridge is an incomplete study and we reserve the right to comment in the future on how it affects PCWA's Draft and Final License Applications.

2.5 Outages

Annual Maintenance Outage

During the outage maintenance period scheduled for the last week in September to November 1st, PCWA must meet minimum instream flows in the Peaking Reach by releasing the water down the Middle Fork American and Rubicon Rivers. It is our understanding that during an outage, no flows can be delivered via PCWA's pipes so all instream flows for the Peaking Reach must be delivered via the bypass reaches.

Foothills Water Network believes that during annual maintenance outages, PCWA will be able to meet its DLA minimum flows in the Peaking Reach without causing adverse effects on Foothill Yellow-Legged Frogs in the Middle Fork American and Rubicon River bypass reaches.

As we understand it, flows in the bypass reaches that inundate mid-channel bars could potentially trap and wash away juvenile Foothill Yellow-Legged Frogs. Therefore, maintaining flows below this inundation level is important for habitat retention in the fall period. We think that the stage change in the bypass reaches resulting from conveying minimum flows for the Peaking Reach would not inundate mid-channel bars. For example, if the Peaking Reach minimum flow during the outage is 200 cfs and each bypass reach conveys half of that flow, then the Rubicon River's minimum flows and additional 100 cfs would produce a stage change not exceeding 1.25 feet at river mile 20.9. We do not believe this incremental stage change would inundate mid-channel bars. See the Table 1 below for Stage Discharge Relationships for the Rubicon Resulting from Conveying Peaking Reach Minimum Flows During the Annual Maintenance Outage. Table 1 is based on Appendix B: PCWA's Rubicon River Stage Discharge Relationship at River Mile 20.9.

⁷ PCWA DLA, Instream Flow Reservoir Minimum Pool Measure, p. A-1

Table 1: Stage Discharge Relationships for the Rubicon Resulting from Conveying Peaking Reach Minimum Flows During the Annual Maintenance Outage

Months	CD			Dry			Below Normal			Above Normal			Wet		
	Rub. Min	Rub Min + Peak Min*	Stage Change at RM 20.9	Rub. Min	Rub Min + Peak Min	Stage Change at RM 20.9	Rub. Min	Rub Min + Peak Min	Stage Change at RM 20.9	Rub. Min	Rub Min + Peak Min	Stage Change at RM 20.9	Rub. Min	Rub Min + Peak Min	Stage Change at RM 20.9
Sept	15	115	1.25	20	120	1.12	20	120	1.12	35	135	0.86	35	135	0.80
Oct	15	115	1.25	20	120	1.12	20	120	1.12	25	125	0.97	25	125	0.97
Nov	15	115	1.25	20	120	1.12	20	120	1.12	25	125	0.97	25	125	0.97

Peaking Reach Minimum Flow Example 200
 Half of Peaking Reach Minimum Flow Example:** 100

Stage Change at RM 20.9 based on PCWA's stage change figure and table with averages of all 22 cross-sections at this site. Flows changes represented by the closest data point for flow from PCWA's stage change charts

* Rubicon Minimum Instream Flow plus Peaking Reach Minimum Instream Flow as represented by 200 cfs as an example

** Half of the peaking reach flows can be delivered via the Middle Fork American River.

FWN Proposed Minimum Flow highlighted in green

In addition, by the start of the annual maintenance outage, Foothill Yellow-Legged Frogs will have developed sufficient mobility to move away from water rising incrementally at the proposed ramping rate. Therefore, the associated lateral rise of water on the channel banks should not risk washing away juvenile Foothill Yellow-Legged Frogs.

In addition, we do not believe that the ramping rates need to be modified from the DLA proposed ramping rate in order to protect Foothill Yellow-Legged Frogs during emergency outages. Based on the minimal resulting stage change, a slower ramping rate during emergency outages is not necessary to protect Foothill Yellow-Legged Frogs from the increase in flows.

Barring physical constraints due to maintenance and repair, PCWA should release flows during the annual outage in a way that generally provides close to an even split of flow releases between the Rubicon and Middle Fork American rivers, in order to provide the required outage flow in the Peaking Reach.

Consequently, the Network recommends that PCWA's FLA include minimum flows for the Peaking Reach that will not adversely affect Foothill Yellow-Legged Frogs in the bypass reaches and still enhance habitat on the Peaking Reach during annual outage.

In order to better understand the development of Foothill Yellow-Legged Frogs, the Network recommends that PCWA's FLA include formal monitoring of Foothill Yellow-Legged Frogs during the annual maintenance outage be required as a license condition. The monitoring should compare developmental stages of the frogs at the upstream and downstream limits of their populations, in order to understand whether there is a difference in timing of development related to flow, elevation, and temperature. These results would help answer the question of whether the bypass reach flows needed to meet the Peaking Reach outage flow are detrimental to the abundance of frogs in the bypass reaches.

Emergency Outages

As during the annual maintenance outage, the Network believes that during emergency outages, PCWA will be able to meet its DLA minimum flows in the Peaking Reach without causing adverse effects on Foothill Yellow-Legged Frogs in the bypass reaches.

For example, PCWA's DLA proposes that the Peaking Reach's highest minimum flow be 450 cfs in May of Wet year types. The PCWA DLA also includes a minimum flow of 60 cfs in the Rubicon River for the same time period. In the spring of a Wet year, the bypass reaches' minimum flows will likely be exceeded by the pulse flows proposed in the DLA in addition to spring accretion and inflow. In other words, based on review of the historical record, it is highly unlikely that the bypass flows will be running at their minimum instream flows during the spring of Wet water years. That said, even if the Rubicon River was running at its minimum instream flow – 60 cfs – it could convey half of the minimum flows for the Peaking Reach – 225 cfs – (the other half traveling down the Middle Fork American), and only result in a 1.32 stage change at river mile 20.9.

In addition, we do not believe that the ramping rate needs to be modified from the DLA Proposed ramping rate for emergency outages for the same reasons discussed above in our comments on the annual maintenance outage flows in the bypass reaches.

Furthermore, the Network requests that PCWA investigate options and a cost estimate for constructing a bypass past the turbines for electrical outages. A physical bypass could provide instream flows during long-term electrical outages. This back up infrastructure is important for safety reasons and protection of the aquatic ecosystem during long unplanned outages affecting the electrical system. We understand that the bypass would not be able to provide flows during a mechanical outage at the dam outlets.

We recommend PCWA include a license condition in its Final License Application to evaluate and mitigate for the impacts of any emergency outage flows that are lower than the minimum flows in the Peaking Reach or bypass reaches.

3 Peaking Reach Aquatic Resources

3.1 Foothills Water Network Objectives

The Foothills Water Network's objectives in the Peaking Reach below Oxbow Powerhouse are:

1. Enhance Rainbow Trout in all life stages, with emphasis on spawning and rearing.
2. Enhance benthic macroinvertebrate populations to enhance the fishery and angling.
3. Protect Brown Trout in all life stages.

3.2 Minimum Instream Flows

At this time, the Foothills Water Network is not providing an alternative flow scenario for the Peaking Reach. Compared to the time we have spent negotiating flows on the bypass reaches, we have spent very few days doing the same on the Peaking Reach. To date, we have not sufficiently explored various alternative flow scenarios on the Peaking Reach with the operations model. We are currently working closely with the State and Federal resource agencies to explore alternative model runs that meet our interests and will discuss those alternatives with PCWA in our future relicensing meetings.

Generally, the Foothills Water Network recommends that DLA proposed minimum flows should be increased in order to enhance the overall aquatic ecosystem, enhance Adult Rainbow Trout habitat, increase food production, and decrease the magnitude of fluctuation between minimum and peak flows. This decrease in the magnitude of fluctuation will enhance overall aquatic ecosystem health, as well as fishery and benthic macroinvertebrate populations by increasing wetted perimeter and wetted area at the lowest flows, and decreasing the magnitude of fluctuation between minimums and peaks.

After reviewing the PCWA DLA flows, the Network believes that increasing minimum instream flows is of greater importance than decreasing maximum flows in order to benefit fisheries and macroinvertebrates and the overall health of the aquatic ecosystem in the Peaking Reach.

The Network recommends that the PCWA Final License Application include a condition that operations be limited to one peaking fluctuation from minimum flow to peak flow every 24 hours. We would like to craft license terms and conditions that discourage if not prohibit PCWA from “double-peaking” within a 24-hour period. We look forward to working with PCWA to craft a clear definition for this concept that is operable and enforceable.

The Network agrees with PCWA that as we have discussed, the limited storage capability of Ralston Afterbay is a primary bottleneck constraining the Project’s flexibility. Upon review of the hydrology and PCWA’s Excel tool for the Peaking Reach, the Network has concluded that the capacity bottleneck at Ralston Afterbay is the primary obstacle that prevents PCWA from providing increased minimum flows. It is our understanding that for some of the summertime the obstacle to providing higher minimum flows is not the availability or expense of the water; rather, it is simply that Ralston Afterbay’s capacity is too small to provide the flexibility required to re-regulate the peaking flows from the large upstream generation units in a way that provides consistent and higher minimum instream flows. For this reason, we request that PCWA conduct a study of potential options for engineering and operations modifications at Ralston Afterbay that would increase its usable storage capacity and thus its ability to serve as a re-regulating facility. Please see Section 5.1 for our Request for a study to increase capacity at Ralston Afterbay.

Ramping Rates

The Network agrees with PCWA’s ramping rate of 18 inches per hour for the Peaking Reach. However, we are concerned about the proposed “averaging” proposed to meet the ramp rate. We understand there may be a compliance issue and that licensee will make best efforts to keep the ramping as even as possible. We look forward to talking with PCWA about how we might craft a compliance measure that meets both of our interests.

We also request that PCWA make available the hydraulic engineering calculations, notes and descriptive narratives that provide the technical context for benchmarking the original ramp rates of 12 inches per hour in the original/amended license to the new “lower” ramp rates of 18 inches per hour for the Peaking Reach. PCWA has stated that moving the gauge from the original position to where it is now located resulted in a new ramping rate of three feet per hour. Network members would like to confirm PCWA’s assertion that the move resulted in a change in ramping rate to three feet per hour.

Annual Maintenance Outage Minimum Flows

We request that PCWA's Final License Application include higher minimum instream flows in the Peaking Reach during the outage period that those flows proposed in the DLA. As we discussed in Section 2.5, we do not think conveyance of higher flows will adversely affect Foothill Yellow-Legged Frogs in the bypass reaches.

The Peaking Reach's aquatic environment should not have to endure extreme low minimum flows for up to 30 days or more merely because of maintenance work. We would like to craft license terms and conditions that require PCWA to reduce the outage flow periods to the absolute minimum. The project's license requirements should meet the needs of the environment, not the reverse.

Ramping Rates for Annual Maintenance Outage

The Network proposes that PCWA include in its FLA a special ramping rate for ramping down from minimum flows to outage flows at the beginning of the annual maintenance outage. The 'outage ramping rate' should be slower than the proposed 18"/hour in order to avoid fish stranding.

PCWA studies documented fish stranding at Gray Eagle Bar resulting from dropping flows .

PCWA's Stranding Evaluation concluded:

The majority of fish temporarily trapped (approximately 250 fish) were located in a dredge hole developed by recent mining activities. Temporarily trapped/isolated fish consisted of a mix of species (trout fry, California roach, hardhead, Sacramento pikeminnow, and sculpin) that were found swimming in pool areas isolated from the main channel.⁸

We respectfully disagree with PCWA's estimation that "trapped fish would survive until another peaking event inundated the habitat."⁹ The Stranding Evaluation was a snapshot in time and does not tell us whether the stranded fish survived the stranding. Fish may not have survived due to predation by raccoons or other terrestrial animals or due to lethal temperatures.

Notice of Timing of Annual Maintenance Outage

The Network recommends that PCWA include a condition in its FLA that it will give four weeks notice of the start date for down-ramping to the annual maintenance outage. The notice should be distributed to local fishing clubs including Horseshoe Bar Club, Granite Bay Flycasters as well as State and Federal resource agencies including California Department of Fish and Game This notice will give time to the clubs and resource agencies to coordinate fish rescues.

⁸ PCWA DLA, Technical Study Reports, AQ1-Instream Flow Technical Study Report, p. 41

⁹ PCWA DLA, Technical Study Reports, AQ1-Instream Flow Technical Study Report, p. 41

3.3 Aquatic Resources in the Middle Fork American River below Oxbow Powerhouse

Benthic Macroinvertebrates

The Foothills Water Network recommends that PCWA include conditions in its FLA that reduce flow fluctuations in the Peaking Reach to increase benthic macroinvertebrates (BMI) populations and food production for fish. Based on PCWA's Effective Food Habitat Matrices for the Peaking Reach, food production increases as the magnitude of flow fluctuations decrease.¹⁰ (See Appendix C for AQ1-Instream Flow Study Report, Figure O-15 and O-24 Middle Fork American Effective Food Habitat Matrices.) An increase in minimum instream flows from the PCWA DLA proposed minimum flows would increase food production and BMI habitat in the Peaking Reach.

The AQ3 Macroinvertebrate and Aquatic Mollusk Study Report shows that the BMI composition at the top of the Peaking Reach contains a higher percentage of tolerant taxa than the BMI composition further downstream. Specifically, the study shows that at the top of the Middle Fork American River Peaking Reach immediately below Ralston Afterbay Dam (MF24.4) and immediately below Oxbow Powerhouse (MF23.6) there were "fewer intolerant EPT taxa, more high tolerance individuals, and lower taxa richness."¹¹

The PCWA Macroinvertebrate and Aquatic Mollusk Study Report also shows lower Index of Biological Integrity (IBI) scores just below the Ralston Afterbay in comparison to unimpaired reference reaches.¹² The Network disagrees with PCWA's interpretation of study results that lower IBI scores at the downstream sites on the Peaking Reach can be attributed to elevation. We suggest that lower scores can be attributed to the adverse impacts of the Project. The Lower Yuba below Englebright, a nearby river at an elevation similar to the Middle Fork American below Oxbow Powerhouse, has an extremely rich and diverse macroinvertebrate population.¹³

Adaptive Management

It is essential that whatever flow regimes are identified under the new license, PCWA would be responsible to evaluate the instream flow impacts on BMI habitat and production. Should licensed flow regimes indicate decreases or adverse trends in BMI populations, then further studies should be conducted in developing and adapting instream flow regimes that are more conducive to BMI populations and overall aquatic ecosystem health.

The Network recommends that PCWA include an adaptive management clause in its FLA that if licensed flow regime studies indicate decreases or adverse trends in BMI populations, then PCWA will adapt instream flow regimes that provide for increases in BMI habitat and production.

¹⁰ PCWA DLA, Technical Study Reports, AQ1 Instream Flow Technical Study Report, Figure O-15 and O-24 Middle Fork American Effective Food Habitat Matrices.

¹¹ PCWA DLA, SDA Proposed Environmental Measures, Section 7.5.7.2 Benthic Macroinvertebrates, p. 7.5-15

¹² PCWA DLA, Macroinvertebrate and Aquatic Mollusk Technical Study Report p. 8.

¹³ Yuba Accord River Management Team.

Fisheries and Spawning

The Peaking Reach below Oxbow Powerhouse offers very limited Rainbow Trout spawning gravels in the mainstem, and limited Rainbow Trout spawning habitat due to the peaking flow fluctuations. In comparison, the North Fork of the Middle Fork American River provides better Rainbow Trout spawning habitat because it is unimpaired and contains suitable spawning gravels. Other tributaries to the Middle Fork American below Oxbow Powerhouse also offer potential spawning habitat that could be enhanced.

The Network recommends that PCWA's FLA include a Rainbow Trout spawning monitoring plan that requires the licensee to inform the objective of enhancing Rainbow Trout spawning in the Peaking Reach below Oxbow Powerhouse over the first ten years after license issuance. The plan should include monitoring of juvenile and adult fish populations, gravel, and downstream migrant trapping in tributaries to the mainstem Middle Fork American River below Oxbow Powerhouse. The monitoring plan should be coupled with an adaptive management program of spawning enhancement in the mainstem and tributaries, beginning with implementation and evaluation of targeted gravel augmentation. The plan should include definition of decision points, decision makers, and potential measures and timelines for their implementation, to enhance spawning in the Peaking Reach. We are recommending additional potential non-flow spawning mitigations in Section 5.2 below.

The Foothills Water Network also recommends the PCWA FLA include an analysis of weighted usable area (WUA) for Winter-spawning *O. mykiss* spawning. For winter-spawning *O. mykiss*, this analysis should inform management decisions for winter spawning flows, winter base flows and flows during fall and winter outage periods for the bypass and peaking reaches. In addition, the WUA analysis should inform management of flows for juvenile rearing habitat, for winter-spawning *O. mykiss*, which takes place earlier than for spring spawning *O. mykiss*. As currently written, PCWA's AQ1 Instream Flow Technical Study Report does not analyze flows for winter-spawning *O. mykiss*.

The Foothills Water Network first filed this comment on PCWA's Draft AQ1 Instream Flow Technical Study Report. PCWA responded that flow-related analysis and comparisons for would not be included in the technical study reports "for any time period other than spring." The Network still maintains that PCWA should conduct the flow analysis for spawning for winter-spawning *O. mykiss* in order to inform license conditions.

Fishery Management Provisions

The Foothills Water Network recommends that PCWA's new license retain and appropriately modify portions of the existing FERC No. 2079 License Amendment Language related to Fishery Management. The current 1981 License Amendment includes a provision that allows fishery management to be modified by mutual agreement of US Forest Service, California Department of Fish and Game, and US Fish & Wildlife Services. We believe that the new license should also contain this provision with the following appropriate modifications.¹⁴

New License language would be modified to read as follows:

¹⁴ FERC Project No. 2079 ORDER AMENDING LICENSE (MAJOR) issued March 18, 1981 Page 5: (E) Article 37: Footnote; 2/

Oxbow Powerplant releases: The scheduled flow releases may be modified for beneficial aquatic and fishery management purposes upon consensus among the Licensee, the U.S. Forest Service, the U.S. Fish and Wildlife Service, and the California Department of Fish and Game. Should consensus be unobtainable, parties will employ appropriate mediation and/or arbitration processes to reach a determination.

4 Peaking Reach Recreation Flows

4.1 Foothills Water Network Objectives

The Foothills Water Network objectives for recreation flows in the Peaking Reach are:

1. Enhance angling opportunities that are compatible with sustaining robust fisheries and thriving populations of other desirable biota.
2. Enhance whitewater boating opportunities.
3. Protect trail crossing opportunities.

4.2 Angling

The 2007 “Report of Findings from the 2006 Auburn State Recreation Area Visitor Survey” is based on extensive recreational surveys developed in 2006 for California State Parks in support of the Auburn SRA General Plan/Interim Resource Plan. The Bureau of Reclamation has suspended the planning process. The surveys that inform the Report indicate that river angling is a recreational benefit on the Peaking Reach.¹⁵

The Network recommends that in its DLA, PCWA include an Angling section that analyzes the benefits of the Proposed Action on angling. In its analysis of the Peaking Reach below Oxbow Powerhouse, the DLA states that the Proposed Action enhances angling but provides no analytical support for this statement¹⁶. No further mention of angling in the Peaking Reach is made. The Foothills Water Network requests that PCWA analyze the effects of its proposed Peaking Reach flows on angling opportunities as well as angling safety. The analysis in the DLA of trail crossings provides a good model for analyzing proposed flow effects on angling opportunities. The results of REC 4: Streambased Recreation Opportunities Technical Study Report and the discussion in the Proposed-Action Alternative provide extensive analysis of trail crossing and whitewater boating recreation uses. The Network requests that PCWA apply their considerable talents towards developing the same type of analysis for the recreational use of angling in order to inform our collaborative negotiations.

In particular, we would like PCWA’s FLA analysis on Angling benefits to address when Peaking Reach flows proposed in the DLA provide preferred angling flows at preferred times, and how the flows affect crossing and wading safety at the following angling locations: below Ralston Afterbay and at Horseshoe Bar, Cache Rock, Drivers Flat, and the confluence of the Middle Fork American with the North Fork American. In the experience of the Network members, the primary demand for angling recreational use occurs between April and November, though some

¹⁵ Auburn State Recreation Area Survey Report, Table 19, p. 17.

¹⁶ PCWA DLA, Biological Assessment Biological Evaluation, Figure 28, p. 20.

anglers also fish during the winter. Generally, anglers prefer the mornings, late afternoons, and evenings and avoid the midday. During the summertime, anglers in the Foothills Water Network prefer fishing between from Sunrise until 11:00 AM and from 3:00 PM and ½ hour after sunset. For preferred flows and timing, please also refer to the REC 4: Streambased Recreation Opportunities Technical Study Report's Appendix of the March 10, 2010 Angler Focus Group Notes. Like whitewater boating activities, angling benefits from a degree of predictability. Similar to commercial boating, commercial angling outfitters depend on pre-scheduled or long-term predictability in order to book clients. Safety for anglers also depends on predictability in terms of flow changes and hourly ramping rates. Therefore, the analysis of timing for angling flows should also inform the predictability of those flows months and weeks in advance.

PCWA's FLA should relate the preferred angling times and safe wadeable flows. The FLA should include an analysis of safe wadeable flows based on the crossing information developed to analyze trail crossings combined with input from the two angler focus group meetings, which appear in the REC 4: Streambased Recreation Opportunities Technical Study Report¹⁷.

The Network considered proposing recreational angling flows on the Peaking Reach at specific times during the day. Such flows might have maintained, during prime fishing hours, somewhat higher flows than the minimum flows. However, in analyzing the combined constraints of power generation operations and storage capacity in Ralston Afterbay, the Network decided that the limited water available to shape non-peak flows in the Peaking Reach would best be used to maintain minimum flows as high as possible. Should there be an opportunity to increase the usable storage capacity of Ralston Afterbay in the future; the Network believes that benefits to recreational angling could be achieved by reshaping the daily movement of water through the Peaking Reach to allow optimum fishing flows during times of day most suited seasonally to greatest angling interest.

4.3 Whitewater Boating

Tunnel Chute Run (downstream of Oxbow Powerhouse)

For over 25 years, the Project operations (through the use of Pacific Gas and Electric's contract to run the project) have provided scheduled flows which were agreed to in consultation between professional outfitter representatives and PG&E personnel early each spring. Indeed, for the past 19 years – in all water year types – scheduled releases have produced flows *seven days a week* with this informal arrangement (with the exception of 2001 due to the "energy crisis" we endured in California, as well as the extreme dry year. That year saw a resumption of scheduled water from late June on through the summer). In comparison, the Proposed Action in the DLA represents a reduction of scheduled whitewater releases on the Tunnel Chute Run.

Commercial whitewater boating requires flows to be scheduled prior to the rafting season, which begins in May. The boating opportunity days identified in PCWA's DLA do not take into account the need for pre-season scheduled flows. Unscheduled opportunities are useless to commercial whitewater outfitters and their clients as they cannot book trips on days with

¹⁷ PCWA DLA, REC 4: Streambased Recreation Opportunities Technical Study Report, Section 5.3 p. 10 and related Appendices.

unscheduled flows. Reliance on the informal arrangement that has been used in the past is not an acceptable mitigation for a 40 or 50 year license.

That said, PCWA's DLA analysis of it's the boatable flows in the Tunnel Chute reach does show that the volume of water is available. And in many days, months, and water years, the interests of PCWA and commercial whitewater boating align. With that in mind we will, in the future, make more specific comments - including quantity of water, time of release and days released - on what we'd like to see as regards recreational boating releases on the Tunnel Chute Run.

We request that PCWA's FLA include an analysis of boating opportunity days that are scheduled and predictable at least by the time the year type has been established. Commercial whitewater boating requires that flows be scheduled prior to the rafting season. As written, PCWA's DLA does not take into account the need for pre-season scheduling of flows. Unscheduled opportunities are of no benefit to commercial whitewater outfitters and their clients, since outfitters cannot book trips on days with unscheduled flows.

Whitewater Boating on Mammoth Bar and Confluence Runs

In its DLA, PCWA proposes an early release of 800 cfs at 5 am in the summer of Wet year in order to provide a boating opportunity on the Mammoth Bar and Confluence Runs during the middle of the day. This is the type of timing we would like to discuss further in our upcoming negotiations. If PCWA does not make early releases such as those proposed in the DLA for Wet years, then in many cases, boatable flows will arrive too late in the day at Ruck-A-Chucky and the Confluence for boaters to take advantage of them.¹⁸ The Network understands that in order to release earlier flows, PCWA would like to start the day with a full reservoir. We also understand the timing of the release can affect PCWA's flexibility to generate peak power.

The Network also requests that PCWA's FLA provide us with the information on the initial design of the whitewater features including the flows for which the features were designed. In our upcoming negotiations, we would like to take into account this recreation use as well as the angler experience and trout habitat negotiating flows for the Peaking Reach.

In addition, we request that PCWA evaluate in its FLA whether the installed whitewater features at China Bar provide a recreational opportunity at the flows under consideration for the new license. As part of this analysis, PCWA should publish at what range of flows the installed whitewater features provide opportunities for play boating.

Adaptive Management

The Network requests that PCWA and relicensing stakeholders discuss development of an adaptive management clause that if whitewater boating users on the Confluence Reach exceed a certain number by 2016, PCWA will increase whitewater boating opportunities provided by flow released from Ralston Afterbay. We are looking forward to a discussion on this topic which should address the threshold numbers for boating use, increased days, days of the week, and seasonality. In addition, we should discuss how increased frequency of early flows for the

¹⁸ Ruck-A-Chucky is the put-in for the Mammoth Bar whitewater boating run and the Confluence is the put-in for the Confluence whitewater boating run.

Confluence Reach could be timed and shaped to avoid adverse affects on other beneficial uses including angling and trail crossings.

4.4 Other Recreational Flow Events

Tevis Cup and Western States 100 Events

The Network recommends the following edits to the section on Tevis Cup and Western States 100 Events. The Tevis Cup and Western States 100 may have other training events on the trails, but these training events should not take precedence over the whitewater boating flows. It is the actual annual race events that should take precedence over boating. The narrative should be edited in the following way:

- **Event Coordination**

Coordinate with representatives of the Tevis Cup and Western States 100 to identify and provide flows suitable for adequate trail crossing conditions for these events (when flows are controllable by the MFP). The **annual** Tevis Cup/Western States 100 event recreation flows, when they occur, take precedence over whitewater boating flows. ~~If possible,~~ **Whitewater boating flows will be provided under a modified schedule (e.g., earlier in the day) that meets Tevis Cup and Western States 100 flows. The target flow for trail crossings during the races changes year to year because of changes in channel geometry. In wetter water years, meeting target flows for the races may be impossible because flows exceed the project's control. The flow will not go below the minimum instream flow in the license.**¹⁹

Wounded Warrior Event

The Network requests that PCWA provide a steady fishable flow during the four day annual Wounded Warrior event. The event is scheduled in September or October. Since the annual maintenance outage begins in late September, it's likely the event will fall during the outage when there are no peaking flows. This year, the event organizers appreciated that though the event was held before the outage, PCWA provided 400-500 cfs for the four-day event.

The Horseshoe Bar Preserve located on the Middle Fork American River at the Tunnel Chute hosts this event for the benefit of present and former military personnel wounded in service to the country. During the event the Preserve offers instruction in fly fishing, fly tying and gold panning as well as counseling sessions and information on assistance programs.

5 Non-Flow Mitigations for Peaking Reach Aquatic Resources

5.1 Request for Engineering Study of Potential Modifications of Ralston Afterbay and its Operations

¹⁹ PCWA DLA, Instream Flow and Monitoring Plan, p.10.

The Foothills Water Network requests that PCWA's FLA include a plan for an engineering study of potential modifications of Ralston Afterbay and its Operations. After analyzing model runs and alternatives, the Network members recognized that such an engineering study of potential modifications to Ralston Afterbay is needed. The Network's analysis included use of an Excel model of daily peaking operations at Oxbow Powerhouse (referenced above) provided by PCWA.

The current facility and resulting operations at Ralston Afterbay often do not meet our interests. PCWA has stated its willingness to shape flows downstream of Oxbow Powerhouse to maximize recreational benefits, so long as releases from Oxbow do not constrain operation of Ralston and Middle Fork powerhouses upstream. However, the lack of usable storage in Ralston Afterbay limits the Afterbay's re-regulating ability, and power operations upstream limit flow options that might significantly increase minimum instream flows thereby improving fisheries while still allowing recreational opportunities in the Peaking Reach. ***Consequently, the Network members have concluded that the current storage capacity limits of Ralston Afterbay is the primary obstacle to PCWA increasing minimum flows to levels that truly enhance the river to sustain a thriving fishery as well as provide for recreation opportunities.***

We suggest the analysis consider the initial usable storage in Ralston's original design as a target for modifying Ralston's capacity. Currently, Oxbow is operating at a percentage of its original storage capacity. We are not recommending any particular engineering design in recognition that any facilities modification would need to be analyzed for both positive and possible adverse effects.

It has been our observation that FERC is reluctant to endorse engineering studies until a specific need and objective have been identified. For example, after resource agencies and NGO's in the relicensing of the Merced River Hydroelectric Project requested an engineering study to examine options for providing and preserving cold water in the project's storage reservoir, FERC responded that it would consider an engineering study only if study of project effects first demonstrated a specific need for the engineering study. In the PCWA relicensing, we believe that the study results and negotiations have demonstrated that Ralston Afterbay is a constraint to meeting interests of the licensee, the resource agencies, and the Network.

The Foothills Water Network's and (as we understand it) resource agencies' interests below Ralston Afterbay include:

- A thriving Rainbow and Brown Trout fishery in the Middle Fork American River below Ralston Afterbay. The flows should support the fishery in all life stages. The health fo the fishery depends upon a strong and diverse benthic macroinvertebrate community.
- A range of publicly accessible whitewater boating opportunities on the Tunnel Chute Run, Mammoth Bar Run, and Confluence Run.
- A range of angling opportunities at multiple access points that provide a variety of angling experiences from wilderness to easy access.
- Trail crossings available for runners, hikers, and equestrians.
- Habitat for future reintroduction of Central Valley Steelhead.

It is our understanding that PCWA's interests include:

- Preserving flexibility in the operations of the hydropower system.
- Preserve the ability to generate peak power with PCWA’s largest units: Middle Fork Powerhouse and Ralston Powerhouse.

In order to meet our stated interests, PCWA would frequently have to run its big units – Middle Fork Powerhouse and Ralston Powerhouse – during off-peak times, which would decrease their flexibility and potential revenue stream. Rather than ask PCWA to generate during off-peak times, we suggest a formal exploration into increasing the capacity of Ralston Afterbay to meet our interests as well as PCWA’s.

If the Ralston Afterbay had more usable storage, it could better meet the aforementioned interests by doing the following:

- Store and release sufficient water for higher minimum flows during the spring and summertime in order to improve the fishery and other biota in the Peaking Reach, while protecting PCWA’s generation flexibility and on-peak power generation in their large units in the upstream bypass reaches.
- Increase flexibility for PCWA to vary the timing of different flows downstream of Oxbow powerhouse, to allow additional recreational boating opportunities and to support enhanced angling opportunities at various desirable times and locations downstream of Oxbow Powerhouse.

5.2 Non-Flow Mitigations for Enhancing Trout Spawning

As we have not discussed non-flow mitigations for the trout spawning in the Peaking Reach in the relicensing meetings, we look forward to discussing and developing these non-flow mitigation alternatives with PCWA in the upcoming months.

Foothills Water Network Objectives

- Enhance Rainbow Trout spawning and rearing in the Peaking Reach and its tributaries.
- Enhance Brown Trout spawning and rearing in the Peaking Reach.

Rationale

- The creation of the Ralston Afterbay facility functionally severed the upper tributary system (bypass reaches) from access of mainstem (Peaking Reach) fish populations to historic spawning areas. This barrier was created without significant spawning mitigation measures identified in the original License.
- Low numbers of juvenile Rainbow Trout were found in the Peaking Reach during the fish populations study.
- Lack of spawning gravels in the Peaking Reach below Ralston Afterbay.
- Peaking flow fluctuations in the spring, which result in fluctuations down to minimum flows result in loss of trout spawning habitat.
- Peaking flow fluctuations in the fall during the Brown Trout spawning period result in loss of spawning habitat
- Depending on the duration of the annual maintenance outage, low flows during the outage may result in loss of Brown Trout spawning habitat.

- Peaking fluctuations and low minimum flows in the wintertime result in loss of rearing habitat in winter for Brown Trout.
- It is the interest of the Foothills Water Network to naturally enhance the existing wild Rainbow Trout population; it is not desired to stock wild trout streams with hatchery fish.

Non-Flow Rainbow Trout Spawning Mitigation Alternatives

Tributary Connectivity

Objective: Enhance rainbow and brown trout spawning habitat by increasing access to spawning habitat in the tributaries to the Middle Fork American River. The North Fork of the Middle Fork of the American River is the only un-dammed major tributary found on the Middle Fork of the American River.

Potential Protection, Mitigation, and Enhancement (PM&E) Measure:

- Enhance the connectivity of Otter Creek and the North Fork of the Middle Fork American River to the mainstem of the Middle Fork American River to facilitate Rainbow Trout passage into and out of Otter Creek.
- Conduct stream restoration measures that enhance native trout spawning on the North Fork of the Middle Fork American River and Otter Creek.
- Augment spawning gravel in the mouth and lower tributary sections of Otter Creek and the North Fork of the Middle Fork American River.

Spawning Flows for Ralston Bypass Channel

Objective: Enhance rainbow and brown trout spawning and rearing in the Ralston Bypass channel between Ralston Afterbay and the outlet of the Oxbow Powerhouse.

Potential PM&Es:

- Increased flows for spawning in spring and fall
- Potential gravel augmentation

American Bar Side Channel

Objective: Enhance rainbow and brown trout spawning and rearing in this side channel a half mile downstream of Ralston Afterbay. The American Bar is located at river mile 22 above the Oxbow Gauging Station.

Potential PM&E's:

- Modify the elevation of American Bar entrance and exit so that the channel receives water at lower flow releases from Ralston Afterbay and provides suitable habitat for spawning and rearing of Rainbow Trout.
- Such channel modifications would require construction and maintenance on the property of American Quartz Company. The company supports the project.

Onsite Wild Trout Captive Breeding Program

Objective: Enhance rainbow and brown trout spawning habitat and populations

Potential PM&E:

- In addition to making the channel modifications outlined for American Bar above, develop an onsite wild trout captive breeding program in the modified stream channel. A potential model is the onsite captive breeding program on Sand Creek in Nevada.

Horseshoe Bar Channel

Objective: Enhance fish passage, and Rainbow Trout and Brown Trout spawning and rearing habitat.

Potential PM&E:

- Rewater the historic Horseshoe Bar channel to aid fish passage to the Middle Fork American River above Tunnel Chute and the known spawning habitat North Fork of the Middle Fork American River and to provide spawning and rearing habitat.
- Engineer the rewatered Horseshoe Bar channel to allow fish to disperse both downstream and upstream to benefit trout fisheries in the mainstem of the Middle Fork American River.
- Enhance passage for reintroduction of Central Valley Steelhead.
- Consider options for upstream and downstream volitional fish passage.

Catch and Release Regulations

Objective: Enhance trout in all life stages downstream of Ralston Afterbay and upstream of Ruck-A-Chucky Rapids.

- Request for support from PCWA to request the Fish and Game Commission to change the fishing regulations to catch and release between Oxbow Powerhouse and Ruck-A-Chucky Rapids to enhance fish populations.

6 Recreation Plan

6.1 Public Information

Gauge Installation

The Network recommends that PCWA revise its schedule for gauge installation and availability of online information and provide that schedule in its FLA. The FLA schedule should include installation of gauges no later than the third year after license issuance. The PCWA DLA states that gauges will be installed as long as six years after the license issuance. Gauge installation and the resulting publicly available real-time online flow information is a top priority for the Network and its constituencies to support angling and whitewater boating and to generally improve public safety. The availability of real-time flow information allows anglers to check the flows suitability for angling, increasing the real-time opportunities for angling recreation. Likewise, whitewater boaters can check the real-time flow information provided by gauges to opportunistically take advantage of boatable flows resulting from spills and accretion.

PCWA has already installed a gauge at Ellicotts Bridge and made flow information from this gauge available in real-time to relicensing participants with the possibility of making it public prior to license issuance. We appreciate PCWA's willingness to install this gauge pre-licensing. We look forward to discussing with PCWA how we can advance the schedule for installation of the remaining proposed gauges.

PCWA's FLA should include a condition that online gauge information will be 15-minute data not 1-hour data as proposed in the DLA. The condition should also say that both instantaneous and historical data should also be posted online. Recreation users and conservationists would like to have historical flow data to understand the long-term management of the watershed.

The PCWA FLA should include installation of staff gauges at the Confluence for public safety. Bathers and swimmers who are not aware of flow changes can reference a staff gauge to indicate water level changes that might make swimming or wading more dangerous and avoid stranding. A staff gauge provides an objective reference point for observing water level change, both up and down. The staff gauges on the Peaking Reach should be located at Greenwood Creek Trail Crossing located at Ruck-A-Chucky Campground and at Indian Bar Rafting put-in.

On the bypass reaches, staff gauges should be installed at the put-in and take-out of the Rubicon whitewater boating run at Ellicotts Bridge and the upstream end of Ralston Afterbay. The Rubicon River flows can change quickly due to accretion and inflow from its tributaries. Whitewater boaters will benefit by being able to check the flows online before entering the canyon, again at the take-out and finally at the put-in before starting their run. This is important for safe boating practices because the flows can change in the time it takes to drive from the take-out to the put-in.

Travel Time Online

We recommend that the PCWA FLA include a condition that it will post a travel time table on its flow website so that people can understand when flows will arrive at a points of interest on the Peaking Reach. In addition, we ask that PCWA revise the Recreation Management Plan Table 6 Travel Time Matrix to show times for upramping and downramping and travel time based on the minimum instream flows proposed in the DLA, to facilitate comparison with to alternative flow schedules.

Weekly Flow Forecasting

The Network requests that PCWA's FLA include a condition for weekly forecasting of flows on the Peaking Reach to facilitate angler, boater, and trail crossing recreational use. We understand that PCWA provides predicted flows as submitted to the Cal ISO every week throughout the year. We understand that the electricity market is in constant flux, and can change PCWA operations. We suggest PCWA include a caveat to the effect that PCWA weekly flow predictions can change without notice, but that PCWA will make a good faith effort to post changes to the flow predictions to the website as they become known.

This weekly service will provide information for anglers about when flows will rise, thereby ameliorating the safety issues involved in wading and angling activities (i.e., prevent anglers from becoming stranded on one or the other side of the river because of rising water). Forecasting will also notify anglers of prime angling opportunities. The weekly forecasting will also aid trail crossers in planning their equestrian rides and trail runs so they time their crossings when the flow is appropriate. The forecasting will allow boaters to plan to take advantage of the flows provided to the Confluence and Mammoth Bar Runs a week in advance.

Provide Fluctuating Water Level Signs for Public Safety

We recommend that PCWA work with the California Dept. of Parks and Recreation to develop signs to inform the general public about fluctuating water levels and the potential danger and that PCWA's FLA include a condition that PCWA will provide the appropriate signage.

6.2 Debris Removal

The Network recommends that the PCWA FLA include conditions to remove the concrete debris alongside and steel bridge debris in the North Fork caused by Hell Hole Dam failure in 1964. The steel bridge debris presents a hazard to people navigating the river. The concrete is a visual blight on a section of river found eligible for inclusion in the National Wild and Scenic River System. The potential exists for personal injury, property damage to boats, and drowning from snagging on the instream debris.

The Middle Fork American River Project is responsible for the loss of the State Highway 49 Bridge over the North Fork of the American River just downstream of the confluence of the North and Middle Forks. This occurred when the Project's partially completed Hell Hole Dam broke during December 1964. The resulting wave of water and debris caused by the dam's failure took out the bridge between Placer County and El Dorado County.

A new bridge was built, but the concrete and steel debris from the destroyed bridge has remained in the river. The bridge debris was not removed from the river because in September 1965 legislation authorizing Auburn Dam was signed into law by President Lyndon Johnson. The debris in the river would have been buried under the reservoir's water and therefore was not removed. Construction on Auburn Dam stopped in the late 1970's due to earthquake safety issues, and the U.S. Bureau of Reclamation has indicated it has no plans to complete the dam. Reclamation's water right permits for the dam were revoked by the State Water Resources Control Board On December 2, 2008.

In 1974 the flow of the North Fork American River was diverted into a bypass tunnel to allow the construction of Auburn Dam. This diversion ended on September 4, 2007 when the river was returned to its original channel. As a result of the closure of the bypass tunnel and re-watering of the river channel, a four mile stretch of river that had been closed to public use for more than thirty years has now been re-opened for recreational boating.

This section of river was closed to public boating from 1974 until 2007. PCWA, Bureau of Reclamation, and State Parks included recreational features as part of the pump station project. Birdsall and China Bar recreational improvements were built and the public is now boating this once closed river reach.

6.3 Access and Facilities in the Peaking Reach

The Foothills Water Network members recommend that PCWA include the following non-flow recreation mitigations and enhancements in its Final License Application. As we have not had much, if any, time to discuss some of these mitigations, we look forward to discussing these non-flow access and facilities mitigations in the Peaking Reach in the upcoming months.

China Bar Recreation Area

We recommend that PCWA include in its FLA conditions that it will invest in opening and enhancing recreational access to the China Bar Recreation Area from the south side of the North Fork of the American. In particular, we recommend that PCWA invest in law enforcement and fire protection for this access point. In order to facilitate responsible recreation use at the China Bar Recreation Area, we recommend that PCWA be responsible for installing bathrooms, picnic

tables, and garbage receptacles. Finally, we think it is reasonable for PCWA, State Parks, or a managing body to charge the public a fee for access to China Bar Recreation Area to help pay for its management and use.

More specifically, we recommend PCWA invest in opening public access via Knickerbocker Road, which starts at the Cool Fire Station in El Dorado County and connects to the North Fork American River at China Bar Recreation Area. Under current management, State Parks has the Knickerbocker Road gated, thereby blocking all vehicle access. We are willing to discuss different levels of access, enforcement, and fire protection in different seasons.

China Bar recreation area could become a very popular river recreation area for a variety of recreational groups including anglers, whitewater boaters, and swimmers/water play recreators. Anglers are interested in accessing the river at this site to wade up and downstream as well as drift boat from the Confluence down to China Bar. Whitewater boaters are interested in boating at the park and play wave features installed after the Bureau of Reclamation rewatered the river at the former Auburn Dam site. The current access restricts whitewater boaters to boating from the Confluence to Birdsall/Oregon Bar. The Birdsall/Oregon Bar takeout is a difficult and largely disliked takeout for boaters because of the restricted days of the week, seasons, and parking ½ mile distance from the river. The restricted use is largely a result of the adjoining neighborhood's concerns about vehicle traffic. Accordingly, opening the access via Knickerbocker Road on the south side of the river is more attractive as it does not run through a concerned neighborhood and allows for park n play access to the installed whitewater features.

In addition, China Bar Recreation Area could attract some of the recreators who frequent the Confluence. The Confluence has become overcrowded in the summer season, making parking dangerous along Highway 49. Inner tubers and beach goers would also use the China Bar Recreation Area to recreate.

Cache Rock

We recommend that PCWA invest in securing legal public access to Cache Rock on the Middle Fork American River. In addition, we recommend that PCWA invest in providing law enforcement, ensuring fire protection, and providing bathrooms and sanitation services at this site.

Cache Rock is located on the south side of the Middle Fork American River below Kanaka Falls at river mile 19. Cache Rock is currently an undeveloped Forest Service campground with parking and several campsites. Access road requires 4WD and is very steep. Anglers use the access to wade upstream and downstream from the campsites. It is one of the few access points in the upper portion of the Peaking Reach where the fishing is better than the warmer downstream reaches.

Canyon Creek Road

The Network recommends that PCWA invest in increasing public access, in particular for boaters and anglers, to the Middle Fork American River via the Canyon Creek Road. This access road extends about one mile upstream from Ruck-A-Chucky Campground, connecting to a small

beach upstream across from Canyon Creek at River Mile 11. Canyon Creek Access is located at the end of the Class II section and beginning of a section of Class IV rapids.

This access road has historically been open to the public. Under current management, Auburn State Recreation Area locks a gate across the road to prohibit vehicle access. ASRA provides keys for access upon request or special arrangements with commercial boating outfitters who take out their overnight gear at this point rather than run their loaded oar boats through Ruck-A-Chucky Falls.

Anglers, drift boaters, and private boaters would like access to this road again for multiple reasons. Drift boaters and Class II boaters would like to boat this section from Cache Rock. Additionally, boaters are interested in putting in at Canyon Creek in order to boat the one mile of Class IV rapids from Chunder rapid down to Ruck-A-Chucky Campground.

Fords Bar

The Network recommends that PCWA invest in increasing access to the existing road for pedestrians and mountain bikers to Fords Bar. Fords Bar is located at river mile 14. Access is currently prohibited by private property owners. Pedestrian and bike access at Fords Bar would enhance opportunities for angling, hikers, campers and bikers at the Middle Fork of the American River. Fords Bar is a large cobble beach with wilderness campsites.

Recreational Bridge to Replace Greenwood Bridge over Middle Fork

We recommend that PCWA provide a replacement recreational bridge for the destroyed Greenwood Bridge caused by failure of the incomplete Hell Hole Dam of the Middle Fork Project. We propose a pedestrian and equestrian bridge that can facilitate trail crossings year-round and in particular on race days for Western States Trail and Tevis Cup if the flows are too high to wade safely. A recreational bridge will help resolve the hazards to people crossing the river and returning. In the past, trail crossers have crossed at low flows and become stranded when they return to find higher flows. A bridge would increase safety and reduce the possibility of injury or drowning due to attempted crossing at higher flows.

The Middle Fork American River Project (Project) is responsible for the loss of the Greenwood Bridge over the Middle Fork of the American River. This occurred when the Project's partially completed Hell Hole Dam broke during December 1964. The resulting wave of water and debris caused by the dam's failure took out the Greenwood Bridge located on Driver's Flat Road connecting Placer County and El Dorado County near Ruck-A-Chucky rapids.

Replacing the bridge would have occurred in the 1960's but for the authorization of Auburn Dam. Construction on Auburn Dam stopped in the late 1970's due to earthquake safety issues, and the U.S. Bureau of Reclamation has indicated it has no plans to complete the dam. Reclamation's water right permits for the dam were revoked by the State Water Resources Control Board On December 2, 2008.

Ralston Afterbay Boat Launch

We recommend that PCWA's FLA condition PCWA to develop a proper, paved launch ramp with adequate facilities for parking, launch, and turn-around, as well as facilities for trash and a

restroom for users at the Ralston Afterbay. In addition, the FLA should condition PCWA to develop another access point nearby for sediment removal equipment, during construction of an appropriate boat ramp. In its DLA, PCWA proposes a new dirt ramp at the Ralston Afterbay Boat launch and develop another place to remove sediment. The measures regarding this site proposed in the DLA will not support recreation use. Parking at the picnic area is a poor option, since it is located some distance away, and there is no room for boat trailer parking and turn-around.

It is not possible to launch a boat at this site safely, contrary to what is stated in the DLA. There is a drop-off at the edge of the water which precludes trailer-launched boats. If this area was improved to include a paved parking area as well as a paved ramp, use would increase dramatically. As it is, we believe that the recreation use of the existing boat ramp at the sediment removal access point for Ralston Afterbay is more extensive than that stated in the DLA.²⁰

Projects at Ralston Afterbay

The Network recommends that PCWA's FLA include conditions to provide a "hardened" public campground on or near Ralston Afterbay, with adequate trash and toilet facilities. Dispersed camping is presently occurring at or near this location. An organized facility should be constructed. This area is frequented by boat and other watercraft owners for boating, fishing, and camping recreation. Although in the past, PCWA has not wanted camping in this area, people do camp and leave garbage at the site. Therefore, we request that PCWA develop a 2-3 formal campsites with bathrooms and garbage receptacles to enhance recreation and avoid damage to the natural resources.

We also recommend that PCWA's FLA include a condition to develop a trail down to the Rubicon River beginning just upstream of Oxbow Powerhouse, and extend it across the bedrock face on river right adjacent to the first large pool. Anglers are interested in accessing this location, especially in colder months, but access is currently limited and difficult.

6.4 Access and Facilities in the Bypass Reaches

Fish Stocking

We recommend that PCWA's FLA include significant increases to trout stocking rates for French Meadows and Hell Hole reservoirs for recreational angling. Stocking should include kokanee and silver salmon where applicable.

Closure of Upper Hell Hole Campground

The Network recommends that PCWA's FLA exclude the proposal to close Upper Hell Hole Campground. The campground is used by hikers on their way into and out of the two wilderness areas above Hell Hole Reservoir.

The DLA explains its rationale for proposing closure of the campground: "Detailed use data are not available for this site; therefore, PCWA estimated use using a combination of vehicle

²⁰ PCWA DLA, Section 4.2.7, Recreation Plan Map 9

count...and visitor survey data.”²¹ However, we believe that the methodology of using a vehicle count to estimate use in Upper Hell Hole Campground is inappropriate, because the campground is only accessible by trail. PCWA should provide a rationale for its use of vehicle count as a metric for estimating campground use, and should support its conclusion that the campground should be closed.

PCWA also states that there are “sensitive resources” in the area, but PCWA does not explain why closure of the campground is needed to protect those resources. We are not aware of study results that support the conclusion that these sensitive resources have been damaged by campers, or that they will be any less likely to be damaged if the campground is closed.

Duncan Creek Primitive Recreation Site

We recommend that PCWA invest in sanitation facilities at the Duncan Creek Primitive Recreation Site including restroom, trash facilities, and maintenance. We also recommend PCWA harden the primitive campsite to reduce erosion and adverse effects of runoff on the stream.

The Duncan Creek Primitive Site is located near the Duncan Creek Diversion just off the shoulder of the road. Recreation users and campers are attracted to the site by the small pool created by the Duncan Creek Diversion where they swim and cool off during the summer. The Duncan Creek Primitive Site is roughly ¼ mile from the Duncan Creek Diversion. Users also hike from the Duncan Creek Primitive Site down to PCWA’s upper gauging station which is between the campground and the Duncan Creek Diversion facility. Anglers also camp at the Duncan Creek Primitive Site to fish in Duncan Creek, which is affected by PCWA’s Duncan Creek Diversion.

The Duncan Creek Primitive Recreation Site is located a short distance northeast of the Duncan Creek Diversion Dam.²² Currently there are no facilities at this heavily-used site. Partly due to the lack of facilities and enforcement presence, the site is littered with garbage, toilet paper, residue of gun use (shells, powder, lead) and other trash. Users urinate and defecate throughout the area. The Duncan Creek Primitive Recreation Site is located immediately adjacent to Duncan Creek, a tiny, beautiful alpine stream that supports a plethora of wildlife and flora and their habitat.

Because of its proximity to the stream, we recommend PCWA harden the site to reduce erosion and re-route runoff away from the stream to reduce adverse impacts to creek.

One of the Network’s members, the Foothill Angler Coalition, made comments on this topic in the relicensing negotiations. We believe that the improvements suggested by PCWA in its DLA are inadequate to address the problems associated with this site. In addition to the improvements proposed in PCWA’s DLA we recommend that the FLA include:

- a. Develop formal campsites, with properly designed fire rings, in a sufficient number to address the heavy usage. We recommend that a minimum of five sites be constructed.

²¹ PCWA DLA, Section 4.1.1, Recreation Plan Map 5

²² PCWA DLA, Section 4.7.1, Recreation Plan Map 2 - inset

- b. To reduce drainage and erosion problems associated with vehicular traffic within and adjacent to the site, the entire facility should be paved, along with measures designed to manage runoff so that water is directed away from areas subject to erosion.
- c. Develop a parking area apart from the campground to accommodate visitors to the area who are not camping—i.e., picnicking families and individuals; hikers; anglers, and other visitors.

Duncan Creek Gauge Trail Signs

We request that PCWA install and maintain adequate signage indicating the location of the trailhead to the PCWA gauge 11427750 on Duncan Creek. Currently, there is no trailhead marker on the Project Road indicating the location of the trail, and the trail is not mentioned in the DLA.²³ This trail is used (and presumably maintained) by PCWA staff to access the PCWA gauge. The trail to the gauge also attracts anglers to the creek where they can fish downstream of the Duncan Creek Diversion Dam and above FR 96, which crosses the creek southwest of the dam.

Angling Access to Middle Fork American River at Middle Fork Powerhouse

Foothills Water Network requests that PCWA's FLA include measures to re-establish public access to the Middle Fork American River upstream of the Middle Fork Powerhouse. We recommend that PCWA provide in its Final License Application an assessment of alternatives and propose the one that PCWA believes to be the most efficient and cost effective way to meet the interest.

Prior to 2001, PCWA allowed access to the river through its Middle Fork Powerhouse. Anglers, hikers, and others used this access to recreate on the Middle Fork American River upstream of the powerhouse. In or about 2001, PCWA eliminated this access by installing new fences equipped with "concertina" or razor wire. Since then, public access has been prohibited. This blocks access to the river. Restoration of river access at this location is important to the Network and particularly to its angling constituency.

Request for Enhancement and Mitigations of Recreation Facilities

Below, we provide a list of recommendations to improve access and recreation facilities that are related directly to project reservoirs and diversions, and to rivers and smaller streams that have been affected by the Project.

We recommend making the following mitigations and enhancements for recreational facilities:

Projects related to the Rubicon River:

1. Improvements for USFS Road 21 Area

Hale's Crossing area and trail are used by anglers attracted to the area by the flows released from Hell Hole Reservoir.

- Repair Road 21.

²³ PCWA DLA, Section 5.5.2; Recreation Plan Map 2 - inset

- Improve signage for access to Hales Crossing area from Road 21 and clearly mark trailhead for access to Hale’s Crossing at or near end of the dirt road
- Mark trail intersection on east side of Rubicon, pointing to Parsley Bar

2. Improvements in the area above and at Ellicott’s Bridge

The area around Ellicotts Bridge and the Hunter Trail are used by anglers and whitewater boaters attracted to the area by flows released by the Project’s Hell Hole Reservoir as well as hikers and picknickers/bathers. A formal campground is needed at Ellicotts Bridge to provide an overnight camping opportunity to campers, anglers, and whitewater boaters. Since the Rubicon Run is a very long one day run or a multi-day trip, whitewater boaters would camp at this spot in preparation for their trip. The hardening of a campground in this area is needed to control erosion into the river.

- Provide signage for access to historic Ellicott’s Ranch
- Repair Hunter Trail signs
- Provide new “hardened” campground to replace informal campground at the south end of the bridge; include adequate toilet and trash facilities

3. Nevada Point Trail

- Improve signage at Georgetown side trailhead
- Rebuild bridge washed out in 1997 flood that connects south side of Nevada Point Trail to the north side of the Rubicon
- Trail maintenance on both sides of the river.

4. Pennsylvania Point/Buckeye Flat Area

- Improve signage at intersection of Blacksmith Flat Road and USFS Road 14N25G, indicating Rubicon River angler access
- Perform maintenance on footbridge at base of OHV trail
- Repair washed out trail on the Georgetown side of the Rubicon
- Install toilet facilities at the informal camping area that exists at the base of the trail, along with trash containers

Projects Related to the Middle Fork American River upstream of Ralston Afterbay

1. Improvements for French Meadows Reservoir Area

- Provide trail near dam down to Middle Fork American River below French Meadows Dam, and along the stream for 1 mile

2. Improvements at Interbay

- Re-establish river access above Middle Fork Powerhouse
- Provide parking area for anglers
- Provide restroom and trash management facilities for anglers at parking area

3. Improvements at Ralston Picnic Area

- Improve and extend trail from picnic area along MF upstream for an additional 1 mile

Projects related to Long Canyon Creek:

- 1. Middle Meadows Campground on Long Canyon Creek**
 - Improve signage for campground
 - Improve campground with adequate tables, parking sites, trash receptacles, and fire pits
 - Provide adequate restroom
- 2. Improvements at Ramsey Crossing Area**
 - Improve parking area
 - Post anti-litter signs
 - Provide trash receptacle
- 3. Improvements at Blacksmith Flat Area**
 - Perform repairs and maintenance on interpretive area
 - Improve trail down to Long Canyon Creek for angler access and provide adequate trailhead signage
 - Extend this trail to the footbridge across Wallace Creek
- 4. Improvements at “upper bridge” on Long Canyon Creek**
 - Install adequate restroom and trash facilities with three or four “designated” campsites with concrete table and fire ring and barrier rocks well defining where vehicles can go. No water system so no need for fees and first come first served.

Projects related to Duncan Creek:

- 1. Duncan Creek Diversion Area**
 - Provide angler parking near bridge across creek
 - Provide restroom for anglers
 - Provide picnic tables near bridge
 - Provide trash receptacle near picnic area/campground
 - Improve makeshift campground near bridge to “hardened” status
 - Improve and mark trail from access road down to gauging station

6.5 Angling

The Foothills Water Network requests that the Recreation Plan in PCWA’s FLA include angling as a stand-alone recreational component and that the associated benefits be described in the comparison of the Proposed Action and No-Action Alternatives.

The 2007 “Report of Findings from the 2006 Auburn State Recreation Area Visitor Survey” is based on extensive recreational surveys developed in 2006 for California State Parks in support of the Auburn SRA General Plan/Interim Resource Plan. As we stated, the surveys that inform the Report indicate that river angling accounts for a significant portion of recreational use days on the Peaking Reach. PCWA studies also demonstrate that angling is an important recreation use on the Peaking Reach and should be addressed in the PCWA Final License Application.

PCWA's DLA included angling as an interest that is benefited by the Proposed Action but does not provide an evaluation or supporting rationale. We request that PCWA's Final License Application includes this rationale specifically related to Angling as a recreational use.

7 Sediment Management Plan

The Foothills Water Network recommends that PCWA's FLA include a measure that spawning gravels will be hauled to a point downstream of the Tunnel Chute where the sediment can be deposited for distribution downstream.

PCWA's proposed plan in the DLA for gravel augmentation is not an adequate solution to mitigating for Rainbow Trout spawning in the Peaking Reach. PCWA's proposed gravel augmentation below Ralston Afterbay could result in filling the deep pool below the Tunnel Chute where fish take refuge. The sediment augmentations could re-sort the sediment material in a way that deprives the rest of the river of spawning gravels.

There is a site below the Chute where sediment can be deposited in this area. Gravel has been placed in this area for many years during the 1900's. Over the years the practice was stopped and much of the gravel has been washed downstream. The Network thinks that we could reach an agreement with the private property owner of the Horseshoe Bar to provide the roads and access to deliver sediment to this site. We are willing to discuss this option as a side agreement outside the license as implementation would require an agreement with a private property owner.

8 Monitoring Plans

PCWA's Monitoring Plan should include monitoring of Rainbow Trout, benthic macroinvertebrates, Foothill Yellow-Legged Frogs, and invasive aquatic weed species for validation of the nascent science regarding the links between temperature and frog health. In particular, monitoring should include installation of temperature loggers in the margin waters and compare those temperatures to ongoing water temperature monitoring in the thalweg. The difference between the margin and thalweg temperatures will inform adaptive management of flows and temperatures for Foothill Yellow-Legged Frogs, Rainbow Trout, and BMIs.

9 Environmental Analysis

9.1 Enhancements

PCWA uses the term "enhance" quite liberally in describing the effects of its Proposed Action. In most cases when PCWA claims to enhance the project-affected river reaches, the Proposed Action really only results in marginal, incremental improvement. The improvements are often very hard to quantify, and are not quantified in comparison with alternative flow scenarios provided by the Foothills Water Network or others. In some cases it would be more accurate for PCWA to describe its proposed improvements as "mitigations."

The Network requests that the PCWA FLA include a comparison of the Network flows and PCWA proposed flow scenarios to compare the degree of enhancement proposed by both parties.

9.2 Comparison of No-Action and Proposed Action Alternatives

Flow Fluctuations

The Network requests that in its FLA PCWA use a more precise metric to compare the decrease in flow fluctuations in the Proposed Action to No Action in addition to the average-based metric used in the DLA.²⁴ (See Appendix D: Figure 8.52a and 8.52b Average Flow Fluctuations in the Peaking Reach for the Proposed Action and No-Action Alternatives). PCWA's methodology of averaging the flow fluctuation differential between the Proposed Action and No Action alternatives fails to measure the effect of the proposed maximum *daily* flow fluctuations. As PCWA's DLA states,

Many aquatic species have specific habitat requirements and limited mobility (e.g., Edington 1968) and *daily* flow fluctuations modify the location and amount of habitat (depths and velocities and/or location of the channel margin) thereby decreasing overall habitat quality and availability.²⁵ [emphasis added]

Overall, the effective habitat matrix results show that for non-mobile or low mobility species/life stages (RBT spawning, FYLF breeding and tadpoles, and macroinvertebrates), changes in flow cause a large reduction in habitat.²⁶

We agree with PCWA's statement that it is the "daily" fluctuation that is critical not just the "average monthly" or "average seasonal". Accordingly, we do not think that a "seasonal average" or "monthly average" is either representative or accurate as a metric by which to measure the benefits of changed flows.

One of the problems with averaging the flow fluctuation on a daily basis is that it ignores the critical importance of the minimum flow from which flow fluctuation starts. The daily averaging applies the same weight or importance to the low and high flows on either side of the average. This treatment fails to present a critical difference in importance between the daily low and high flows. The minimum flow, which defines the bottom of the flow fluctuation, is more important ecologically than the top of the flow fluctuation. If minimum flows are too low, immobile aquatic organisms such as redds and macroinvertebrates may be desiccated. In contrast, within the framework of the daily flow fluctuations, the higher flows defining the top of the flow fluctuation are less important than the low flows. For instance, the low flow in a flow fluctuation from 100 cfs to 700 cfs is likely to be more damaging to immobile aquatic organisms than the same magnitude of flow fluctuation that starts at a higher minimum flow from 300 cfs to 900 cfs. This means that the minimum from which the flow fluctuation starts is important biologically and should be discussed in a comparison of alternatives and the resulting metrics.

In addition, it is not very informative or precise to average flow fluctuations over a month or season in comparing alternatives because the averaging over time ignores the importance of

²⁴ PCWA DLA, Section 8 Environmental Effects, October 2010, Figure 8.5-2a and 2b, p.8.5-5

²⁵ PCWA DLA, Biological Assessment / Biological Evaluation October 2010 p. 6-20

²⁶ PCWA DLA, Technical Study Reports, AQ1-Instream Flow Technical Study Report, p. 35

single event flow fluctuations and only addresses the frequency of flow fluctuations. Though the decrease in frequency of daily flow fluctuations may result in a benefit to the ecosystem, any single flow fluctuation might deliver its own, potentially catastrophic, negative impacts regardless of the decreased frequency of such events. For instance, the effects of a single day's event of fluctuating flows that desiccate immobile aquatic organisms will not necessarily be worsened by frequent following daily fluctuations. Rather, the damage is done in one single event within one day. That means that daily fluctuations, especially at the low end of the flows, matter to the ecosystem in their own right. While averaging the days of flow fluctuation over time does inform a comparison of frequency under different flow scenarios, it is equally - if not more important - to also compare results for the resulting low flows at the bottom of the flow fluctuation for each month or season to ascertain if the low flows are high enough to avoid desiccation.

In PCWA's analysis of the flow fluctuations effects on the varial zone, again it is unclear how an average of flow fluctuations by season in the Peaking Reach would reveal how frequently the varial zone is subject to drying as a result of hydropower peaking. An average would still hide the frequency of minimum flows and drying of the varial zone between the maximum and minimum flows. While we agree that PCWA's Proposed Action does decrease the varial zone and therefore, increase abundance of benthic macroinvertebrates, we would also prefer using a more precise metric than averages to demonstrate the effectiveness of that increase.

In conclusion, we propose that in its FLA, PCWA use an additional analysis to measure the benefits to flow fluctuations as compared between the No-Action Alternative and Proposed Action Alternative. The metric should compare the different alternatives' maximum *daily* fluctuations, which we agree is the important result associated with decreasing flow fluctuations. The comparison should also describe the lowest minimum flow in any given month or season, as well as highest resulting maximum flow in that month or season. The comparison should include side-by-side hydrographs showing the difference in fluctuation in a month or a season. Averaging creates a less precise analysis that can mask the critical results of an alternative. Though more complex, these suggested metrics and results will be more precise.

9.3 NEPA Analysis Alternatives

Build-out Alternative

The PCWA Final License Application should include a "Build-out Alternative" for formal NEPA analysis by FERC. The Application should describe PCWA's water supply plans for long-term build out of Placer County. PCWA modeled the "Build-out" scenario as an alternative scenario during flow negotiations in the relicensing proceeding. FERC should analyze this "Build-out" Alternative under NEPA.

Water Transfers in No-Action Alternative

In its Final License Application, PCWA should describe its frequent water transfers that are part of the baseline No-Action Alternative so that FERC can analyze them under NEPA. These water

transfers are reflected in the hydrology for the period of record and can affect the magnitude and timing of flows in the Peaking Reach.

The CEQA Analysis should address the impact of PCWA's water transfers. Historically PCWA has not been required to provide detailed environmental analysis or compliance with California Environmental Quality Act (CEQA); Water Code section 1729, by implementing large-scale water transfers (typically 10,000 to 20,000 acre feet) as "temporary changes" to its water rights applications/permits, which is allowed under Water Code sections 1725, et seq.. PCWA's petitions for "temporary changes" are exempt from the requirements from CEQA and other applicable parts of Water Code sections 1725. However, when considering the frequency of PCWA's implementation of large-scale water transfers in 2001, 2004, 2005 and 2009, it is arguable that these numerous transfers should continue to qualify for a CEQA exemption.

No-Action Alternative Does Not Represent Existing Conditions

PCWA's Final License Application should describe recent operations as they have been on the ground. It should compare proposed license conditions to actual recent operations. The FLA should not claim that proposed measures will be an "enhancement" when the measures will simply make existing operations a condition of the license; rather, it should say that there will be certainty that existing conditions will be maintained.

Incremental improvements should also not simply be characterized as enhancements. The degree of enhancement should be stated. If PCWA believes that enhancements will provide a qualitative improvement in the conditions of a resource, that should be stated, and the reasons for that evaluation should be presented and if possible quantified.

The No-Action Alternative in many instances reflects the paper reality of PCWA's license condition minimum, not the operational reality of existing conditions resulting from a longstanding practice of releasing higher-than-required minimum flows. Accordingly, the comparison between the No-Action Alternative and the Proposed Action does not accurately describe improvements that we will actually see in the river. In fact, a comparison between the existing conditions and operations and the Proposed Action Alternative would reveal much smaller improvements for the ecosystem than are represented in the DLA. Relicensing studies were examinations of the condition of the natural resources resulting from actual existing operations.

Cumulative Effects on Folsom, Lower American, and West Placer Creeks

We appreciate PCWA's discussion in the DLA of Cumulative Effects on Water Resources and the information and analysis provided in relation to anadromous fish. Because PCWA's Middle Fork Project operations are affected by the availability of water from the Yuba-Bear Drum-Spaulding system, we recommend that PCWA's FLA also include an analysis of various reductions of water availability from Yuba-Bear Drum-Spaulding system and the ensuing changes that could be made to the Middle Fork Project to meet PCWA's water supply obligations.

As PCWA states in its DLA, "The Drum-Spaulding Project is currently undergoing FERC relicensing, however, it is unknown at this time, or to what extent, the existing license conditions

will change.”²⁷ Therefore, we cannot know at this time what the outcome will be but for the purposes of the Middle Fork Project Relicensing the NEPA analysis must consider a range of outcomes that include some reduction of water from Yuba-Bear Drum-Spaulding Project’s out of basin water transfers. As we have learned in the Yuba-Bear Drum-Spaulding Relicensing, PG&E currently abandons roughly 125,000 acre-feet in Folsom Reservoir. In addition, PG&E and PCWA’s water contracts expire in 2013. The combination of outcomes of the Yuba-Bear Drum-Spaulding relicensing and the renegotiation of contracts could alter PCWA’s water supply and, therefore, their Middle Fork Project operations.

Therefore, we recommend that PCWA’s FLA include an analysis of different levels of reduction of water availability from the Yuba-Bear Drum-Spaulding system. The Foothills Water Network recommends analysis of 10,000 af and 15,000 af reductions in all year types. PCWA should model these flow reductions and include the results in its Final License Application. Results metrics should include whether PCWA can meet its water demand under the No-Action Alternative, and under “Build-out” conditions as represented by the “Build-out” Alternative.

Further, PCWA should address the question of how changed Middle Fork American operations resulting from reductions in water available from the Yuba-Bear Drum-Spaulding system could affect temperatures in Folsom Reservoir and the Bureau of Reclamation’s flow releases into the Lower American River. The discussion of effects on Folsom and the Lower American River should address effects on temperatures in Folsom Reservoir, volume of cold-water pool in Folsom, and volume of inflow to Folsom upon which rests the development of the Sacramento Water Forum Flow Standard, which will define releases to the Lower American River for salmon and steelhead.

Finally, the analysis should take into account the potential cumulative effects on the salmon and steelhead in Auburn Ravine and other West Placer creeks of changed Middle Fork American Project operations, resulting from reductions in water available from the Yuba-Bear Drum-Spaulding system,

Effects of Proposed Action on Future Reintroduction of Central Valley Steelhead

In its FLA, PCWA should address the effects of its Proposed Action on the proposed reintroduction of Central Valley Steelhead to the American River system above Folsom Reservoir. The reintroduction of Central Valley Steelhead into the Middle Fork American is has become likely based on the *NMFS Biological and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project*. Based on this Biological Opinion, it is reasonable and foreseeable that NMFS might trap and haul Central Valley Steelhead to river reaches affected by the PCWA Middle Fork American River Project and in the future achieve volitional passage. The trap and haul plan is scheduled to be initiated before 2013, the date of license expiration for the Middle Fork American Project. Accordingly, PCWA’s Final License Application and FERC’s NEPA Analysis should examine the potential effects of reintroduction, and in particular the potential for “take” of reintroduced protected species during the new license term.

²⁷ PCWA DLA, Exhibit E, Section 9 Cumulative Effects Analysis, 9.2 Cumulative Effects on Water Resources, p. 9-4.

The *NMFS Biological and Conference Opinion on the Long-Term Operations of the Central Valley Project and State Water Project* is available at the following URL: <http://swr.nmfs.noaa.gov/ocap.htm>. In the NFMS Biological Opinion's Section V. Fish Passage Program, the following language is used to specifically describe the NFMS mandated fish passage program:

Therefore, NMFS believes it is necessary for Reclamation, in cooperation with NMFS, other fisheries agencies, and DWR, to undertake a program to provide fish passage above currently impassable artificial barriers for Sacramento River winter-run, spring-run, and CV steelhead, and to reintroduce these fish to historical habitats above Shasta and Folsom Dams. Substantial areas of high quality habitat exist above these dams: there are approximately 60 mainstem miles above Lake Shasta **and 50 mainstem miles above Lake Folsom**. These high-elevation areas of suitable habitat will provide a refuge for cold water fish in the face of climate change. [Emphasis added]

The NMFS Biological Opinion states in part:

From January 2012 through 2015, Reclamation shall begin to implement the Pilot Reintroduction Program (see specific actions below). The Pilot Program will, in a phased approach, provide for pilot reintroduction of winter-run and spring-run to habitat above Shasta Dam in the Sacramento River, and CV steelhead above Folsom Dam in the American River.

By March 2012, Reclamation shall implement upstream fish passage for adults via "trap and transport" facilities while it conducts studies to develop and assess long-term upstream and downstream volitional fish passage alternatives.²⁸

Under Fish Passage Actions, the NMFS Biological Opinion states that NMFS plans to build an American River Fish Collection Facility, due to become operational no later than March 2012.²⁹

The following is a brief excerpt from the Biological Opinion, at pages 663-664 of the latest Operations, Criteria and Plan document for the Central Valley Project and the State Water Project:

NF 3. Development of Fish Passage Pilot Plan

Action: From January 2010 through January, 2011, Reclamation, with assistance from the Steering Committee, shall complete a 3-year plan for the Fish Passage Pilot program. The plan shall include: **(1) a schedule for implementing a 3-year Pilot Passage program on the American River above Nimbus and Folsom dams**, and on the Sacramento River above Keswick and Shasta dams; and **(2) a plan for funding the passage program.**

²⁸ NMFS Biological and Conference Opinion on the Long-Term Operations of the CVP and SWP, June 4, 2009; Section 11.2.2 V. "Fish Passage Program", p. 659.

²⁹ NMFS Biological and Conference Opinion on the Long-Term Operations of the CVP and SWP, June 4, 2009; Section 11.2.2 V. "Fish Passage Program", p. 665.

This plan and its annual revisions shall be implemented upon concurrence by NMFS that it is in compliance with ESA requirements.

Rationale: The Fish Passage Pilot Plan is a critical link between measures in the Proposed Action and this RPA and the long-term fish passage program. The plan will provide a blueprint for obtaining critical information about the chances of successful reintroduction of fish to historical habitats and increasing the spatial distribution of the affected populations.

NF 4. Implementation of Pilot Reintroduction Program

Objective: To implement short-term fish passage actions that will inform the planning for long-term passage actions.

Actions: *From January 2012 through 2015*, Reclamation shall begin to implement the Pilot Reintroduction Program (see specific actions below). The Pilot Program will, in a phased approach, *provide for pilot reintroduction of* winter-run and spring-run to habitat above Shasta Dam in the Sacramento River, and *CV steelhead above Folsom Dam in the American River*. This interim program will be scalable depending on source population abundance, and will not impede the future installation of permanent facilities, which require less oversight and could be more beneficial to fish. This program is not intended to achieve passage of all anadromous fish that arrive at collection points, but rather to phase in passage as experience with the passage facilities and their benefits is gained.

Rationale: The extent to which habitats above Central Valley dams can be successfully utilized for the survival and production of anadromous fish is currently unknown. A pilot reintroduction program will allow fishery managers to incrementally evaluate adult reintroduction locations, techniques, survival, distribution, spawning, and production, and juvenile rearing, migration. The pilot program also will test juvenile collection facilities.

This action requires facility improvements or replacements, as needed, and establishes dates to complete work and begin operation. In some cases, work could be initiated sooner than listed above, and NMFS expects Reclamation and partner agencies to make these improvements as soon as possible.

Because these facilities will be used in lieu of volitional fish passage to provide access to historical habitat above the dams, this measure is an essential first step toward addressing low population numbers caused by decreased spatial distribution, which is a key limiting factor for Chinook salmon and CV steelhead.

Upstream fish passage is the initial step toward restoring productivity of listed fish by using large reaches of good quality habitat above project dams. Restriction to degraded habitat below the dams has significantly impaired reproductive success and caused steep declines in abundance.”

[Emphasis added]

In addition, the National Marine Fisheries Service *Draft Recovery Plan* also addresses their plans for reintroducing Central Valley Steelhead into the American River Watershed. With this reference, we submit to the FERC record, the NMFS Draft Recovery Plan, which can be found at the following URL:
http://swr.nmfs.noaa.gov/recovery/cent_val/Public_Draft_Recovery_Plan.pdf .

We expect NMFS to file both its Recovery Plan and the Biological Opinion. In the event that they are not filed, we will file them in time for them to be considered by FERC in its NEPA analysis.

Based on study of potential habitat for reintroduction of steelhead, we recommend that PCWA work with NMFS to conduct fish passage studies for Central Valley Steelhead to inform improvements to facilitate reintroduction of Steelhead.

In order to evaluate the Peaking Reach flow regime in relation to reintroduction of Steelhead, the Network requests that PCWA conduct a Radio-tagging Study of the reproducing Chinook population in Folsom Reservoir to ascertain the relationship between flows released from Ralston Afterbay and passage barriers for Chinook on the Peaking Reach.

10 Final License Application

10.1 License Term

PCWA is requesting a 50-year license term. Given the current DLA measures, the Foothills Water Network does not see a basis for such a lengthy license term. However, we look forward to continuing negotiations with PCWA and will consider license term as part of those discussions.

10.2 Incomplete Studies

The Foothills Water Network reserves the right to comment on incomplete studies and alter our comments on the Draft License Application based on those study results. We intend to comment on these currently incomplete studies in response to PCWA's Final License Application

PCWA still has three outstanding relicensing studies that have not been completed. They include:

- Entrainment Study
- Bioenergetics Study
- Reservoir Fish Habitat Study
- Whitewater Boating Test Flow on the Rubicon River

There are also three management plans that are still outstanding including:

- Visual Management Plan
- Geomorphology Management Plan
- Riparian Monitoring Plan

The Foothills Water Network reserves the right to comment on these outstanding studies and management plans as well as to revise our recommendations for PM&Es as a result of the study outcomes.

Final License Application – Request for Table

The Foothills Water Network requests that the Final License Application include a table comparing the flows in the No-Action Alternative to Existing Regulated Flows to the Proposed Action Alternative in the Supporting Document A. This table is in addition to the table found in Volume 1, Exhibit B, Table B-1. This table will make it easier to quickly understand how the DLA’s proposed flows compare to existing license flows and regulated flows. As it is presented in the DLA, readers need to keep referring back and forth between Table B-1 and the text of the SD-A instream flows discussion in the DLA to make the comparison.

Signatories to the Foothills Water Network Comments

The signatories to the comments by the Foothills Water Network reserve the right to make additional comments on the DLA and other filings on the PCWA relicensing general.

Thank you for your consideration of these comments. If you have any questions or comments on this filing, please contact Julie Leimbach at julie@foothillswaternetwork.org or 530-622-8497.

Sincerely,

Foothills Water Network Middle Fork American Work Group

Bill Carnazzo, Federation of Flyfishers, Upper American River Foundation, and Foothill

Angler Coalition (Vice President)

Chris Shutes, California Sportfishing Protection Alliance

Dave Steindorf, American Whitewater,

Gary Estes, Protect American River Canyons

Hilde Schweitzer, Private Boater

John Donovan, Member of the Public

Julie Leimbach, Foothills Water Network

Nate Rangel, California Outdoors,

Thomas Bartos, Foothill Angler Coalition (President) and Horseshoe Bar Fish and Game

Preserve Inc.

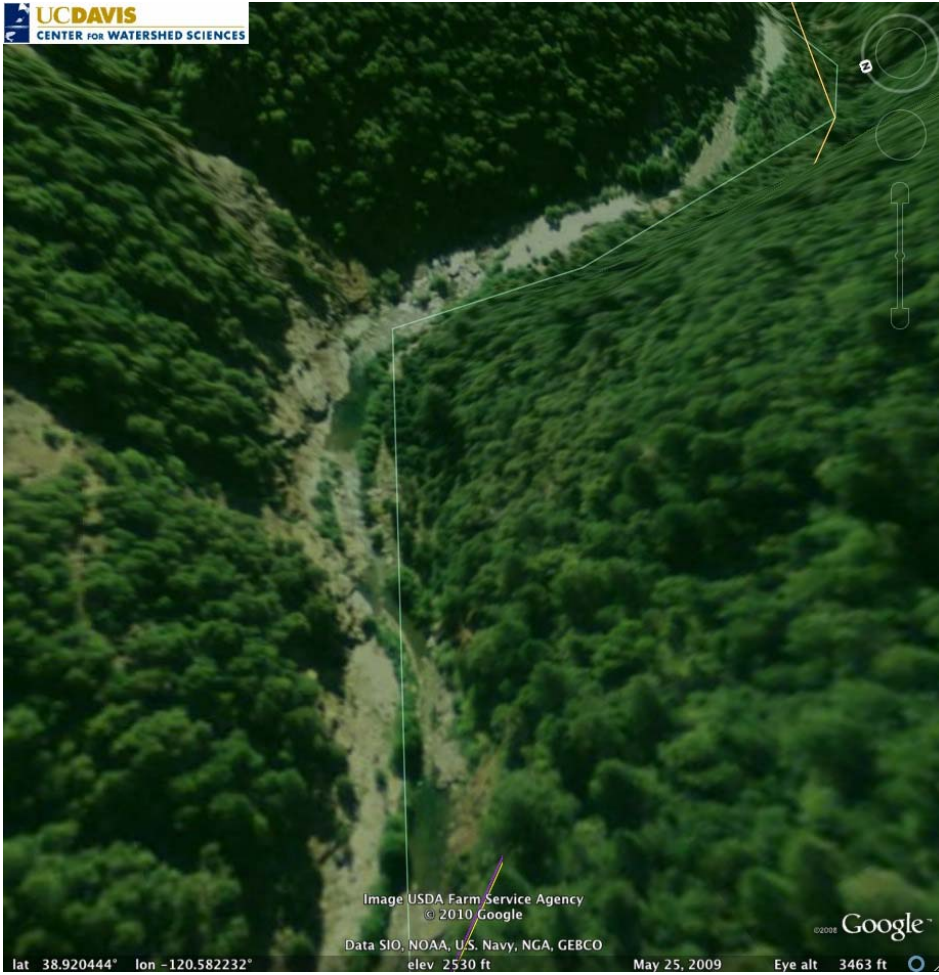
1 Appendices

Appendix A: Comparison of Riparian on Rubicon River and North Fork American

North Fork of the American River at Moonshine Ravine

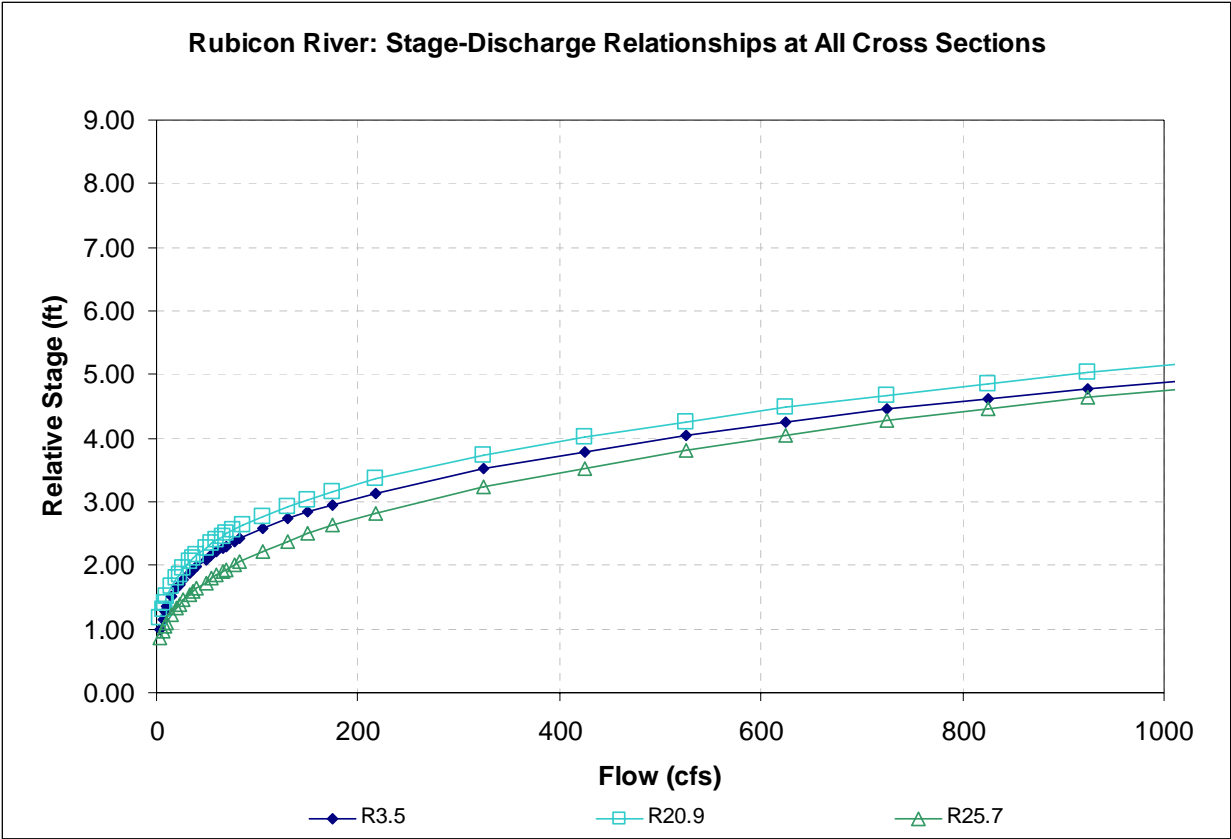


Rubicon River Below Confluence with South Fork Rubicon



Appendix B: PCWA’s Stage-Discharge Relationships on Rubicon River at All Cross-Sections

R3.5			R20.9			R25.7		
19 Cross Sections (8 Run/LGR Cross Sections)			22 Cross Sections (6 Runs/LGR Cross Sections)			26 Cross Sections (11 Runs/LGR Cross Sections)		
Flow (cfs)	All Cross Sections	RUN/LGR Cross Sections	Flow (cfs)	All Cross Sections	RUN/LGR Cross Sections	Flow (cfs)	All Cross Sections	RUN/LGR Cross Sections
4	1.00	1.11	4	1.18	1.14	4	0.86	1.01
6	1.16	1.22	6	1.31	1.30	6	0.95	1.12
8	1.28	1.32	8	1.42	1.41	8	1.03	1.20
10	1.36	1.39	10	1.50	1.51	10	1.10	1.27
15	1.52	1.54	15	1.67	1.66	15	1.22	1.41
20	1.64	1.65	20	1.80	1.78	20	1.33	1.51
22.6	1.69	1.70	22.6	1.86	1.84	22.6	1.38	1.57
27	1.78	1.79	27	1.95	1.93	27	1.45	1.64
32.4	1.87	1.88	32.4	2.05	2.01	32.4	1.53	1.72
36.6	1.94	1.95	36.6	2.12	2.08	36.6	1.59	1.78
40	1.98	1.99	40	2.17	2.13	40	1.63	1.83
48.6	2.09	2.09	48.6	2.28	2.24	48.6	1.73	1.93
55	2.16	2.16	55	2.35	2.31	55	1.80	1.99
60	2.21	2.21	60	2.40	2.36	60	1.85	2.05
66.2	2.27	2.26	66.2	2.46	2.41	66.2	1.91	2.11
70	2.31	2.29	70	2.49	2.44	70	1.94	2.14
76.9	2.37	2.35	76.5	2.55	2.50	76.9	2.00	2.21
82.7	2.42	2.40	86.3	2.63	2.57	82.7	2.05	2.25
105	2.58	2.56	105	2.76	2.69	105	2.22	2.42
129.8	2.73	2.70	129.8	2.92	2.83	129.8	2.38	2.58
150	2.84	2.79	150	3.03	2.93	150	2.50	2.68
175	2.96	2.90	175	3.17	3.08	175	2.63	2.79
218.1	3.14	3.07	218.1	3.35	3.25	218.1	2.82	2.94
325	3.51	3.40	325	3.72	3.55	325	3.23	3.28
425	3.79	3.66	425	4.01	3.78	425	3.53	3.51
525	4.05	3.88	525	4.26	3.96	525	3.81	3.72
625	4.26	4.08	625	4.48	4.11	625	4.05	3.88
725	4.45	4.24	725	4.68	4.25	725	4.27	4.03
825	4.62	4.39	825	4.86	4.38	825	4.47	4.16
925	4.78	4.54	925	5.02	4.50	925	4.65	4.28
1200	5.15	4.88	1250	5.49	4.84	1500	5.43	4.86
2500	6.41	6.01	1750	6.12	5.29	1987	6.02	5.24
3234	6.61	5.68	2259	6.65	5.65	2500	6.56	5.59
5000	7.65	6.49	3000	7.34	6.10	3000	7.02	5.89
6338	8.25	7.01	3799	7.97	6.51	3576	7.50	6.20



Appendix C AQ1-Instream Flow Study, Figure O-15 and O-24 Middle Fork American Effective Food Habitat Matrices

Figure O-15. Middle Fork American River MF14.1 Effective Food Production Habitat Matrix.

Starting Discharge (cfs)	Ending Discharge (cfs)															Initial Habitat vs Flow Relationship		
	2500	2000	1500	1018	800	600	452	407	300	225	175	125	101	80	60		40	30
2500 cfs	82078	75359	69776	62262	56087	50125	45857	43702	38740	33765	29679	24269	19538	13730	7722	4545	2991	82078
2000 cfs		95204	89029	80958	74435	67745	62485	59653	53125	47537	42921	36110	29840	22754	15214	10075	7229	95204
1500 cfs			103390	94561	87679	80521	74838	71687	64269	57964	52757	45277	38412	30878	22524	16130	12019	103390
1018 cfs				107696	100096	92600	86482	83084	74980	68155	62509	54447	47017	38860	29565	21977	17005	107696
800 cfs					107013	98431	92093	88533	80072	73036	67171	58926	51346	43003	33328	25361	19976	107013
600 cfs						106258	99025	95302	86446	79204	73224	64848	57162	48698	38772	30516	24884	106258
452 cfs							103990	99247	90064	82633	76597	68134	60383	51856	41834	33422	27649	103990
407.6 cfs								101210	91371	83587	77487	68985	61160	52619	42553	34120	28320	101210
300 cfs									93632	85023	78704	70164	62286	53696	43567	35103	29276	93632
225 cfs										87534	80338	71248	62925	54098	43804	35334	29500	87534
175 cfs											81336	71735	63317	54467	44130	35655	29817	81336
125 cfs												72341	63646	54711	44308	35831	29993	72341
101.3 cfs													64643	55156	44488	35991	30148	64643
80 cfs														55640	44680	36124	30233	55640
60 cfs															45736	36479	30365	45736
40 cfs																36791	30472	36791
30 cfs																	30672	30672

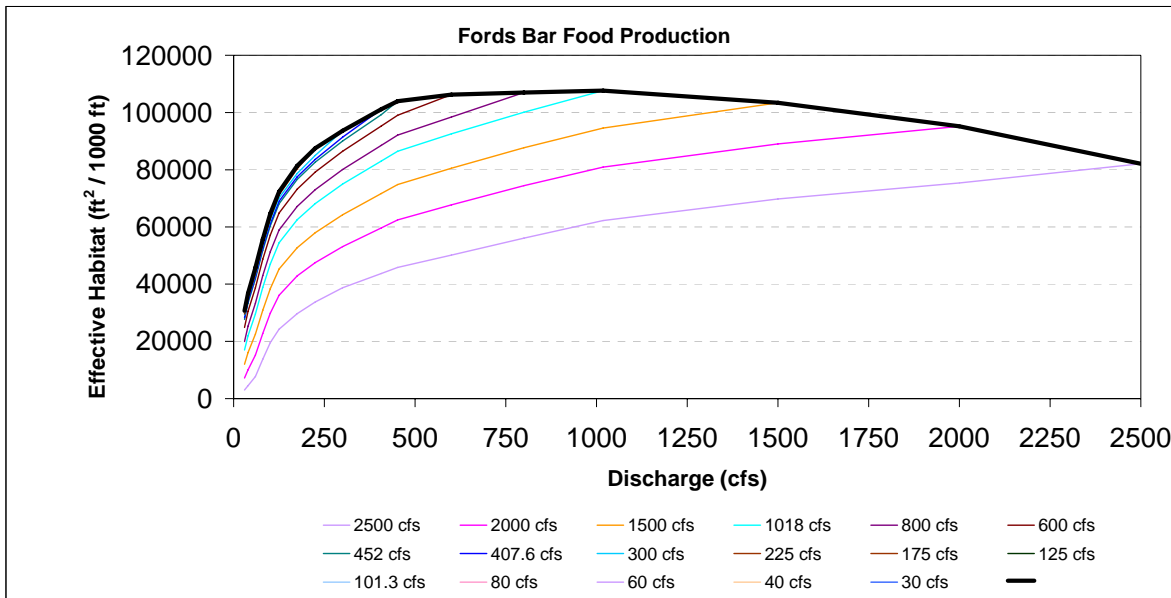
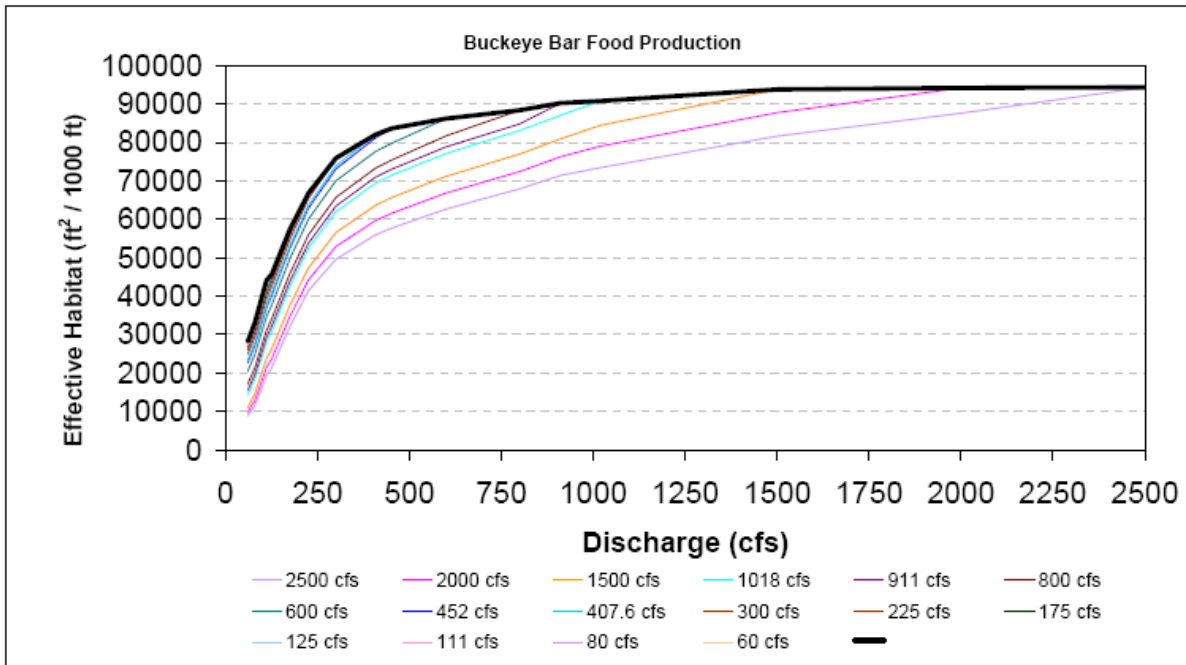


Figure O-24. Middle Fork American River MF4.8 Effective Food Production Habitat Matrix

Starting Discharge (cfs)	Ending Discharge (cfs)														Initial Habitat vs Flow Relationship		
	2500	2000	1500	1018	911	800	600	452	407	300	225	175	125	111		80	60
2500 cfs	94386	87594	81667	73449	71476	67927	62685	57763	55986	49601	41510	32140	21472	19456	11620	8995	9438
2000 cfs		94191	87787	79050	76344	72470	66875	61623	59700	52944	44265	34735	23690	21525	12895	9826	9419
1500 cfs			93796	84480	80996	77039	71228	65705	63660	56565	47363	37634	26276	23856	14712	10992	9379
1018 cfs				90811	87111	83130	77198	71498	69391	62012	52467	42567	30896	28153	18513	14424	9081
911 cfs					90275	84841	78856	73098	70966	63477	53820	43885	32162	29394	19691	15524	9027
800 cfs						88394	81700	75458	73306	65736	55946	45899	34060	31203	21425	17163	8839
600 cfs							86248	79817	77855	70029	60062	49796	37700	34759	24891	20513	8624
452 cfs								83693	81189	73163	62928	52443	40149	37164	27224	22789	8369
407.6 cfs									82057	73954	63667	53158	40829	37845	27882	23422	8205
300 cfs										75891	65434	54858	42480	39480	29494	24976	7589
225 cfs											66817	56008	43621	40616	30625	26093	6681
175 cfs												57403	44664	41506	31412	26772	5740
125 cfs													45641	42223	31998	27235	4564
111 cfs														44190	32091	27313	4419
80 cfs															33184	28109	3318
60 cfs																28269	2826



Appendix D: Figure 8.52a and 8.52b Average Flow Fluctuations in the Peaking Reach for the Proposed Action and No-Action Alternatives

