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11 **STATE OF CALIFORNIA**
12 **STATE WATER RESOURCES CONTROL BOARD**
13

14)
15 In the Matter of:)
16)

17 Hearing to Review the U.S. Bureau of)
Reclamation Water Rights Permits)
18 (Applications 11331 and 11332) – Cachuma)
19 Project Phase 2)
20)
21)
22)
23 _____)

CLOSING BRIEF OF CALIFORNIA
TROUT, INC.

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1 I. INTRODUCTION

2 For over half a century, the Cachuma Project has been operated to maximize consumptive uses
3 of the Santa Ynez River. There is no dispute that, as a result, this Project has dramatically impaired the
4 physical conditions of the Santa Ynez River, including habitat that once supported one of the largest
5 runs of steelhead in Southern California. Nor is there any dispute that, as a result, the Santa Ynez River
6 steelhead population is now a mere remnant of what it once was. The question confronting the State
7 Water Resources Control Board (“SWB” or “Board”) in these proceedings is, what steps will now be
8 taken to reverse this situation and protect the public’s interest in steelhead and other public trust
9 resources in the Santa Ynez River?

10 In making this decision, the Board’s obligation is distinct and unambiguous. Only the Board is
11 responsible for determining the terms of the Cachuma Project water rights permits. Only the Board has
12 the authority and responsibility to ensure that these permits protect public trust uses whenever feasible.
13 The Board cannot look to other federal or state resource agencies to meet this obligation, nor can it
14 simply defer to decisions that these or other agencies have made, or may make, regarding the public
15 trust resources at issue. This is clear as a legal matter, and, moreover, the trustee resource agencies in
16 these proceedings, the Department of Fish and Game (“DFG”) and NOAA Fisheries, have stated their
17 clear desire that the Board take action now to require and oversee the implementation of measures and
18 studies to protect steelhead.

19 CalTrout’s participation in these proceedings is focused on steelhead in the Santa Ynez River.
20 Specifically, CalTrout is addressing Key Issues 3 and 6 identified in the August 13, 2003 Notice of Field
21 Orientation Tour and Supplemental Notice of Phase 2 of Public Hearing (“Supplemental Hearing
22 Notice”). For the reasons discussed below, CalTrout believes that the following measures must be
23 adopted to fulfill the Board’s public trust obligations. First, the Board should require the Bureau of
24 Reclamation (“Bureau”) to implement the instream flow schedule identified in Alternative 3A2 of the
25 1995 Final Cachuma Project Contract Renewal Environmental Impact Statement/Environmental Impact
26 Report (“Contract Renewal EIR/EIS”) as modified to reduce flows during dry years. In conjunction with
27 this flow schedule, the Board should require a study to verify that these flows improve habitat and
28 steelhead population, and the Board should require the establishment of measurable success criteria by

1 which to evaluate the habitat and population response to the implemented flow schedule. Second, the
2 Board should require the immediate commencement of a comprehensive study to evaluate the feasibility
3 of implementing steelhead passage around Bradbury Dam. Third, the Board should require certain
4 studies to evaluate the additional water that could be made available through 1) water conservation and
5 2) modifications to the downstream water rights release schedule to fully maximize water released for
6 steelhead and downstream users. Finally, all of the studies described above (including study plans)
7 should be subject to independent peer review, submitted to the Board in compliance with deadlines
8 established by the Board, and upon such submission, the Board should affirmatively evaluate the
9 Cachuma Project permit terms and conditions in light of the study results.

10 II. LEGAL FRAMEWORK

11 The public trust doctrine imposes on the SWB “an affirmative duty to take the public trust into
12 account in the planning and allocation of water resources, and to protect public trust uses whenever
13 feasible.” National Audubon Society v. State Water Resources Control Board, 33 Cal. 3d 419, 446
14 (1983). This is a duty of “continuing supervision,” and the SWB may reconsider allocation decisions
15 whether or not those decisions were made after due consideration of their effect on the public trust. Id.
16 at 448. The Cachuma Project permits explicitly reserve the SWB’s authority to impose limitations on the
17 diversion and use of water in order to preserve or restore the uses protected by the public trust. Order
18 No. WR 89-18 (amending Condition 4); 23 CCR § 780(a).

19 The uses protected by the public trust include protecting the public’s interest in navigation,
20 commerce and fisheries, as well as the public’s interest in recreational fishing, preservation of resources
21 in a natural condition, ecological study and aesthetic enjoyment. Marks v. Whitney, 6 Cal. 3d 251
22 (1977); National Audubon, 33 Cal. 3d at 434-435.¹ Although the Board may ultimately approve a water
23 diversion or allocation despite foreseeable harm to public trust uses, it must always “bear in mind its
24 duty as trustee to consider the effect of the taking on the public trust,” and avoid such taking whenever
25 feasible. National Audubon, 33 Cal. 3d at 446.

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28 ¹ The doctrine applies to all tidal and navigable waters, as well as to activities that harm a fishery in non-
navigable waters. People v. Truckee Lumber Co., 116 Cal. 397, 399 (1897).

1 In addition, the Bureau’s operation of the Cachuma Project is subject to the requirements of Fish
2 and Game Code section 5937. Order No. WR 95-2 (1995).² This provision states:

3 The owner of any dam shall allow sufficient water at all times to pass through a fishway, or in the
4 absence of a fishway, allow sufficient water to pass over, around or through the dam, to keep in
5 good condition any fish that may be planted or exist below the dam.

6 Fish and Game Code section 5937 “is a legislative expression concerning the public trust doctrine
7 that should be taken into account when the SWB acts under its public trust authority.” See, e.g., SWB
8 Decision 1644 (Lower Yuba River) at 30 (2001) (citing California Trout, Inc. v. State Water Resources
9 Control Board, 207 Cal. App. 585, 626, 631 (1989)); Order No. WR 95-2. The phrase “good condition”
10 is not defined by statute. However, the DFG has stated that Dr. Peter Moyle’s definition (see, Ex. CT
11 70) is “most applicable” for steelhead in the Santa Ynez River. Titus at 6 [Ex. DFG 4]. See also, Ex. MU
12 226 at 43-45. Instream flow requirements for the lower Santa Ynez River have never been established
13 pursuant to this requirement. The Board should utilize the Phase 2 evidentiary proceedings to explicitly
14 consider what flow requirements are necessary to restore and maintain steelhead in “good condition” in
15 accordance with Section 5937 and Dr. Moyle’s definition.

16 Finally, Article X, Section 2 of the California Constitution requires that water resources of the
17 State “be put to beneficial use to the fullest extent of which they are capable” and prevents the waste,
18 unreasonable use, and unreasonable method of use of water. Cal. Const. Art. X, § 2. See also, Water
19 Code § 100. The Board is required to take all appropriate actions to prevent violations of these
20 standards. Water Code § 275. See also, Order No. WR 89-18 (amending Condition 4).

21 **III. ARGUMENT**

22 **a. Permits 11308 And 11310 Should Be Modified To Protect Public Trust Resources**
23 **(KEY ISSUE 3).**

24 The Board has an affirmative duty to take the public trust into account in its water resource
25 planning and allocation decisions and to protect public trust uses whenever feasible. National Audubon
26

27 ² The Bureau holds legal title to the Cachuma Project water rights permits and the Project is authorized
28 under the Federal Reclamation Act. Order No. WR 95-2. Federal water projects constructed under the
Federal Reclamation Act are subject to the requirements of section 5937. Id. (citing NRDC v. Patterson,
791 F. Supp. 1425 (1992)).

1 Society, 33 Cal. 3d at 446. The Cachuma Project permits, however, have been developed and
2 implemented almost entirely without provision for public trust uses.³ The current status of the Santa
3 Ynez River public trust resources reflects this neglect.

4 The public uses protected by the public trust doctrine in the Santa Ynez River include the use of
5 the steelhead fishery and enjoyment of the ecological, aesthetic and preservation values of the Santa
6 Ynez River watershed. Historical reports indicate that the Santa Ynez River, prior to the Cachuma
7 Project, supported a thriving steelhead population and significant recreational fishery for the public.
8 Edmondson at 3-5 [Ex. CT 90]; Capelli at 1-4 [Ex. NOAA 6]. This fishery no longer exists. Santa Ynez
9 River steelhead are not in “good condition,” as defined by Dr. Peter Moyle, and the Member Units admit
10 this. Keegan at 3-4 [Ex. CT 30]; Baldrige at 44-45 [Ex. MU 226]. Santa Ynez River steelhead have
11 been listed as a federally endangered species since 1997, 62 Fed. Reg. 43937 (August 18, 1997) [Ex. CT
12 94], and have been included in statewide efforts to address the “precipitous decline” in steelhead
13 populations. McEwan at 3 [Ex. DFG 1]. The Cachuma Project is “one of the major contributors” to the
14 current status of steelhead and steelhead habitat in the Santa Ynez River. Biological Opinion for U.S.
15 Bureau of Reclamation Operation and Maintenance of the Cachuma Project on the Santa Ynez River in
16 Santa Barbara County, California (“BO”) at 30 [Staff Ex. 9]. Thus, the Cachuma Project has directly
17 impacted the public trust in the Santa Ynez River, and as a result, the public no longer enjoys the public
18 trust uses formerly available. These facts are undisputed by any other evidence in the record.

19 The public trust doctrine requires the Board to protect the public trust uses identified above
20 whenever feasible. Therefore, the Board must modify the Cachuma Project permits to incorporate all
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23 ³ Prior to 1994, the permits did not contain any measures to protect public trust resources. In 1994, the
24 Board modified the Cachuma Project permits to include a provision establishing a “Fish Reserve
25 Account” (water stored above 750 feet due to a .75-foot surcharge) as well as an “amount that shall not
26 exceed 2,000 acre feet per year” in the event water did not accrue in the Fish Reserve Account. WR
27 Order 94-5. This provision was not designed to restore public trust uses. Its purpose was to maintain the
28 remnant population of steelhead and facilitate the study of that population, and it had little impact on the
overall status of the Santa Ynez River Steelhead. In fact, the population was subsequently listed as
“endangered” under the federal Endangered Species Act as part of the Southern California Steelhead
Evolutionarily Significant Unit. 62 Fed. Reg. 43937 (August 18, 1997) [Ex. CT 94].

1 feasible measures that will restore these public trust uses. Compliance with Fish and Game Code section
2 5937 is also a goal in these proceedings. Order No. WR 95-2.

3 **b. The Flow Requirements Identified In Alternative 3A2 Of The Cachuma Contract**
4 **Renewal EIS/EIR (As Modified By CalTrout To Reduce Flow In Dry Years) Are**
5 **Necessary To Protect Steelhead In The Santa Ynez River (KEY ISSUE 3a).**

6 In exercising its judgment in this matter, the Board must first consider what measures are
7 necessary to protect public trust uses. With respect to instream-flow requirements, the only flow
8 schedule presented for the Board’s consideration that is capable of restoring the steelhead population
9 and restoring and maintaining steelhead in “good condition” is Alternative 3A2 in the Contract Renewal
10 EIS/EIR.⁴ [Staff Ex. 5]. Among 18 possible alternatives, Alternative 3A2 was identified as having the
11 greatest benefit to steelhead below the dam, and the greatest likelihood of resulting in a self-sustaining
12 steelhead population.⁵ Contract Renewal EIS/EIR, at 6.4-21 [Staff Ex. 5]. The magnitude and duration
13 of the Alternative 3A2 flows were determined using the physical habitat simulations system
14 (“PHABSIM”) and Instream Flow Incremental Methodology (“IFIM”), a methodology that is based on
15 lifestage criteria and which accounts for a broad range of habitat factors in its evaluation of changes in
16 useable habitat resulting from changes in flow. Keegan, p. 7-11 [Ex. CT 30]; Titus at 593-594. This
17 methodology is widely used to determine instream flow, and it has previously been used by the Board to
18 determine instream flow requirements. See, e.g., Li at T:937; SWB Decision 1644 (Lower Yuba River);
19 SWB Decision No. 1631 (Mono Lake) (1994); California Trout v. Superior Court, 218 Cal. App. 3d
20 187, 189 (1990) (Declaration of Walter Pettit, Chief of the Division of Water Rights, asserting that

21
22 ⁴ In determining the measures necessary to restore public trust uses and “good condition” of steelhead in
23 the lower River, the Board is not limited to restoring actual historic conditions below the Dam. Although
24 the lower River was a “flashy” system that did not support spawning and rearing throughout its reaches
25 prior to construction of Bradbury Dam, the Dam now blocks steelhead in the lower River from the
26 majority of its spawning and rearing habitat. The Board must therefore consider measures in the lower
27 river that will compensate for this loss. McEwan at T:548-549; Moyle at T: 805-806.

28 ⁵ Alternative 3A2 consists of the following schedule for instream flow: 48 cfs February 15 to April 14
for spawning, then 20 cfs to June 1 for incubation and rearing, then 25 cfs for one week for emigration,
then ramp releases to 10 cfs by June 30, then hold at 10 cfs to October 1, then 5 cfs until February 14 for
resident fish. Contract Renewal EIS/EIR at 4-32. [Staff Ex. 5]. Note: Mr. Edmondson’s calculation of
the approximate amount of water necessary to implement this flow schedule incorporated an alternative
ramping schedule as required by the BO at pages 5-6. Edmondson at 9-10 [Ex. CT 90].

1 “IFIM is ‘the standard tool employed by state and federal agencies’ for ‘determining quantitative
2 instream flows to protect fishery resources.”).

3 Although Alternative 3A2 was not considered in the SWB’s draft EIR⁶, it is, nonetheless, clear
4 from the record that Alternative 3A2 is superior to the alternatives that were identified. Alternative 3A2
5 is predicted to provide more years for successful upstream passage (84% of the historical record versus
6 63% for draft EIR alternatives⁷ 3A, 3B, 3C). Keegan at 4 [Ex. CT 30]. NOAA Fisheries itself
7 characterized the passage flows considered in the SWB draft EIR as only “close to the minimums at
8 which passage is possible, not water depth and width that produce good migration habitat” (emphasis
9 added). BO at 35 [Staff Ex. 9]. Alternative 3A2 is also predicted to provide more significant
10 improvements in spawning and rearing habitat into the Alisal Reach and likely below it. Keegan at 5
11 [Ex. CT 30]. Alternative 3A2 is predicted to provide superior passage, spawning, and rearing flows even
12 with a flow schedule modified to reduce flows during dry years. *Id.* at 11; T: 920. For this reason, and to
13 conserve water resources, CalTrout supports modifying the 3A2 flow schedule to suspend passage flows
14 during years in which the mouth at the estuary is not breached (i.e., dry years, which are anticipated to
15 occur 20% of the time.).⁸ *Id.*; SWB DEIR, Appendix C, Table 4-1 [Staff Ex. 10]. Flows for rearing, even
16 in dry years, would be maintained as called for by Alternative 3A2.⁹ Keegan at 11 [Ex. CT 30].

17 The Member Units¹⁰ attempt to dispute the relative superiority of Alternative 3A2 with respect to
18 improving steelhead habitat by asserting that temperature conditions in reaches further downstream of
19

20 ⁶ Pursuant to CalTrout’s comment letter dated October 7, 2003, the draft EIR must be revised to include
21 a range of alternatives, including Alternative 3A2. See, CalTrout’s Written Opening Statement at 23-25.

22 ⁷ Other than Alternative 1 (historical operations), each of the SWB’s draft EIR alternatives consists of
23 the flow schedule identified in the BO and the Fish Management Plan.

24 ⁸ Hanson testified that adult steelhead tend to migrate upstream from the ocean after prolonged storm
25 when the sand bar at the stream mouth has been breached. Ex. MU 225 at 2.

26 ⁹ As modified, this Alternative would consist of the following schedule for instream flow during dry
27 years: 5 cfs February 15 to April 14 for spawning, then 20 cfs to June 1 for incubation and rearing, then
28 25 cfs for one week for emigration, then ramp releases to 10 cfs by June 30, then hold at 10 cfs to
October 1, then 5 cfs until February 14 for resident fish. Note: Mr. Edmondson’s calculation of the
approximate amount of water necessary to implement this flow schedule incorporated an alternative
ramping schedule, as required by the BO at pages 5-6. Edmondson at 9-10 [Ex. CT 90].

¹⁰ The “Member Units” consist of the Cachuma Conservation Release Board and the Santa Ynez River
Water Conservation District, Improvement District #1. The Member Units, the Bureau of Reclamation,
and the Santa Ynez River Water Conservation District presented their testimony jointly during the

1 Bradbury Dam are not suitable for steelhead at higher flows, the implication apparently being that the
2 Alternative 3A2 flow schedule could be detrimental to steelhead. Baldrige at 19 [Ex. MU 226].
3 However, the decision to reject flow schedules that might result in temperatures exceeding the Member
4 Units' temperature criteria is undercut by the Member Units' own testimony and their admissions during
5 cross-examination. Mr. Hanson and Ms. Baldrige both testified that there are no definitive data to
6 establish temperature criteria for southern California steelhead, and that the temperature criteria (which
7 are based on Northern California populations) should only be used as "general guidelines." MU 224 at
8 12; T:275; T: 420-421. In fact, rainbow trout/steelhead have been observed (during 1998) to survive and
9 grow during summer months downstream of the Highway 154 Reach at temperatures in excess of the
10 "guidelines" and at flows between 6 and 150 cfs. MU 224 at 13; T:279; T:1115.¹¹ Thus, the Member
11 Units' temperature criteria do not provide a basis to reject the Alternative 3A2 flow schedule.

12 The Member Units also attempt to dispute the relative superiority of Alternative 3A2 by
13 explaining why they decided to reject the PHABSIM/IFIM modeling underlying the 3A2 flow schedule
14 in favor of the "wetted width study" underlying the flow schedule in the BO and Fish Management Plan
15 ("FMP") and in the SWB draft EIR. Baldrige at T:988; Ex. MU 269, slide 8. Multiple experts,
16 however, testified that the PHABSIM/IFIM methodology is superior to the "wetted width" (also known
17 as "top width") method employed by the Member Units. Keegan at 8-11 [Ex. CT 30] and T:817-818
18 (Top width method has insufficient empirical data, utilizes assumptions that may only apply to specific
19 channel morphologies and habitat types, and does not provide direct association with habitat suitability
20 for fry, juvenile and other steelhead lifestages.) ; Li at T:937 ("the top width is a poor habitat index
21 because it is inconsistent, doesn't take into consideration the parameters that are relevant to steelhead
22 directly"); Titus at T:593-594 (Top width method suitable to describe only basic attributes of steelhead
23 habitat. PHABSIM is more inclusive.) The Member Units identify 1) the dynamic nature of the Santa

24
25 hearing, and references to the "Member Units" throughout this document are intended to refer to all of
26 these parties.

27 ¹¹ The Member Units have suggested that it is the existence of stratified pool structures (with cool
28 groundwater below warm surface water) that have allowed steelhead to survive and grow when surface
water temperatures are high. However, the summer flow rates observed in 1998 are rates that the
Member Units' predict would de-stratify these pools. Baldrige at 19 ("WR 89-18 releases [which occur
at rates up to 150 cfs] may disrupt thermal stratification") [Ex. MU 226]. The Member Units' hypothesis
is therefore not borne out by the empirical data.

1 Ynez River channel; 2) water temperature limited rearing; 3) lack of access to the Highway 154 Reach;
2 and 4) lack of habitat suitability criteria as the basis for their decision to completely disregard the
3 conclusions of the Contract Renewal EIR/EIS and develop a new flow schedule based on a “wetted
4 width” study method. None of these items renders the Member Units “wetted width” study results
5 superior to the PHABSIM methodology employed in the Contract Renewal EIS/EIR. The latter two
6 items, to the extent they are of concern, raise the same concern for the wetted width method. Payne and
7 Baldrige criticized the generic habitat suitability criteria used in the PHABSIM analysis. T:1024;
8 T:988-989. However, generic criteria were also utilized for the wetted width analysis. Baldrige at
9 T:989. Similarly, both witnesses testified about their concern for the lack of access to the 154 Reach.
10 T:988; T:1024. However, they fail to explain why this lack is significant to the PHABSIM analysis, why
11 it is not similarly significant for the wetted width analysis, or why the data utilized for this Reach in the
12 Contract Renewal EIR/EIS should be rejected.¹²

13 With respect to channel stability, the Member Units provide conclusory statements, but no actual
14 evidence, regarding the “dynamic” nature of the channel, nor do they identify any discussion or
15 empirical observations of channel instability that are contemporaneous with their decision to reject the
16 PHABSIM on this basis. Nor do they explain why they completely discarded the PHABSIM results in
17 favor of a less superior methodology, rather than updating the PHABSIM to account for channel
18 instability. The Member Units’ own expert testified that channel instability can be accounted for in a
19 PHABSIM model. Payne at T:1024; see also Li at T: 959. Similarly, the Member Units’ statement that
20 “water temperature limits rearing” does not indict the PHABSIM model. Ms. Baldrige herself admitted
21 that water temperature can be evaluated in a PHABSIM model, and as discussed above, Ms. Baldrige
22 overstates the limitations of water temperature and her conclusions in this regard are contradicted by
23 empirical observations on the Santa Ynez. T:1042.

24 Thus, without exception, the Member Units’ testimony regarding the habitat benefits of
25 Alternative 3A2 and the relative merits of PHABSIM and the wetted width methodology is unpersuasive
26 and fails to support a conclusion that Alternative 3A2 should be rejected in favor of the BO/FMP/SWB

27
28 ¹² To the extent the Member Units argue that empirical data is lacking in the PHABSIM analysis for the
154 Reach, it is important to note that there is also no empirical data utilized for this Reach in the wetted
width analysis. Habitat Analysis for the Santa Ynez River (SYRTAC) at 2-1 [Ex. CT 36].

1 draft EIR alternatives as the instream flow measure necessary to restore and protect the public trust and
2 “good condition” of steelhead.¹³ *The Board should identify Alternative 3A2 modified to account for*
3 *dry years as the flow schedule most capable of restoring steelhead and maintaining “good condition,”*
4 *and therefore, the flow schedule necessary to protect public trust resources in the Santa Ynez River.*
5 *The 3A2 flow schedule modified to account for dry years should be incorporated into the Cachuma*
6 *Project permits, along with a requirement that these flows be studied to verify, for each steelhead*
7 *lifestage, whether the implemented flows improve habitat and steelhead population (based on*
8 *measurable success criteria as discussed in Section III.d.ii.).¹⁴*

9 **c. The Flow Requirements Identified in the Biological Opinion Are Insufficient To**
10 **Protect Steelhead in the Santa Ynez River, But Other Terms And Conditions In The**
11 **Biological Opinion Should Be Adopted (KEY ISSUE 3a).**

12 *i. BO Flow Requirements Will Not Restore Public Trust or Good Condition of*
13 *Steelhead.*

14 The BO flow requirements are not adequate to restore the public trust uses and good condition of
15 steelhead. As discussed above, the flow schedule identified in the BO and FMP (and considered in the
16 SWB draft EIR) is not predicted to provide the significant habitat improvements for steelhead passage,
17 spawning, and rearing that are predicted to result from Alternative 3A2 (or 3A2 modified). In fact, the
18 BO flow schedule is predicted to result in only marginal changes relative to current operation. Keegan at
19 7-8 [Ex. CT 30].¹⁵ The flow recommendations in the Biological Opinion were developed only “to
20
21

22 ¹³ The Member Units argue that Alternative 3A2 has significant water supply impacts. These arguments
23 are relevant to the feasibility of implementing instream flow measures, but not to determining what
24 instream flow measures are necessary to protect and restore public trust resources and good condition of
25 steelhead. Arguments regarding the feasibility of the different instream flow measures are addressed in
26 Section III.e.

26 ¹⁴ Decisions regarding whether dry year flows should be implemented in any given year should be made
27 pursuant to scheduled annual meetings of the Adaptive Management Committee, during which the water
28 year type would be identified. See, e.g., SWB Decision 1631 (Mono Lake), Condition 3.

27 ¹⁵ Both the SWB draft EIR and the Contract Renewal EIS/EIR “score” the flow schedules identified in
28 each document. Keegan 5-6 [Ex. CT 30 and Ex. Ct 32]. A side-by-side comparison of these scores
reveals that the SWB draft EIR significantly overstates the value of the BO/FMP flow schedule. For
example, the highest score for rearing flows (a value of “5”) in the Contract Renewal EIS/EIR is

1 maintain existing habitat and to provide adequate passage downstream of Bradbury Dam” (emphasis
2 added). Lecky at 3 [Ex. NOAA 1]. These goals are consistent with the purpose of the Biological
3 Opinion, which is to evaluate whether the FMP recommended actions are “likely to jeopardize the
4 continued existence of the Southern California steelhead ESU” (emphasis added). BO at 68 [Staff Ex.
5 9]. NOAA Fisheries itself has repeatedly stated that the BO does not address the measures necessary to
6 achieve restoration of the steelhead runs of the Santa Ynez River. Ex. CT 1 at 5; T:746. The latter issue
7 is what is pertinent to the Board’s public trust obligations (as informed by Fish and Game Code section
8 5937), which goes beyond merely ensuring the continued existence of an already remnant population.
9 Thus, adopting the BO flow schedule will not fulfill the Board’s obligation to restore public trust uses or
10 “good condition” of steelhead in the Santa Ynez River.¹⁶

11 Some parties may suggest that the Board adopt the BO flow schedule, as an interim measure,
12 until more information is gathered about instream flow requirements or until NOAA Fisheries releases a
13 recovery plan for the Southern California steelhead ESU. The evidence in the record, however, does not
14 support this approach. First, several weaknesses of the BO were exposed by testimony at the hearing.
15 For example, the flow schedule identified in the BO does not establish minimum required flows, but a
16 “target” that the Bureau only need do its “best” to hit. Wingert at T:748; see also Young at T: 412-13.
17 Not surprisingly, the Bureau has at times failed to meet the BO’s “targets,” including “during the
18 summer of 2003.” T:410. The BO itself indicates that NOAA Fisheries’ is unable to predict whether
19 these “target” flows will maintain continuous surface flows in the entire 10 miles downstream of
20 Bradbury where steelhead commonly rear. BO at 55 [Staff Ex. 9]. In addition, the Bureau and Member
21 Units do not have physical access to a priority management reach (the Highway 154 Reach) identified in
22 the BO, and as a result, cannot even confirm that they are maintaining “target” flows in this Reach.

23
24 assigned to flows greater than or equal to 65 cfs. In contrast the highest score for rearing flows (also a
25 value of “5”) in the SWB draft EIR is assigned to flows greater than 10 cfs. *Id.*

26 ¹⁶ The Bureau and Member Units may argue that it is premature to draw conclusions about the efficacy
27 of the BO/FMP flow schedule until the FMP has been fully implemented. However, since 1993, the total
28 annual amount of water released from Bradbury has met or exceeded the release amounts called for by
the BO/FMP. SWB DEIR, Table 2-2 [Staff Ex. 10]. Annual fish releases alone have also been roughly
equivalent to the BO/FMP flows. *Id.* Nonetheless, “the current Santa Ynez steelhead population is
extremely depressed,” and is estimated by NOAA Fisheries to be an average of 100 adult sea-run fish a
year. Capelli at T:648. See also Engblom at T:401(20-40 adult sea-run steelhead captured since 1995).

1 Young at 8 [Ex. DOI 6]; see also, Young at T:392 (problem identified approximately one year ago, but
2 still no alternative monitoring in place). This wholly imprecise and uncertain flow schedule, where even
3 continuous flows for rearing steelhead cannot be assured, calls into question the adequacy of the
4 measures in the BO to protect, even in the shorter term, the Santa Ynez River steelhead, a species that
5 faces a “high risk of extinction.” Capelli at T:648; see also, McEwan at T:561.

6 Second, the Board cannot simply defer its current public trust obligation to NOAA Fisheries’
7 future recovery plan. Although NOAA Fisheries is legally obligated to complete a recovery plan for the
8 Southern California steelhead ESU, it is not required to do so pursuant to any deadline or mandatory
9 timeframe. Wingert at T:750. Nor is the agency required to implement or enforce any measures in the
10 Recovery Plan once it is complete. *Id.* at T:750-751. The Board cannot indefinitely defer its public trust
11 decision to a date uncertain, but must make a decision now, based on the information that is currently
12 available. As discussed above, the record demonstrates that Alternative 3A2 (as modified to account for
13 dry years) is the biologically superior alternative to restore and protect steelhead. The Board, then, must
14 adopt this flow schedule so long as it is feasible. For these reasons, the Board should not adopt the flow
15 schedule in the BO, even as an interim measure.¹⁷

16 *ii. Other BO Measures Should Be Adopted By the SWB.*

17 The BO includes a variety of other flow and non-flow related measures that should be adopted
18 by the SWB. See, CalTrout’s Written Opening Statement at 13-16. In particular, NOAA Fisheries’
19 Conservation Recommendations should be adopted by the SWB. These measures have been identified to
20 facilitate restoration of steelhead and should thus be adopted as measures necessary to protect steelhead
21

22
23 ¹⁷ *Should the Board decide to adopt the BO flow schedule, it should be adopted as an interim flow*
24 *schedule and should be implemented as the minimum flows that must be met (not “targets”). The*
25 *Board should require the Bureau to confirm that the minimum flows are being met throughout all*
26 *identified management reaches. Finally, the Board should require a study of Alternative 3A2, 3A2*
27 *modified and other flow variations using accepted instream flow methodology (such as IFIM) to*
28 *determine suitability for long-term restoration and protection of the public trust. The study should be*
completed in accordance with the process described in Section III.d.iii. submitted to the Board by a
date certain, and the SWB should reconsider permit terms and conditions upon completion of the
study. Adopting the BO flow schedule only as an interim schedule is consistent with the testimony of
DFG and NOAA Fisheries’ staff that these measures are only appropriate as interim measures. Titus at
6-7 [Ex. DFG 4] and T:595; Wingert at 6 [Ex. NOAA 2] and T:640.

1 in the Santa Ynez River. The Conservation Recommendations are not mandatory and may not be
2 implemented unless ordered by the Board. Lecky at T:747.

3 **d. Additional, Non-Flow Related Measures Are Necessary To Protect Public Trust**
4 **Resources (KEY ISSUE 3b).**

5 *i. Fish Passage*

6 The Board has explicitly invited evidence regarding the impacts of the Cachuma Project on
7 public trust resources above Bradbury Dam. May 29, 2003 Notice to Cachuma Hearing Service List
8 from Peter S. Silva. This is appropriate because the Board’s obligation to consider public trust resources,
9 and to protect such resources whenever feasible, is not limited to those resources located below
10 Bradbury Dam. The public trust doctrine protects public trust uses. National Audubon, 33 Cal. 3d at
11 446. Thus, to the extent a public trust use or interest (e.g., recreational fishery) is impacted by a water
12 diversion, the Board has jurisdiction to consider and remedy the impact whether or not the impact is
13 above or below the diversion. The Board has previously considered public trust resources upstream of a
14 dam or diversion. See, e.g., Decision No. 1632 (Carmel River) at 73-74 (considering impacts of
15 proposed dam on habitat that will be inundated by reservoir); Order No. WR 95-17 (Lagunitas Creek) at
16 136-139 (considering effects of dam on migration of salmon).¹⁸ The Board has required a broad array of
17 measures to protect above-dam public trust resources including, requiring physical habitat restoration,
18 prohibiting the continued installation of a “summer” dam, and requiring fish bypass above water
19 diversions. See, e.g., Decision 1631 (Mono Lake) at 59, 71, 82, 117; Order No. WR 95-17 at 147-48.¹⁹

20 The impact of Bradbury Dam on steelhead is undisputed. Construction of the dam eliminated
21 access, for steelhead below the dam, to at least 150 miles of the most important spawning and rearing
22 habitat. Keegan at 30 [Ex. CT 30]; Baldrige at 30 [Ex. MU 226]; BO at 29-30 [Staff Ex. 9]; Steelhead
23 Restoration and Management Plan for California at 195-196 [Ex. DFG 2]. It also eliminated access, for
24 above-dam steelhead, to migrate to the ocean. Keegan at 15 [Ex. CT 30].

25
26
27 ¹⁸ Water Code sections 1243 and 1253 also provide broad authority for the Board to consider and protect
28 public trust resources above a dam or diversion.

¹⁹ The Cachuma Member Units have acknowledged the SWRCB’s authority to consider and address
above-dam public trust resources. See June 11, 2003 letter from Arthur Kidman to Peter S. Silva, p. 7.

1 Experts from the DFG testified that passage around Bradbury Dam is “critical” to the restoration
2 of steelhead. McEwan at T:554; Titus at 7 [Ex. DFG 4]. NOAA Fisheries similarly testified. Lecky at
3 T:748; see also BO at 82 [Staff Ex. 9] (“Access to [above-dam] areas would be of huge benefit to the
4 Santa Ynez steelhead population.”). This evidence, too, is undisputed. Consistent with this evidence,
5 NOAA Fisheries, the DFG, and CalTrout have each recommended a study of the feasibility of fish
6 passage around Bradbury Dam. October 7, 2003 NOAA comment letter [Ex. MU 247]; McEwan at 6
7 [Ex. DFG 2]; Keegan at 16 [Ex. CT 30]. The Board should require this study in order to fulfill its public
8 trust obligations.

9 Evidence in the record demonstrates that there are at least several methods of passage around
10 Bradbury Dam. Zapel at 3 [Ex. CT 10]; T:849. This evidence is also undisputed.²⁰ These methods of
11 passage, as well as other potential options should be evaluated in a comprehensive study of passage
12 around Bradbury Dam. As testified to by Mr. Whitman of the DFG, it is important to evaluate all
13 potential options without prematurely dismissing alternatives. Whitman at 9, 11 [Ex. DFG 7]. A phased
14 study approach, where each phase is accompanied by survival and migration success studies to evaluate
15 performance levels, is recommended and would minimize unnecessary expenditures on untested
16 methods. Zapel at 6 [Ex. CT 10]. Cost and other potential impacts (e.g., potential impacts to recreational
17 fishing) should also be evaluated, but should not, in and of themselves, eliminate consideration of
18 potential approaches to fish passage without further evaluation.²¹ Whitman at 12 [Ex. DFG 7].

19 In addition, in light of the undisputed importance of the upper basin to steelhead restoration, it is
20 imperative that fish passage studies commence immediately. McEwan at T:553-554. The Member Units
21 have suggested that further study of fish passage should be deferred until “questions” are answered
22 regarding the potential hybridization of steelhead in the upper basin. Baldrige at 32 [Ex. MU 226].

23
24 ²⁰ The Member Units’ witness, Mr. Donohue, identified some potential design issues associated with
25 these methods, but this testimony simply highlights the need to study such methods. Indeed, Mr.
26 Donohue stated that “there is a lot of overlap or obviously thinking the same” with Mr. Zapel. T:995.

27 ²¹ Any questions regarding potential impacts of fish passage should be considered in determining the
28 scope of issues to evaluate with respect to fish passage. They do not, however, counter the evidence
regarding the importance of fish passage to steelhead, and in fact simply underscore the need for a
comprehensive study of fish passage. Furthermore, the DFG testified that providing passage for
steelhead around Bradbury Dam would not necessarily restrict recreational fishing of other species.
McEwan at T:598-600.

1 However, the DFG has testified that, even if it is determined that steelhead above the dam were
2 “hybridized,” that would not preclude providing passage for steelhead around Bradbury Dam, and a
3 comprehensive fish passage study should not be deferred on this basis. Maxwell at T:1100-1101.²²
4 Furthermore, the Board should not be persuaded that, absent an order from the Board, the Member Units
5 will carry out the necessary studies in an appropriate time frame. The Member Units testified that
6 “additional field studies are planned” on this issue, however, they do not identify the scope of such
7 studies, nor do they identify an actual timeframe for completion of these studies. The record is clear that
8 the Member Units consider just the study of fish passage to be a long-term action. FMP at 5-11 and E-4-
9 7 [Ex. DO1 1f] (identifying study of fish passage as action to be commenced pursuant to indeterminate,
10 long-term time frame of “five or more years”). Although both DFG and NOAA Fisheries have
11 recommended that this study be conducted, these recommendations do not impose a mandatory
12 obligation on the Bureau or the Member Units to complete such a study. See, e.g., Lecky at T:747. Thus,
13 absent an enforceable order from the Board there is nothing in place to ensure that this matter, which is
14 indisputably critical to the restoration of steelhead, will be addressed at all.

15 ***Thus, the Board should require the immediate commencement of a comprehensive study to***
16 ***evaluate fish passage around Bradbury Dam. See Appendix 1 for a recommended study plan. The***
17 ***Board should require this study to be completed in accordance with the process described in Section***
18 ***III.d.iii. and submitted to the Board by a date certain. Upon submission of the study, the SWB should***
19 ***reconsider the permit terms and conditions.***

20 *ii. Measurable Success Criteria*

21 The Member Units have testified regarding the “adaptive management” approach incorporated
22 into the Fish Management Plan and the Biological Opinion. Baldrige at 8 [Ex. MU 226]. CalTrout
23 agrees that an adaptive management approach is the proper approach to restoring the Santa Ynez River
24 steelhead population. Keegan at 14 [Ex. CT 30].²³ The adaptive management approach employed in the
25

26 ²² DFG staff also testified that the Member Units’ concern with hybridization is misplaced. Maxwell at
27 T:1101 (“keeping the genetics we can establish in there alive [is the issue] – introgression is not the
28 issue.

²³ Adaptive management means “an approach that allows for changes to...[a project]...that may be
necessary in light of new scientific information regarding the biological effectiveness of the restoration

1 Fish Management Plan (and incorporated into the BO), however, omits a fundamental element of
2 adaptive management: the establishment of measurable success criteria. Id. at 14; Titus at T:515
3 (identifiable benchmarks need to be established for “sound implementation and evaluation” of plan
4 actions); Dr. Carl Walters at 38, as referenced at Ex. MU 226 and Ex. CT 42.

5 Ms. Baldrige testified that the Fish Management Plan does have “success criteria.” Ex. MU 226
6 at 37-38.²⁴ These descriptors are not, however, measurable success criteria. An “assessment of spawning
7 [or rearing, or riparian] habitat” sets no quantified target for what spawning habitat should be, and
8 measuring fish use through trapping and snorkeling does not identify what level of fish population
9 should be using the surveyed area. These items that are inaccurately described by the Member Units as
10 success criteria are merely descriptions of monitoring methods. Actual measurable success criteria
11 provide a basis by which to objectively evaluate improvements, or lack thereof, in quantity and quality
12 of steelhead habitat and steelhead population size. The Member Units admit that their success criteria do
13 not identify specific numeric targets for habitat, nor do they identify specific numeric targets or trends
14 for population size. Baldrige at T:422-423; see, also, Titus at T:515 and 596 (FMP lacks measurable
15 success criteria to “determine the success of the proposed actions.”). Such objective, quantifiable and
16 measurable success criteria can be established to evaluate population and habitat improvements, and
17 have been, in other adaptive management plans throughout California. See, e.g., Battle Creek draft EIR,
18 Appendix D at 37-55 [Ex. CT 43]; In the Matter of Stream and Waterfowl Habitat Restoration Plans and
19 Grant Lake Operations and Management Plan, SWB Order WR 98-07 (1998) (identifying quantified
20 criteria to determine restoration goals).²⁵ Without such criteria there is no objective yardstick against

21
22 measures.” Battle Creek draft EIR at 17 [Ex. CT-42] (identifying an adaptive management approach
23 agreed to by DFG, NOAA Fisheries, the Bureau, USFWS, and the Board for salmonid restoration in
24 Battle Creek). The Board should utilize the Battle Creek draft EIR as a model for designing and
25 implementing an adaptive management plan. Keegan at 14-15 [Ex. CT 30].

26 ²⁴ “The Plan recommends a series of projects, each with specific goals and measurable objectives.
27 Overall, the success of the Plan will be measured through improved habitat quality and long-term trends
28 in fish use of the lower basin habitat. Habitat quality measures include assessments of spawning habitat,
rearing habitat, quantity and quality of riparian habitat, and increases in year-round flow. Fish use will
be measured through migrant trapping, redd surveys, and snorkel surveys.” Id.

²⁵ Hypothetical examples of measurable success criteria to evaluate population improvements include
identifying quantitative targets for population size (e.g., 100, 1,000 or 10,000 returning spawners),
trends in productivity (e.g., 3, 5, or 7% increase in return spawner numbers in each successive year the

1 which the SYRTAC, the Adaptive Management Committee (“AMC”), or the Board can judge a
2 management action as successful or failing.

3 The Member Units and other parties may argue that the Board should defer identifying
4 measurable success criteria until NOAA Fisheries has completed its recovery planning process through
5 which it will develop numeric success criteria for the Southern California steelhead. NOAA Fisheries’
6 recovery plan, however, is not subject to any mandatory timetable, and it is uncertain whether and when
7 this recovery plan will ever be complete. Wingert at T:750. More significantly, the Board cannot rely on
8 NOAA Fisheries’ to fulfill its own obligation to adopt measures necessary to protect public trust. The
9 Board’s public trust obligations exist irrespective of NOAA Fisheries’ recovery planning process, and if
10 the Board’s decision is premised on an adaptive management scheme, the Board must ensure that the
11 full framework is in place to implement that scheme. Adaptive management is premised on the
12 identification of measurable success criteria, therefore these criteria must be identified by the Board.

13 ***The Board should require that measurable success criteria (i.e., numeric targets for habitat***
14 ***and population) be identified, in accordance with the process described in Section III.d.iii., within 6***
15 ***months of the Board’s Order.***

16 *iii. Process Improvements*

17 The Member Units make much of the so-called “consensus” process they used to develop their
18 Fish Management Plan, and will likely recommend that management decisions continue to be made
19 through this process. Baldrige at 2 [Ex. MU 226]. The very fact that these extensive evidentiary
20 proceedings have occurred, however, indicates that this process is less than adequate. The DFG and
21 NOAA Fisheries, both of which are members of one or more of the Fish Management Plan committees,
22 have made clear that, at this juncture, additional direction and oversight is required from the SWB
23 regarding the steps to be taken to restore and protect steelhead in the Santa Ynez River. See, e.g., Lecky
24 at T:733-734; McEwan and Whitman at T:595. CalTrout agrees.

25 SWB direction and oversight should include identifying specific timeframes for implementing
26 the actions, particularly any studies, adopted by the Board. Lecky at T:733-734; Titus, McEwan, and

27
28 ocean sandbar is breached), and/or habitat improvements (e.g., access provided to 10, 50, or 100 miles
of high quality spawning and rearing habitat; 1, 5, or 10 miles of spawning gravels, or, quantitative
targets for pool/riffle ratio or average pool depth). See, e.g., Capelli at T:755-756.

1 Whitman at T:595. Management actions and development and implementation of studies should be
2 carried out by the trustee agencies (NOAA Fisheries and DFG) and the licensee (Bureau of
3 Reclamation), with opportunities for review and comment on these activities provided to the water
4 agencies, CalTrout, and other interested parties. To the extent the Board determines that it is more
5 appropriate to work with the existing process, the Board should specify that management actions and
6 development and implementation of studies should be carried out by the existing Adaptive Management
7 Committee (“AMC”), with one enhancement: AMC decisions, including study plans and draft study
8 reports, should be independently peer reviewed. Independent peer review of the AMC is not currently
9 conducted or required, but has been identified as an effective way to ensure an unbiased evaluation of
10 the matters being studied. Lecky at T:684, 685. In addition, the Board should require the AMC to submit
11 quarterly reports to the SWB (including, but not limited to, agenda and meeting minutes, progress
12 reports, study results, all work product (including drafts)). The Board should also require that quarterly
13 reports be made available to CalTrout and other interested parties.

14 Finally, in order to fulfill its public trust responsibilities, it is critical that the Board affirmatively
15 evaluate Cachuma Project permit conditions upon the completion of any of the studies adopted by the
16 Board. Lecky at T:734. In addition, NOAA Fisheries’ recovery plan will also have some bearing on
17 future management actions in the Santa Ynez River. Thus, the Board should explicitly identify the
18 completion of NOAA Fisheries’ recovery plan as a milestone upon which the Board will consider the
19 permit terms and conditions. *Id.* These milestones should be explicitly incorporated into the permits to
20 ensure that as information from studies or the NOAA Fisheries’ recovery plan becomes available it can
21 be considered and incorporated into the permit terms in a timely manner.

22 **e. Reclamation and Member Units Have Not Demonstrated That Measures Necessary**
23 **To Protect Public Trust Are Not Feasible (KEY ISSUE 3c).**

24 Once the Board identifies the measures that are necessary to protect public trust resources, then it
25 must consider whether those measures are feasible. Measures necessary to protect public trust resources
26 must be adopted “whenever feasible.” National Audubon, 33 Cal.3d at 446.²⁶ In this case, the Member
27

28 ²⁶ Fish and Game Code § 5937 states that a dam owner must provide “sufficient water” to keep fish in
good condition, without qualification regarding the effects of such releases on other users. See, Order

1 Units have testified that Alternative 3A (BO/FMP flow schedule without any surcharge) and Alternative
2 3B (BO/FMP flow schedule with 1.8 foot surcharge) of the SWB draft EIR and Alternative 3A2
3 (including 3A2 as modified by CalTrout) of the Contract Renewal EIS/EIR will have a significant
4 impact on water supply and may, therefore, be infeasible. The evidence presented to the Board,
5 however, fails to demonstrate that these alternatives cannot be feasibly implemented. While the Member
6 Units and other parties would have the Board believe that there is little room to accommodate increased
7 flows for steelhead, this is simply not the case. The Member Units have both overstated potential
8 impacts and disregarded options to minimize potential impacts.

9 Evidence was submitted regarding the potential water supply impacts of Alternatives 3A and 3B
10 from the SWB draft EIR, as well as from Alternative 3A2 from the Contract Renewal EIS/EIR and
11 Alternative 3A2 as modified by CalTrout to account for dry years. For these alternatives, the Member
12 Units argued that the flow schedules could cause significant water shortages during drought years and
13 potential impacts during non-drought years.²⁷ See, e.g., Mack at 1 [Ex. MU 207], Shahroody at 10 [Ex.
14 MU 232] (regarding SWB draft EIR alternatives); Shahroody at 4, 5-6 [Ex. MU 264]; Mack at 1-3 [Ex.
15 MU 266] (regarding Contract Renewal EIR/EIS alternatives). This testimony, however, does not take
16 into account that, as a general matter, future per capita demand would be expected to decrease over time
17 due to the ongoing implementation of water conservation measures (increased efficiencies from new
18 technologies). Shahroody at T:417; Haasz at T:832-33.²⁸ It also does not appear to take into account that
19 more extensive conservation measures would be implemented during a drought year, particularly a
20

21 No. WR 95-2 (interpreting CalTrout v. SWRCB, 207 Cal. App. 585 (1989), as indicating that it is
22 reasonable to release enough water necessary to keep fish in good condition, but a release much in
23 excess of what is necessary could be unreasonable); Cf., 23 CCR § 782 (SWB regulation conditioning
appropriation of water on compliance with § 5937).

24 ²⁷ The Member Units recalculate CalTrout's estimates of the average annual releases for Alternative
25 3A2 and 3A2 modified to account for dry years. Shahroody at 1 and 3 [Ex. MU 264]. Significantly, even
26 under their recalculations, the average annual releases estimated for alternative 3A2 are significantly less
27 than the amount identified in the Contract Renewal EIS/EIR. 6.1-41 [Staff Ex. 5]. It is also worth noting
28 that Mr. Shahroody's estimates (9,324 AFY and 8,374 AFY) are still well within a projected volume
that could be accommodated by water conservation measures (minimum of 5,000 to 7,000 AFY),
modifications to the downstream water rights release schedule, or surcharge of the reservoir (5,500 to
9,200 AF) (or some combination of these options). See discussion below in Sections III.e.i-iii.

²⁸ Four out of the five Member Units actually project increased per capita demand. Per capita demand,
however, should decrease, rather than increase over time. Haasz and Gleick at 14 [Ex. CT 50].

1 critical drought period, thereby significantly reducing demand. See, e.g., Mack at 2-3 [Ex. MU 207]
2 (Table 2 (critical drought) and Table 1 (normal year) both identify the same projected demand). While it
3 is reasonable to consider critical drought years as part of water supply planning, the Member Units rely
4 on this scenario to the exclusion of any other demand-side scenario (except for the even more
5 conservative scenario of assuming a four-year, rather than three-year, drought). Haasz at T:833-834. An
6 analysis of potential impacts to Cachuma water supply should also include analysis of different levels of
7 conservation that could reduce demand for water. Haasz at T:834; Ex. CT 50 at 14.²⁹ In addition, when
8 considering impacts during a critical drought period, the Board should also consider the supply offset
9 from the Santa Barbara desalinization plant, which Mr. Mack testified is available for emergency use
10 and is part of the City of Santa Barbara’s drought contingency plan. T:144; T:188-189. Notwithstanding
11 the expense that may be associated from startup, this plant was built specifically for use in a critical
12 drought and cannot be disregarded for this analysis.³⁰

13 Additionally, the Member Units’ testimony regarding water supply impacts is based on a
14 comparison to historical operations, not current operations. Shahroody at 8 [Ex. MU 232]; see also,
15 Mack at 13 [Ex. MU 207]. This sleight of hand is inconsistent with CEQA, which requires an evaluation
16 of impacts in relation to the current environmental baseline³¹, and it explains the discrepancy between
17 the conclusions in Table 3-1 [Ex. MU 232] and Table 4-16 in the SWB draft EIR. Another sleight of
18 hand perpetrated by the Member Units consists of arbitrarily excluding hydrological data after 1993
19 from their calculations. Shahroody at 5 [MU 264]. The years 1994 through 2001 were some of the
20 wettest years on record. SWB draft EIR at Table 2-2 and Appendix B, Chart 4-2 [Staff Ex. 10]. See also,
21 Baldrige at 6 [Ex. MU 226] (“The Lower Santa Ynez River has been studied since 1993 during a
22 predominantly wet period.”).

23 The Member Units’ and other parties’ testimony regarding the impacts on downstream users is
24 similarly overstated. The Member Units and the City of Lompoc testified that Alternatives 3A and 3B of

26 ²⁹ For example, the Contract Renewal EIS/EIR includes consideration of the effect of overestimated
27 demand on its water supply impact analysis. 6.1-36 – 38 [Staff Ex. 5].

28 ³⁰ Table 8 of Mack’s testimony only identifies reductions to Cachuma supply, and does not appear to
consider other sources of water, such as desalinization. Ex. MU 207.

³¹ CEQA Guidelines, 14 CCR § 15125(a).

1 the SWB draft EIR and Alternative 3A2 of the Contract Renewal EIR/EIS (including 3A2 modified for
2 dry years) may have impacts on downstream water users and could impact groundwater quality at the
3 Lompoc plain. Shahroody at 12 [Ex. MU 232]; Shahroody at 7 [Ex. MU 264]; Durbin at 2 [Ex. Lompoc
4 5]. This testimony does not take into account the potential for reduced demand through water
5 conservation, including more extreme water conservation measures that might be implemented during
6 drought periods. Shahroody at T:417-418. In addition, this testimony fails to adequately account for the
7 benefits that releases for steelhead will have on downstream users. Shahroody admits, but tries to
8 discount, the fact that steelhead releases will also provide water for downstream users. T:310. However,
9 the Contract Renewal EIS/EIR, a document which the Bureau finalized and certified, found this fact to
10 be more significant, concluding that the Alternative 3A2 releases would provide “early” releases for the
11 above-narrows and below-narrows users, and that “the State Water Board may consider a greater
12 percentage of these releases for fish to represent WR 89-18 releases because such water also replenishes
13 riparian groundwater basins below the dam.” 4-31, 6.1-14 [Staff Ex. 5]. In fact the Contract Renewal
14 EIS/EIR concluded that the WR 89-18 accounting system would have to be modified under this
15 alternative to ensure that “accurate and fair” downstream accounts are maintained in light of the benefits
16 from the fish releases. *Id.* at 4-30. Similarly, the testimony regarding impacts to groundwater quality is
17 flatly contradicted by the Contract Renewal EIS/EIR, which states that Alternative 3A2 will have a
18 beneficial impact on groundwater quality in the Riparian and Lompoc basins.³² *Id.* at 6.2-13 – 14.³³

21
22 ³² The Member Units also identify potential impacts to state water deliveries and to lake storage levels.
23 Mack at 3 [Ex. MU 266]; Shahroody at 6-7 [Ex. MU 264]. However, the Contract Renewal EIS/EIR
24 concludes that under Alternative 3A2 “lake levels are higher than [under current operations].” 6.1-13
25 [Staff Ex. 5]. With respect to impacts to state water deliveries, the Member Units provide no explanation
26 of the underlying methodology or assumptions supporting their conclusions and the Board should
27 therefore provide little credence to these purported impacts.

28 ³³ Shahroody and Durbin’s testimony regarding downstream user impacts also assumes that the schedule
for downstream water rights releases is static and cannot be modified to account for any potential
impacts from steelhead releases. This is not the case, as discussed below in Section III.e.ii. To the extent
the Board is not persuaded that steelhead releases cannot be implemented without impact to downstream
users, the Board should require these impacts to be more comprehensively evaluated. This study could
be conducted in conjunction with a study to evaluate whether downstream water rights releases and
steelhead releases could be coordinated more effectively. See, discussion below at III.e.ii.

1 Thus, the testimony provided by the Member Units and other parties regarding the potential
2 impacts of these alternatives overstates the potential water supply impacts and fails to demonstrate that
3 these alternatives cannot be feasibly implemented. In addition, evidence in the record demonstrates that
4 potential impacts to water supply could be minimized or eliminated through implementation of
5 additional water conservation measures, modifications to the downstream water rights release schedule,
6 or through surcharge. These are discussed below in turn.

7 *i. Water Conservation Measures Could Be Implemented To Minimize Any Potential*
8 *Water Supply Impacts (KEY ISSUE 3d).*

9 As discussed above, the Member Units' testimony regarding potential water supply impacts fails
10 to consider the reductions in demand that could be achieved due to increased water efficiency and
11 conservation measures. In previous public trust decisions, the Board has evaluated the feasibility of
12 instream flow requirements in light of the potential for water savings through conservation . See, e.g.,
13 SWB Decision 1644 at 107 (Lower Yuba River). Haasz and Gleick have demonstrated that significant
14 water savings, 5,000 to 7,000 AFY, would result from simply applying existing efficiency technologies
15 and well-understood policies to promote water conservation.³⁴ Ex. CT 50. The costs associated with the
16 water conservation measures identified by Haasz and Gleick (replacement of less efficient residential
17 and commercial toilets, installation of high-efficiency washing machines, and implementation of
18 specific water efficient landscaping techniques) are at least comparable in cost to the Member Units'
19 others sources of water, including the cost of Cachuma water. *Id.* at 12-13. In most cases conserved
20 water would be more cost-effective than the Member Units' current sources of supply. *Id.* Even
21 accelerated implementation of these measures would still be cost-effective. Gleick at T:904-905.
22 Proactive efforts to implement these water conservation measures would minimize or avoid the potential
23 water supply impacts of Alternative 3A and 3B in the SWB draft EIR and Alternative 3A2 in the
24 Contract Renewal EIS/EIR (as modified for dry years). Haasz and Gleick at 16 [Ex. CT 50].

25 The Member Units have testified that they are at the forefront of the state in implementing water
26 conservation practices, and that they are meeting federal and state water conservation requirements,

27 ³⁴ Even without taking additional steps at the local level to promote water conservation, per capita
28 demand should decrease over time as newer, more water-efficient appliances (e.g., toilets and washing
machines) capture an increasing share of the market. Haasz and Gleick at 14-15 [Ex. CT 50].

1 including CUWCC “best management practices.”³⁵ Rees at 1-3 [Ex. MU 209]; Rees at T:147. If this is
2 in fact the case, it is not reflected in the Member Units’ demand projections, which, as discussed above,
3 assume an increase in per capita demand, and thus do not appear to reflect ongoing implementation of
4 water conservation measures or improved efficiencies. Shahroody at T:417; Haasz at T:832-33.
5 Moreover, evidence in the record demonstrates that the Member Units are not at the forefront of the
6 State and are not meeting all their federal and state water conservation requirements. The Member
7 Units’ own witness testified that the City of Santa Barbara and the City of Goleta’s compliance with the
8 CUWCC best management practices was “very good”, but “imperfect compared to other agencies.”
9 T:1055-1056; Dickinson at 2 [Ex. MU 277]. Carpinteria, Santa Ynez and Montecito’s compliance
10 “could be good” by 2007, but they are not, apparently, currently complying with all the best
11 management practices. Dickinson at T:1071-1072. These same three agencies have also recently been
12 out of compliance with the Bureau’s requirement to submit an updated Water Conservation Plan. See,
13 Ex. CT 2; Haasz at T:834-835. Moreover, even assuming the Member Units are in fact meeting state and
14 federal requirements, this does not support a conclusion that they are capturing the full, cost-effective
15 conservation potential that could be utilized to minimize potential impacts to the Cachuma water supply.
16 The CUWCC practices represent “the floor” that all MOU signatories have agreed to meet, but not full
17 conservation potential. Haasz at T:901; Dickinson at T:1069. The Member Units’ own witness, Ms.
18 Dickinson (Executive Director of the CUWCC), testified that “All of the council signators . . . could
19 probably do more conservation.” T:1055.³⁶

22 ³⁵ The Member Units also offered testimony that agricultural users are already water efficient and
23 testimony regarding individual’s agricultural water use practices. See, Ex. MU 213, Ex. MU 215, Ex.
24 MU 217. However, this testimony did not attempt to evaluate additional potential water savings that
25 could be achieved in this area.

26 ³⁶ Despite this, Dickinson suggests that the CUWCC best management practices should be “the standard
27 for compliance employed at this hearing.” As previously mentioned, for several of the Member Units, it
28 is questionable whether they are even in compliance with this standard, but in any case, the issue for the
Board, is not whether the Member Units are complying with CUWCC requirements, but “what water
conservation measures could be implemented in order to minimize any water supply impacts.”
Supplemental Hearing Notice at 4. As testified to by Ms. Haasz, Dr. Gleick and Ms. Dickinson, none of
the Member Units, even those that are complying with the best management practices have captured all
water conservation potential. T:828; Dickinson at T:1055.

1 The Member Units provided Ms. Gonzales as an expert witness to attempt to dispute Ms. Haasz
2 and Dr. Gleick’s conclusions. However, Ms. Gonzales’ testimony in this regard is inaccurate and
3 misleading. A detailed response to Ms. Gonzales’ rebuttal testimony, limited to evidence in the hearing
4 record, is provided in Appendix 2.³⁷ Some of the more significant inaccuracies are highlighted here. For
5 example, Ms. Gonzales states that Haasz’s and Gleick’s conclusions are unreliable because they are
6 based on a per capita analysis. Gonzales at 1-3 [Ex. MU 280]; T:1063-1064. This is flatly incorrect. In
7 fact, Haasz and Gleick utilized an end-use analysis to calculate the potential water savings they identify.
8 Haasz and Gleick at 2 [Ex. CT 50] (“we quantify conservation potential from . . . end-uses . . .”).³⁸
9 This is precisely the type of analysis Ms. Gonzales states is “much more precise” and presumably
10 preferable to a per capita analysis. Ex. MU 280 at 1. Ms. Gonzales also incorrectly asserts that Haasz
11 and Gleick failed to account for savings that have already been achieved from universal low-flow toilets
12 (“ULFTs”) in Santa Barbara and Goleta and landscape conservation. T:1066; T:1063. In fact, Haasz and
13 Gleick explicitly accounted for saturation of ULFTs in Santa Barbara and Goleta. Haasz and Gleick at 5-
14 6 [Ex. CT 50] (concluding for Santa Barbara, for example, that “there is probably only a negligible
15 amount to be saved through accelerating replacement, as most models are currently ULFTs.”). Similarly,
16 Haasz and Gleick did consider landscape savings that had already been achieved, relying on the County
17 of Santa Barbara’s own estimates of these savings. *Id.* at 8-9 (citing to Ex. CT 53).

18 Ms. Gonzales also asserts that Haasz and Gleick’s cost estimates for toilets, high-efficiency
19 washers, and the ET WeatherTrak system are incorrect. See, e.g., T:1066-1067; T:1065; Ex. MU 280 at
20 3. Ms. Gonzales’ conclusory statements should be given no weight, however, as they are not supported

24 ³⁷ During the hearing, CalTrout reserved the right to fully respond to Ms. Gonzales’ testimony via a
25 written submittal. Ms. Krop at T:1073; Ms. Krop and Mr. Silva at T:1077.

26 ³⁸ Haasz and Gleick calculated current consumption levels for each end-use evaluated, considering water
27 consumption for each individual member unit and considering penetration. See, Haasz and Gleick [Ex.
28 CT 50] at 3-5 (toilets); 6-7 (washers); 8-9 (landscape); 9-11 (CII)). Table 1 on page 2 does identify, for
illustrative purposes, water use of the Member Units in terms of gallons per capita per day. These
numbers, however, were not utilized to calculate potential water savings. Thus, Ms. Gonzales’ assertion
that this table misidentifies per capita residential water use is simply irrelevant to Haasz and Gleick’s
conclusions about water savings. MU 280 at 1-2.

1 by any relevant data or calculations (in contrast to Haasz and Gleick’s conclusions).³⁹ Ms. Gonzales
2 does cite to the REUW study, Ex. CT 66, published in 1999 in support of her assertion that Haasz and
3 Gleick underestimate washer costs. However, this study is even older than the so-called “outdated” data
4 (published in 2003) she criticizes Haasz and Gleick for using. Moreover, although the REUW study
5 identifies costs of washers, this was only for background purposes. The study was an end-use analysis of
6 the frequency and intensity of water use; it did not evaluate cost-effectiveness of washers. *Id.* at xxi.
7 Ms. Gonzales’ misapplication of this data is ironic considering her criticism that Haasz and Gleick
8 misapplied data from landscape conservation studies in estimating potential savings in that area. MU
9 280 at 7-9. To the contrary, the studies identified by Ms. Gonzales, part of an extensive literature review
10 conducted by Haasz and Gleick⁴⁰, did inform their final estimated range of savings (25-50%), but the
11 quantitative values from these studies were not directly incorporated into Haasz and Gleick’s estimate.
12 See, Waste Not Want Not at 76 [Ex. CT 63], Table 3-3 (showing Pittenger estimates of potential savings
13 at 65-75 percent, which exceeds PI’s estimated range), Table 3-5 (showing SPUC estimates of potential
14 savings at up to 100 percent, which exceeds PI’s estimated range); Table 3-7 (showing CDWR, or
15 WUCOL as referred to by Ms. Gonzales, estimates of potential savings at up to 80 percent, which
16 exceeds PI’s estimated range). Similarly, Haasz and Gleick did not misuse data from the “Spectrum
17 Study” – contrary to Ms. Gonzales’ assertion, Haasz and Gleick do not attribute 100% of savings to
18 scheduling, maintenance and practices. *Id.* at 75, FN 24. Ms. Gonzales also states that Haasz and
19 Gleick’s estimates for the ET Controller system are inconsistent with the Irvine Ranch Water District
20 Study. As discussed above, Haasz and Gleick’s cost estimates for these systems was based on the
21 County of Santa Barbara’s own estimates. Haasz and Gleick at 8 [Ex. CT 50].

22 Thus, there is no technical basis to discount Haasz and Gleick’s conclusions regarding potential
23 water savings. Moreover, the above highlights from Ms. Gonzales’ error-ridden testimony underscore
24 the lack of expertise she brings to this issue, relative to Haasz and Gleick. See, Ex. MU 279, Ex. CT 51,

26 ³⁹ Haasz and Gleick’s testimony that ULFTs and high-efficiency washers are cost-effective relative to
27 Cachuma Water is supported by Ms. Dickinson’s testimony that most water conservation programs are
28 “typically in the \$150 to \$250 range. Particularly the residential and commercial and industrial toilet and
clothes washer programs” (emphasis added). T:1058.

⁴⁰ Waste Not Want Not at 74-82 [Ex. CT 63].

1 Ex. CT 52. Both Ms. Haasz and Mr. Gleick prepared their testimony pursuant to their employment with
2 the Pacific Institute (Mr. Gleick is a co-founder and President of the Institute), an independent, non-
3 profit organization that has provided research and policy analysis regarding sustainable water use since
4 the late 1980s. Ex. CT 63 at 4. Many of the conclusions in their written testimony are based on the
5 methodology developed for the Pacific Institute’s report on statewide urban water conservation
6 potential. Ex. CT 63. This report was peer-reviewed by multiple parties, and the Member Units’ own
7 witness stated that the report was developed to inform the State Water Plan process and “will be a
8 significant contribution to statewide conservation potential discussions.” Dickinson at 1, FN 3 [Ex. MU
9 277]; Waste Not Want Not at 2 [Ex. CT 63]. The Board should consider the relative expertise and
10 credibility of Ms. Haasz, Mr. Gleick and Ms. Gonzales in evaluating Ms. Gonzales’ testimony.

11 ***The Board should find that Alternatives 3A and 3B and Alternative 3A2 (modified for dry***
12 ***years) are feasible to implement with the benefit of increased, cost-effective water conservation***
13 ***measures. A comprehensive study of the full range of conservation options available to the Member***
14 ***Units, the associated savings potential and cost-effectiveness, and the mix of conservation options***
15 ***most appropriate for each agency would identify additional potential water savings that could be***
16 ***achieved. The Board should require this study to facilitate additional measures that may be necessary***
17 ***over the long-term to protect public trust uses in the Santa Ynez River.⁴¹ A recommended study plan is***
18 ***included as Appendix 3. The Board should require this study to be completed in accordance with the***
19 ***process described in Section III.d.iii. and submitted to the Board by a date certain. Upon submission***
20 ***of the study, the SWB should reconsider the permit terms and conditions.***

21 *ii. Modifications To The Downstream Water Rights Schedule Could Minimize*
22 *Potential Impacts To Member Units’ Water Supply.*

23 The Board should also consider whether modifications to the existing water distribution schedule
24 for downstream users could lessen or eliminate potential water supply impacts. The current downstream
25 water rights release schedule is designed for the sole purpose of maximizing the amount of water
26

27 ⁴¹ The Board should still require this study even if it adopts the BO/FMP flow schedule. As discussed
28 above, the BO/FMP flow schedule should only be adopted as an interim measure. The water
conservation study would thus inform the Board’s future public trust decision regarding the feasibility of
implementing an alternative flow schedule that may require more water than the BO/FMP schedule.

1 captured for use by downstream users. Jackson at 8 [Ex. DOI-1] (schedule is based on maintaining
2 groundwater storage between Bradbury Dam and the Narrows near Lompoc “at less than full levels by
3 only making releases from the dam when depleted storage exceeds the defined quantity of 10,000 acre-
4 feet, thus enhancing the capture of tributary surface runoff originating below the dam and reducing
5 runoff to the Pacific Ocean.”); SWB draft EIR at 2-6 [Staff Ex. 10]. Under this schedule, thousands of
6 acre-feet of water are released over a relatively short duration (e.g., several weeks), in the spring,
7 summer or fall. *Id.* at 2-6 – 2-7. In some years, downstream water rights releases do not occur at all, and
8 thousands of acre-feet of water are held in the Cachuma Reservoir until conditions are most optimal for
9 natural groundwater recharge. Wales at T:262 (approximately 16,000 acre feet currently in Reservoir, in
10 downstream users “accounts”); Buelna at T:110 (no downstream water rights releases made in 2003).⁴²

11 The Member Units and other parties have testified that Alternative 3A, 3B, and Alternative 3A2
12 of the Contract Renewal EIS/EIR would result in significant impacts to water supply. This testimony,
13 however, assumes that downstream water rights releases will continue in the same manner they have
14 historically been implemented. *Id.* Instead, the water reserved and released for downstream users could
15 be released to benefit steelhead, as well as downstream users.⁴³ Chart 2-4 in Appendix B of the SWB
16 draft EIR provides a graphic display of the potential water that could be made available for steelhead
17 releases, as well as for downstream water rights releases. Staff Ex. 10 (identifying historic monthly
18 water rights releases and fish releases). This chart displays the relatively large amount of water released
19 (in shorter-term spikes) for downstream users in relation to the relatively small amounts of water
20 released (over longer durations) for steelhead. Modifying the downstream water rights release schedule
21 to coordinate with releases for steelhead could fully maximize the amount of water available for both
22 beneficial uses, and thus render releases for steelhead more feasible.

23
24
25 ⁴² The existing downstream water rights release schedule has a number of significant adverse impacts on
26 steelhead. See BO at 47-53 [Staff Ex. 9]. These releases may have some short-term benefits for
27 steelhead, but these benefits disappear when the water does. *Id.* at 48.

28 ⁴³ The Member Units state that they are already making water rights releases in tandem with fish
releases. See, e.g., Shahroody at 4 [Ex. MU 264, part 3]. It is clear, however, that the purpose of these
tandem releases is only “to repeat the historical release period” for downstream water rights releases and
ensure that such releases are not impacted by releases for steelhead. Shahroody at T:258.

1 Considering such modifications is compelled not only by the public trust doctrine, but also by
2 Water Code Section 275, which requires the Board to take all appropriate actions to prevent the waste,
3 unreasonable use, and unreasonable method of use of water. Water Code § 275. Alternative 3A, 3B, 3C
4 and Alternative 3A2 of the Contract Renewal EIS/EIR all assume continued implementation of the same
5 downstream water rights release schedule. Under any of these alternatives there would be two distinct
6 regimes for water releases of Bradbury Dam – one for downstream water users and one for steelhead.
7 Given that downstream water users and steelhead both benefit from water releases into the lower river,
8 the implementation of two separate release schedules is a potentially inefficient, wasteful, and
9 unreasonable use of water, particularly given the scarcity of water supply, the great need for water by
10 multiple beneficial users, and the impacts of the downstream water rights releases on steelhead. See,
11 e.g., Tulare Irrigation District v. Lindsay-Strathmore Irrigation District (1935) 3 Cal. 2d 489, 567
12 (“What may be a reasonable beneficial use, where water is present in excess of all needs, would not be a
13 reasonable beneficial use in an area of great scarcity and great need. What is a beneficial use at one time
14 may, because of changed conditions, become a waste of water at a later time.”); SWB Decision 1644
15 (Lower Yuba River) at 30 (citing Environmental Defense Fund v. East Bay Mun. Utility Dist. 182 Cal.
16 App. 3d 127) (“A particular water use or method of diversion may be determined to be unreasonable
17 based on its impact on fish, wildlife, or other instream beneficial uses”).⁴⁴

18 The Board can satisfy both its public trust obligations and its obligations to prevent waste,
19 unreasonable use, and unreasonable method of use of water resources by requiring a comprehensive
20

21 ⁴⁴ The Board’s power to prevent unreasonable use includes the ability to “strike the proper balance”
22 between competing public interests. U.S. v. State Water Resources Control Bd., 182 Cal.App.3d 127,
23 130; 227 Cal.Rptr. 161, 188 (Cal.App.1 Dist. 1986). To achieve the reasonable use of water, other users
24 may be required to endure “some inconvenience or to incur reasonable expenses.” People ex rel. State
25 Water Resources Control Board v. Forni (1976) 54 Cal. App. 3d 743, 751-752; 126 Cal. Rptr. 851, 856
26 (Requiring senior users to maximize beneficial use for all users by building reservoirs so that more users
27 could share in scarce supply.). Under the “physical solution” doctrine, parties may be required to adopt a
28 physical solution that will avoid waste and which will not unreasonably affect their rights. See, e.g., City
of Lodi v. East Bay Municipal Utility District (1936) 7 Cal.2d 316 (requiring trial court to consider
whether the City of Lodi’s groundwater wells could be maintained at lower levels without danger to the
City’s water supply, thereby minimizing the wasteful releases of water required of EBMUD to maintain
City’s groundwater wells at highest level). Adoption of such a physical solution is consistent with the
constitutional goal of promoting maximum beneficial use of the State’s water resources. SWB Decision
1631 (Mono Lake) at Sec. 2.5.

1 study to evaluate optimal coordination of downstream and instream water releases. Similar studies have
2 also been recommended by the DFG and NOAA Fisheries. McEwan at 6 [Ex. DFG 1]; BO at 82
3 (conservation recommendation 1) [Staff Ex. 9]. However, no such study has ever been conducted
4 (Shahroody at T:416-417 and T:1047), and DFG's and NOAA Fisheries' recommendations are not
5 enforceable. The Member Units' testimony does not substitute for a comprehensive, objective analysis
6 of this issue. Nor does it demonstrate that modifications to the downstream water rights release schedule
7 are not feasible. The Member Units' testimony only highlights the need for such a study. Mr.
8 Shahroody's testimony, for example, only evaluates one potential, limited scenario. Ex. MU 264, part 3.
9 The only point demonstrated by Shahroody's testimony is that it may not be feasible to coordinate
10 downstream water rights releases and fish releases under that particular scenario and given those
11 particular assumptions.⁴⁵ CalTrout seeks a study that would analyze a range of instream flow options,
12 including 3A2 and 3A2 modified (which Mr. Shahroody did not evaluate) and a range of water rights
13 release scenarios to determine whether the two types of releases could be managed together for the
14 maximum benefit of both consumptive and instream uses.

15 ***The Board should find that modifications to the downstream water schedule may reduce***
16 ***potential water supply impacts of fish releases. The Board should require a comprehensive study***
17 ***evaluating the optimal coordination of downstream water rights releases and releases for steelhead***
18 ***(pursuant to Alternative 3A, 3B, 3A2, and other variations). A recommended study plan is included in***
19 ***Appendix 4.⁴⁶ The Board should require this study to be completed in accordance with the process***
20

21 _____
22 ⁴⁵ Mr. Shahroody's conclusions also appear to be premised on some questionable assumptions. Mr.
23 Shahroody apparently assumes that the above narrows aquifer would be dewatered by 10,000 AF (as
24 required by current Order No. WR 89-18) when a downstream water rights release is initiated.
25 Shahroody at 2, Section 3 [Ex. MU 264]. However, with more continuous flows the aquifers would be
26 replenished more often than under the current permit scheme. See, e.g., Contract Renewal EIS/EIR at 4-
27 31, 6.1-14 [Staff Ex. 5]. Above narrows aquifer recharge rates may decrease as a result, freeing up more
28 surface water to reach the narrows and below.

⁴⁶ This study plan was developed without benefit of the most recent version of the Santa Ynez River
Hydrology Model, which was not included in the record for this Hearing as of the date of this
submission. As a result, modifications may need to be made. CalTrout recommends that further
development of this study plan, if necessary, be conducted pursuant to the process described in Section
III.d.iii above.

1 *described in Section III.d.iii and submitted to the Board by a date certain. Upon submission of the*
2 *study, the Board should reconsider permit terms and conditions.*

3 *iii. Surcharge of Reservoir Will Minimize Impacts to Water Supply*

4 In considering the feasibility of instream flow schedules, the Board should also consider the
5 additional water available if the reservoir is surcharged. The Member Units' testimony regarding the
6 potential impacts of Alternative 3A2 and 3A2 modified to account for dry years assumed that the
7 reservoir would not be surcharged beyond the current .75 ft surcharge. Shahroody at T:1047. However,
8 whatever instream flow schedule the Board does adopt, surcharge of the reservoir should be a last resort.
9 It is undisputed that surcharge of the reservoir would have significant, adverse impacts to other
10 resources, most notably, oaks. SWB draft EIR at ES-7 [Staff Ex. 5]. For this reason, the Board should
11 give priority to water conservation measures and potential modifications to the downstream water rights
12 release schedule when considering what measures should be implemented to minimize or eliminate
13 potential water supply impacts that may result from Alternative 3A and 3B of the SWB draft EIR or
14 from Alternative 3A2 (including 3A2 modified). *If the Board determines that surcharge of the*
15 *reservoir is necessary to minimize potential impacts to water supply, the Board should adopt the*
16 *phased surcharge agreed to by the County of Santa Barbara and the Member Units. Ex. CSB 11.*
17 *Under this approach, the 1.8 foot surcharge would be implemented immediately. The Board should*
18 *require the water conservation study and downstream water rights release study described above, with*
19 *the second phase of surcharge (which under this agreement would not be implemented for up to five*
20 *years) contingent on the Board's evaluation of the results of these studies and a determination by the*
21 *Board that the second phase of surcharge is still necessary to minimize impacts to water supply.*

22 **f. Reclamation's Water Rights Permits Should Not Be Modified In Accordance With**
23 **The Settlement Agreement Between Cachuma Conservation Release Board, Santa**
24 **Ynez River Water Conservation District, Santa Ynez River Water Conservation**
25 **District Improvement District No. 1 And The City Of Lompoc (KEY ISSUE 6).**

26 The Settlement Agreement assumes continued implementation of Order No. WR 89-18 and
27 purports to resolve public trust issues by adopting the terms and conditions of the BO. However, as
28 discussed above, implementation of the BO will not restore public trust uses or restore steelhead to

1 “good condition,” and therefore will not satisfy the Board’s obligation to protect public trust resources.
2 It is also worth noting that NOAA Fisheries and DFG were not consulted regarding this agreement and
3 neither agency approved the settlement agreement as an appropriate resolution of steelhead issues.
4 T:253-254. In addition, as discussed above, Order No. WR 89-18 was developed without any
5 consideration for public trust uses and may be a wasteful or unreasonable use of water. Pursuant to its
6 public trust authority, Article 10, section 2 of the California Constitution, and Water Code section 100,
7 the Board must reconsider this Order in light of the impacts to steelhead, and determine whether water
8 currently withheld from the lower river pursuant to WR 89-18 could be utilized to better maximize both
9 instream and consumptive beneficial uses.

10 Incorporation of the terms of the Settlement Agreement into the Cachuma Project permits is thus
11 inconsistent with both the Board’s public trust obligations and the Board’s obligations prevent the waste
12 and unreasonable use of water. ***Should the Board determine that incorporation of the settlement terms***
13 ***into the Cachuma Project permits is appropriate, it should specify that such terms are on an interim***
14 ***basis only, and the Board should require all of the studies identified above in order to comply with its***
15 ***continuing obligations to protect public trust resources and to prevent the waste and unreasonable***
16 ***use of water.***

17 IV. CONCLUSION:

18 The record demonstrates that the Cachuma Project permits should be modified to protect public
19 trust uses of the Santa Ynez River resources. In particular, measures must be adopted to facilitate the
20 restoration of the steelhead fishery. CalTrout requests that the Board adopt the flow requirements and
21 other measures described above in order to fulfill its public trust obligations.

22
23 Dated: _____

Respectfully submitted,
ENVIRONMENTAL DEFENSE CENTER

24
25
26 By: _____

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APPENDIX 1

Santa Ynez River Fish Passage Feasibility Analysis

I. Underlying Principles

To approach an assessment of the feasibility of providing fish passage on the Santa Ynez River, a phased and systematic methodology is recommended, framed by the following underlying principles:

- assemble a wide array of possible passage alternatives,
- do not reject any fish passage alternative out of hand without adequate, detailed analysis,
- assume passage is feasible, rather than it is not feasible, since it is practiced regularly throughout the United States in widely varying geographic/geologic circumstances,
- comprehensive, objective analysis performed under the auspices and direct supervision of the State Water Resources Control Board and responsible agencies:
 - California Department of Fish and Game
 - NOAA Fisheries
 - U.S. Bureau of Reclamation,
- public participation via formal advisory consultation with water diversion/delivery contractors, public interest conservation groups, and any other interested parties, and
- implementation in a phased, experimental approach under adaptive management methodology with measurable, objective performance criteria for success or failure of actions attempted.

This assessment, performed by fish passage specialists from each of the public trustee agencies, should be done in as transparent a fashion as possible, with quarterly progress summaries made available to all interested parties, and Phase I should be completed in a timely fashion, within a period of 12-18 months. The Bureau, in consultation with the Department and NOAA, should begin any field work to implement fish passage recommendations emerging from the feasibility study within 6-12 months of receiving the recommendation.

II. Recommended Phased Study Approach

The fish passage feasibility study done on the Santa Ynez River should be performed in a phased, adaptive management protocol. This begins with an analysis of temporary measures that might be taken at existing low steelhead population levels, and progresses to less temporary measures when fish passage actions taken at existing low population levels become effective at improving and stabilizing the size of the run in the Santa Ynez River (the goal of any fish passage program). For each of the phases in this stepwise approach, objective, measurable performance criteria must be established beforehand in order to provide a yardstick against which to measure success or failure of proposed fish passage actions to be taken.

Phase I of such an approach begins at current, low (endangered) population numbers, a starting point. The methodology consists of following up serial questions about feasibility: Can spawners be effectively trapped? Can they be transported? Do they use the translocation site habitat for spawning? Are more smolts produced as a result? Can smolts be effectively trapped and transported below Bradbury Dam? And so forth.

Phase II begins when Phase I results have shown that it is feasible to trap adult upmigrant spawner steelhead in the Santa Ynez River, and downmigrating smolts, have shown that spawners and smolts may be translocated without undue mortality, and that smolt production is rising over time in the Santa Ynez River as a result of these efforts, such that overall returning spawner numbers move out of the tens to the hundreds. More discussion of Phase II is given below.

Phase III would be implemented when the results of the less temporary measures proposed in Phase II begin to likewise show further improvements in run size on the Santa Ynez River, and returning spawners gain in numbers from the several hundreds to over a thousand returning spawner steelhead in years the sandbar is open at Surf. See below for further discussion of Phase III.

See Section V below for further detail.

Concurrent with Phase I of the fish passage feasibility study, but separate from such study, complementary studies should be undertaken to examine carrying capacity and habitat qualities of various possible receiver sites for transported spawner steelhead, and an analysis or review of existing trout population genetic structure (above and below dam) should be completed to answer questions about any potential genetic effects, positive or negative, of translocating migrating spawner steelhead to above-Dam habitats. There is no information required from these complementary studies to begin Phase I fish passage feasibility study. These studies can be useful to inform subsequent fish passage implementation Phases.

III. Possible Alternatives for Overall Feasibility Analysis (Upstream Migrants)

As described above in the discussion of underlying principles, no alternative should be dismissed casually. Each should receive complete and detailed analysis before an assessment of feasibility is made. An explicit cost-benefit analysis should be provided for each component of the feasibility study. Some of the alternatives that should be analyzed are listed below, but this is by no means a comprehensive list; that list should be compiled by the Fish Passage Feasibility Study team.

- Complete Fish Ladder or Fishway
- Hilton Creek as Partial Instream Conveyance Plus Fish Ladder with Controlled Descent into Reservoir Holding Pen (coupled with Downmigrant trap actions)
- Trap and Transport Facility on Bureau Property at Stilling Basin or in Hilton Creek
 - Instream, Hilton Creek: Simple floating picket weir and temporary trap, and/or
 - Instream, Mainstem on Bureau property: Same floating picket weir and temporary trap
- Trap types: adaptive management will determine method depending on critical factors such as streamflow, debris, number of fish, etc., but may include a floating picket weir, or a more permanent concrete weir and holding tanks.
- Transport methods: Again, adaptive management will determine the optimal method or combination of methods based on critical factors such as weather, road conditions, numbers of fish, etc. Methods can include ground, barge, or air transport.

- Release sites:

- Santa Cruz Creek and tributaries (closest)
- Mainstem between RedRock Day Use Area and Gibraltar Dam
- Mono and Indian Creeks
- N. Fork Juncal
- Mainstem above Gibraltar Reservoir
- Mainstem above Juncal
- Alisal Creek above Alisal Dam

IV. Possible Alternatives for Overall Feasibility Analysis (Downstream Migrants-adults and smolts collected in a common facility)

Moving spawners to good spawning and rearing habitat is only half of the issue of moving anadromous fish around dams. Downstream migrants, both adult and smolt, must also be accounted for. A variety of methods are available to assist downmigrating fish in their passage to the ocean.

- At Reservoir Outlet Works—a floating collector at Bradbury Dam with holding tanks
- At Tributary Inlets to Cachuma Reservoir—Floating collectors and holding tanks on reservoir in each inlet bay with guide nets to the collectors.
- Instream Collectors—temporary, partial duty traps on tributaries with holding tanks
 - Trap types: instream floating conical trap, instream ramp trap, floating picket weir
- Collector types: floating barge with gulper (with or without guide nets), floating, fixed location gulper at reservoir outlet works
- Transport Methods: adaptive management will determine optimal transport methods depending again on critical factors such as weather, road condition, streamflows, numbers of fish, etc.
- Downmigrant Release Sites
 - River below Bradbury Dam (or Stilling Basin)
 - Intermediate Site
 - Lagoon

V. Phased Implementation Protocol based on Adaptive Management Principles

For each of the implementation phases, objective and measurable criteria for determining success or failure should be established as yardsticks to gauge the results of actions against each question posed.

Phase I: Low Population Size Methodology—a starting point

Phase I, Steps 1 through 4 actions could be accomplished entirely within one winter adult migration season, provided at least several dozen adult fish were trapped successfully. Radio telemetry tags would be attached to all transported adult fish. Step 5 should be accomplished that same year in the spring with screw and/or ramp traps in tributaries where spawning was observed by trapped and transported adult fish. Step 6 should be accomplished over the course of the following one or two years with the same screw or ramp traps deployed in spring and summer and possibly in winter, with adult trapping and transport occurring in each winter migration season. Step 7 would be accomplished beginning in the

second spring following the initial adult trap and transport action, and would be continued every spring and early summer thereafter with screw traps, ramp traps, or temporary floating collectors in the reservoir to sample smolt-ready fish produced. Control groups could be established by collecting naturally produced juveniles from tributaries in which no trapped adults had been placed. Step 8 could be accomplished beginning in the second year following the initial adult trap and transport action by moving smolting steelhead downstream via several transport methods. Step 9 would begin as early as 3 seasons following the initial adult trap and transport action.

Step 1: Test Adult Trapping Efficacy

Question: Can adults be trapped with any regularity during migration period?

Suggested Method: Temporary upstream migrant trap facility at Bradbury Dam and/or Hilton Creek

Step 2: Test Transportation Efficacy

Questions: What is survivorship rate of transported adults under different transport length scenarios?
What is most effective method to transport: truck, barge, fixed-wing aircraft, helicopter, some combination?

Suggested Method: Test different transport methods to chosen upstream release sites.

Step 3: Test Release Efficacy, Alternate Release Sites

Questions: Do released adults move upstream?

Are some release points better than others to facilitate movement of spawners to spawning habitat?

Are some tributaries better than others at facilitating this? (This is a larger question and cross-relates to habitat surveys of tributaries)

Suggested Method: Radio-telemetry tags on released fish to monitor movement

Step 4: Monitoring of use of spawning habitat by adult spawners

Questions: Do released adults actually use tributary or upper basin mainstem spawning habitat?

Are redds produced?

Suggested Method: Radio telemetry tags on released fish with on-ground spawning surveys

Step 5: Monitoring YOY production from redds

Questions: Do YOY fry successfully emerge from redds?

What is survivorship rate of fry to juveniles in tribs or upper basin mainstem rearing habitat?

Suggested Method: Temporary downstream migrant fry/smolt trap facility in tributary streams, monitoring, and either direct release or transport to release site below Bradbury Dam.

Step 6: Monitoring juvenile survivorship in tributary/upper mainstem habitat

Question: What is survivorship rate of juveniles in tribs and upper mainstem?

Suggested Method: Same as above.

Step 7: Test smolt trapping and, Monitoring for Smolt production

Questions: Are smolts produced? Can successful smolt trapping be carried out?

Suggested Solution: Traps can be partial sample collection such as floating tributary conical or ramp traps, or more permanent full collection gulpers. Start with a floating instream smolt/fry trap to determine smolt readiness and estimated production, graduate to larger capacity, more permanent facilities in reservoirs if production is successful.

Step 8: Test Transport of Smolts below Bradbury Dam

Question: Can trapped smolts be effectively transported below Bradbury Dam?

What is most effective method of transporting smolts? Truck, Barge, Helicopter?

Do smolts transported below Bradbury Dam move downstream after release?

Are there ways to facilitate downstream movement (fences, flow pulses, etc?)

Suggested Method: Again, test various transport methods. Evaluate direct and delayed mortality, homing return efficacy, etc.

Step 9: Monitoring for return of tagged smolts (pit tags, fin clips, etc)

Question: Can smolts be effectively tagged so that returning adult migrants can be tied to trap-and-transport-assisted smolt production?

Suggested Method: Pit tags and/or coded wire tags on a selected sub-sample of smolts.

Phase II. Moderate Population Size Methodology

If the low population size efforts result in increased numbers of adults returning below Bradbury Dam, a moderate-duty system designed, say, for up to 1,000 annual adult spawners, could be tested in a phased adaptive management protocol similar to the one described above.

Such a system might include

--A semipermanent barrier weir and trap across both Hilton Creek and the mainstem with water-to-water transfer of captured fish from trap to transport tank and tank to release point. Pump-back attraction flow might be desirable to enhance adult fish attraction efficiency. Design and construction of such a semi-permanent trap facility would require approximately 2 years at the outside, assuming construction permits could be obtained without appeal from regulatory agencies. This activity could begin as early as the same winter season of the initial adult trap and transport action, with actual construction phased in when results of the initial spawning success and juvenile survival tests are evaluated.

An alternative to trapping low in Hilton Creek and the nearby mainstem would be to use Hilton Creek as a partial ladder, ensuring configuration and attraction flows so that upmigrating adults are facilitated in finding Hilton Creek attractive. Integrated with the plunge-pool and chute barrier modifications, Hilton Creek at the highest elevation of US Bureau of Reclamation property can be modified to trap upmigrating spawners to be transported around Cachuma Reservoir into, for example, the closest high-quality tributary, Santa Cruz Creek and its tributaries.

Another permutation of this that should be given serious evaluation is the feasibility of constructing a small ladder or fishway from the upper Bureau property boundary on Hilton Creek upward and over the dam (less than 100 foot lift) with a controlled variable length descent and into a receiving pen in the Reservoir just below the Bureau's maintenance and office facility near the spillway gates. Fish may then

be held in good condition for sorting, genetic identification as necessary, and subsequent transport to receiver tributaries for spawning. Design and construction of such a ladder and descent system would require approximately two to three years, and such effort could begin as early as the initial adult trap and transport action.

Phase II juvenile collection would be effected by construction of one or more floating collectors in the Cachuma and possibly Gibraltar reservoir, with or without guide nets. Design and construction of a floating collector that could be placed in either reservoir could be accomplished within 2 years, and could be initiated at beginning of the initial adult trap and transport action in Phase I or initiated once Phase I results indicated that Phase II methodology would be more effective than Phase I.

Phase III. Higher Population Size Methodology

If the first two phased steps prove successful, a larger, high-service trap system designed for up to several thousand adult spawners annually in high water years should be evaluated. This might consist of a permanent concrete barrier dam at Hilton Creek and across the mainstem at the foot of Bradbury Dam, a permanent trap and holding system, hopper hoist system, rail crowder panels, and associated handling equipment with at least three 1,000 to 2,000 gallon aerated, refrigerated tank transport systems. Pump-back attraction flow would facilitate adult fish attraction efficiency. This larger, permanent adult trap could be designed and constructed within 4 to 5 years from inception, and could begin concurrently with the initial adult trap and transport action or deferred until the results of Phase II have reached the point where this would be the most likely method to produce consistent long-term sustainability of the run

In both Phases II and III, juvenile fish collection and bypass systems would be required for Bradbury Dam and reservoir, and, depending on locations selected for adult release, Gibraltar Dam/Reservoir, Juncal Dam/Reservoir, and Alisal Dam/Reservoir as well. Several feasible alternatives for collecting and bypassing smolt steelhead exist. Permanent, full-collection instream collectors are not recommended due to the volume of woody debris and sediment in high flows rendering instream devices relatively unreliable. Development and evaluation of floating collectors located at the inlet of each tributary below adult release points into the respective reservoirs should be studied. An alternative that should also be evaluated is the relative survivorship of downmigrating smolts within the reservoirs with an eye toward capture at collectors located at or near the Dam sites. Design and construction of floating collectors could be accomplished within 4 years of the initial adult trap and transport action. Smolt survival studies could be accomplished during the first outmigration season following the initial trap and transport action, which is likely to be from one to three years following inception of Phase I. These studies would be continued concurrently with the conceptual design of the juvenile collection system. The preferred site for collection would become known as a result of the smolt survival studies, with the final design of the smolt collection system dependent upon the preferred location.

Such floating collectors would include attraction flows provided by low-head electric pumps supplied with fixed-grid or generator power to produce attraction flows between 30-250 cfs. Each collector would include a barge with transfer boat and holding tanks, sorting and handling facility, and water-to-water transfer of juvenile fish to downstream transport tank system or bypass pipe to shore-based facility.

The simplest collector system would include a single floating collector at each dam, located near the existing outlet works. Reservoir migration survival studies would be required to verify the feasibility of this option. This can be accomplished via through-reservoir survival radio tag tracking studies to assess potential losses to predators and migration success.

In the event that through-reservoir studies show an at-dam collector undesirable or infeasible, individual collectors would be required at each tributary inlet into which adults have been transported and released. Each inlet collector would include an exclusion barrier net positioned far enough out in the reservoir to lower average net approach velocity to below the structural strength of net material. Design and construction of multiple juvenile collectors would be accomplished at the same pace as for a single collector, with the required construction period increased proportionately to permit completion of each individual unit.

Alisal Dam, Alisal Creek, Tributary to Santa Ynez River below Bradbury Dam

For access above and below Alisal Dam, the scale of a passage system similar to that discussed above would be proportionally less than the systems designed for the much larger storage dams on the mainstem Santa Ynez River. A juvenile collection system may consist of nothing more than bypass outlets designed to meet bypass criteria for smolts (30fps max. velocity, smooth interior, gradual bends > 3 diameters in radius, no exit plunge in excess of 25 fps, etc.) A small fish ladder for adult passage might be feasible, and, if not, a simple floating picket weir or fixed Braille weir can be used. Design and construction of an adult passage system for Alisal Dam would require no more than 2 years, and such effort could begin entirely independent of mainstem Santa Ynez fish passage facility study and design.

APPENDIX 2

RESPONSE TO REBUTTAL TESTIMONY OF MISTY GONZALES [EX. MU 280]

Below are responses to specific comments made by Ms. Gonzalez in her testimony attempting to rebut the conclusions of Ms. Haasz and Dr. Gleick regarding the potential water savings that could be achieved in Santa Barbara County. These responses are limited to the hearing record. CalTrout explicitly reserved the right to fully respond to Ms. Gonzales' testimony, given the lack of sufficient time to review and prepare for cross-examination of Ms. Gonzales during the hearing. T:1073; T:1077.

Section 1.0

The Pacific Institute ("PI") report has not yet been peer-reviewed. (footnote 2)

See Ex. CT 63, page 1 for a partial list of reviewers.

Section 2.1

Per capita analyses are not the most reliable measure of achieved water conservation . . . end use information is much more precise. (p.1, para. 2)

Ms. Haasz and Dr. Gleick did not use a per capita analysis to measure conservation savings for the Member Units. They utilized the end use analysis identified as the preferable analysis by Ms. Gonzalez. See, Haasz and Gleick written testimony at 2 ("we quantify conservation potential from . . . end-uses . . .") [Ex. CT 50]. Haasz and Gleick calculated current consumption levels for each end-use evaluated, considering water consumption for each individual member unit and considering penetration. See, *Id.* at 3-5 (toilets); 6-7 (washers); 8-9 (landscape); 9-11 (CII)). Table 1 on page 2 of Haasz and Gleick's testimony does identify, for illustrative purposes only, water use of the Member Units in terms of gallons per capita per day. These numbers, however, were not utilized to calculate potential water savings..

PI misidentifies Member Units per capita usage. (p.1, para. 2)

As discussed above, the "gallons per capita per day" figures were not utilized to calculate conservation savings, they were provided for illustrative purposes only, and should not be considered when analyzing PI's conclusions regarding water conservation savings. The per capita numbers identified by PI for per capita urban use are based on the water agencies' own data as reported in their Urban Water Management Plans. Haasz and Gleick at 2 [Ex. CT 50].

The AWWARF numbers for average residential use are different from the PI numbers for average residential use. (p. 1, para.4)

PI's 35 gpcd figure is an estimate of the conservation potential (i.e., amount of water that would be utilized if the most efficient conservation technologies, available as of 2003, were installed). See, Haasz and Gleick at 2-3 [Ex. CT 50]. The AWWARF study does not evaluate conservation potential, and in this regard Ms. Gonzales appears to misunderstand the scope and purpose of the study. The AWWARF study reports observed water use characteristics in homes (for example, frequency of toilet flushing, duration of shower use, etc). Residential End Uses of Water at xxi [Ex. CT 66]. The 49.6 gpcd figure, for which Ms. Gonzales does not provide a citation, is presumably only the

reported amount of water use for a household fully retrofitted with available water conservation equipment prior to 1999. Thus, even assuming one could use number cited by Ms. Gonzales as a measure of conservation potential, it would be an outdated number relative to the analysis conducted by PI.

Lowering per capita use to 35 gpcd...is beyond the scope of the current list of BMPs (p.1, para.4)

As Mary Ann Dickinson—executive Director of the California Urban Water Conservation Council—testified on behalf of the Member Units, the BMPs do not represent full cost-effective conservation potential. T:1069. PI analyzed the full potential for improving water use efficiency within the Santa Barbara County water districts, and did not limit its analysis to implementation of the BMPs which represent the “floor” for water conservation practices. Haasz at T:901.

The achievable water savings for Cachuma agencies will appear lower than that of higher gpcd agencies (p.2, para.1)

Some of the Member Units have made conservation investments, and PI incorporates these investments into its calculations. Haasz and Gleick at 5-7, 10-12 [CT 50]. Additional, cost-effective conservation is still possible. Id.

The PI analysis does not account for the larger properties in Montecito (p.2, para.2)

PI’s analysis of landscape conservation is based on outdoor water use. Haasz and Gleick at 9 [Ex. CT 50]. PI calculated water use from monthly sales data obtained from the Montecito Water Agency. This data identifies how much water customers are using to water their lawns, and therefore reflects the amount of water used at larger properties.

PI does not account for the use of recycled water (p.2, para.3)

Whether water is potable or recycled does not make a difference in the PI results. Presumably, if potable water is conserved, it can be left in the river. If recycled water is conserved, it can be used to replace potable water currently used to meet non-potable demand, and the potable water in turn can be left in the river. If the member districts were using recycled water for every non-potable use, then this argument could be relevant but this is far from the case. See, SWB draft EIR at 4-26 – 4-30 [Staff Ex. 10].

Section 2.2

2.2.1 PI’s estimates of water savings potential from landscape savings is not realistic because it does not consider conservation savings already achieved or the programs in place to promote landscape conservation (p.3, para.1)

As previously mentioned, PI does account for water savings that have already been achieved. Much of Haasz and Gleick’s landscape savings assumptions were based on data provided by the County of Santa Barbara in a CALFED grant proposal. Almy, R. 2001. Santa Barbara County Distribution and Installation Program for the Weather TRAK ET Controller. CALFED Water Use Efficiency Proposal Solicitation Package. [Ex. CT 53].

The member units have relatively low per capita residential water consumption. (p.3, para.1)

Santa Barbara, Goleta and Carpinteria do have a relatively low per capita use, and that is acknowledged in the PI report. It is still nowhere near potential use. Haasz and Gleick at 2 [Ex. CT 50]. The remaining Member Units' per capita consumption is significantly higher, more than double, than Santa Barbara Goleta and Carpinteria. Id.

2.2.2 ET controllers are still being studied (p.3, para.2)

All data to date demonstrate that ET controllers are effective at saving water. Waste Not Want Not at 78 [Ex. CT 63]. Ms. Gonzalez presents no data to indicate otherwise.

Significant costs associated with ET Controller program to achieve the savings estimated by PI. (p.3, para.3)

PI's cost estimates for implementation of the ET Controller Program are based on the County of Santa Barbara's own estimates. Haasz and Gleick at 8 [CT 50].

2.2.3 Behavioral changes are difficult to estimate (p.4)

PI acknowledges that behavioral issues are more difficult to predict and measure than technical fixes. Haasz and Gleick at 8 [Ex. CT 50]. PI conducted an extensive literature review and determined that 25-40 percent of outdoor water use could be quickly and economically saved through proven approaches, even considering this behavioral factor. Waste Not Want Not at 74-82 [Ex. CT 63]. Furthermore, ET controllers, in large part, address and mitigate the behavioral aspect of landscape conservation, and savings from implementation of this measure account for 25 of the estimated landscape savings. Haasz and Gleick at 8-9 [Ex. CT 50].

2.3.1 The methodology to determine toilet savings is questionable (p.5-6)

Haasz and Gleick used two methods to estimate savings, one based on CUWCC assumptions and one based on population and toilet turnover, because only the City of Santa Barbara and Goleta had well documented information on their toilet stock by volume. Haasz and Gleick at 3 [Ex. CT 50]. That information is necessary in order to use the CUWCC assumptions. Id. Thus, the CUWCC assumptions could not be utilized for the remaining three Member Units. Savings for these agencies were calculated as described in detail at p. 3-5 of Haasz and Gleick's written testimony.

Haasz and Gleick did not include leakage in their calculations of potential savings from ULFTs because their calculations estimated potential savings from future installations, and newer ULFT models are not as susceptible to degradation as some of the older models. Waste Not Want Not at 43 [Ex. CT 63].

Haasz and Gleick identify Santa Barbara at 50% ULFT penetration for multi-family units and 34% for single family units, not 50% for total ULFT penetration as indicated by Ms. Gonzales. Haasz and Gleick at 5-6 [Ex. CT 50]. Replacement of the remaining stock in Santa Barbara would likely only result in a negligible amount of savings. Id. at 6. Haasz and Gleick do quantify the savings from 100 percent implementation of ULFTs in the

remaining Member Units to determine the full scope of potential savings. This level of implementation can be cost-effective. Haasz and Gleick at 12-13 [Ex. CT 50]. Ms. Gonzales provides no reference or supporting material in support of her assertion that the costs to retrofit toilets increases exponentially near 100% saturation.

2.3.2 The methodology to determine washing machine savings is questionable and costs are not accurately depicted for high-efficiency washers (p.6-7)

Haasz and Gleick's do not use an "unorthodox" measure of water efficiency in their calculations. They utilized a water factor, which identifies gallons per cubic foot of tub volume per load. Ex. CT 63 at 57. Thus, their calculations for water efficiency do consider load size.

Ms. Gonzalez asserts that costs identified for HE washers by PI are outdated, but herself relies on a study ("REUW Study," dated 1999) that precedes the Waste Not Want Not report (dated 2003) by several years. Haasz and Gleick describe the significant number of California agency rebates provided for high-efficiency washers (64,000 since 1999). Haasz and Gleick at 6 [CT 50]. This information demonstrates both that consumers are purchasing high-efficiency washing machines and that water agencies have determined that it is cost-effective to encourage such purchase through rebates.

Haasz and Gleick's testimony that high-efficiency washers are cost-effective relative to Cachuma Water is supported by Ms. Dickinson's testimony that most water conservation programs are "typically in the \$150 to \$250 range. Particularly the residential and commercial and industrial toilet and clothes washer programs" (emphasis added). T:1058.

Section 3.0

The 1991 shortage compares to the 1951 shortage (p.7)

The 1991 shortage can be met through the alternatives, only the 1951 scenario cannot. See, e.g., SWB draft EIR at 4-32 [Staff Ex. 10]. Haasz and Gleick do not suggest that a 1951 scenario should not be considered, but that it should be considered along with other scenarios. While it is reasonable to consider critical drought years as part of water supply planning, the Member Units rely on this scenario to the exclusion of any other demand-side scenario (except for the even more conservative scenario of assuming a four-year, rather than three-year, drought). T:833-834. An analysis of potential impacts to Cachuma water supply should also include analysis of different levels of conservation that could reduce demand for water. T:834; Ex. CT 50 at 14.

Section 4.0

PI misapplies data and studies regarding urban landscape water conservation (p.7-9)

PI estimates a range of 25-45% savings that could potentially be achieved through landscape conservation measures. Waste Not Want Not at 69 [Ex. CT 63]; Haasz and Gleick at 9 [Ex. CT 50]. PI conducted an extensive literature review and determined that this range of outdoor water use could be quickly and economically saved through proven approaches. Waste Not Want Not at 74-82 [Ex. CT 63]. The studies identified by Ms.

Gonzales informed PI's estimate, but the quantitative values from these studies were not directly incorporated into PI's estimates. See, e.g., Waste Not Want Not at 76, Table 3-3 (showing Pittenger estimates of potential savings at 65-75 percent, which exceeds PI's estimated range), Table 3-5 (showing SPUC estimates of potential savings at up to 100 percent, which exceeds PI's estimated range); Table 3-7 (showing CDWR, or WUCOL as referred to by Ms. Gonzales, estimates of potential savings at up to 80 percent, which exceeds PI's estimated range). Similarly, PI did not misuse data from the "Spectrum Study." Contrary to Ms. Gonzales' assertion, Haasz and Gleick do not attribute 100% of savings to scheduling, maintenance and practices. CT 63 at 75, FN 24.

Ms. Gonzales also states that PI's estimates for the ET Controller system are inconsistent with the Irvine Ranch Water District Study. As discussed above, PI's cost estimates in this regard were based on the County of Santa Barbara's own estimates. Haasz and Gleick at 8 [CT 50].

APPENDIX 3

Water Conservation Study

Below is a brief discussion of methods for evaluating the full range of conservation options available to the Cachuma contractors, their associated savings potential and cost-effectiveness, and the mix of conservation options most appropriate for each agency.

Developing an effective plan to reduce demand for water by conservation measures would be facilitated by the up-front identification of a target amount of water to be saved (e.g., water required pursuant to Alternative 3A or 3B in the SWB draft EIR and Alternative 3A2 of the Contract Renewal EIS/EIR (modified to account for dry years)). In addition, specific deadlines for carrying out the study, including progress milestones should be identified up front.

Implicit in the following recommendations is that they will all likely be more cost-effective and successful if done on a regional scale. Collaboration allows the agencies to benefit from economies of scale and save more water for less money than it would cost them individually. The issue is a regional one and should be addressed as such.

1. Information needs

The first step towards conducting a study of this type is to gather adequate and reliable information. In order to estimate the potential water savings of a conservation program targeting landscape use, for example, it is necessary to have a somewhat reliable estimate of current use. To the extent information is not available or resource prohibitive to obtain, proxy data can be used from similar regions throughout the state. The California Urban Water Conservation Council (CUWCC) is a good repository for such data.

To provide cost and savings estimates from various measures, agencies must have information on baseline water use by end use. Ideally this would be collected in such a way as to reflect seasonal and geographic variability, and should include the following:

- Total water use, by month. Including, identification of the “big” users, both in the residential and in the commercial, industrial, institutional sectors (so that programs can target most effectively).
- Indoor residential: the total number of toilets, the distribution of toilets by flush volume, the number of washing machines, and the percentage of machines that are high efficiency (estimates for penetration of high efficiency machines are available from the Department of Energy if direct measurement is not feasible).
- Outdoor residential: total use by month, average lot size (with geographic variability), average ET (also allowing for spatial variability between coastal and inland lots), irrigation methods and landscape type.
- Commercial and Institutional uses: in addition to the toilet, washing machine (if applicable) and landscape uses mentioned for the residential sector, a full audit of large sites would allow the agencies to better target their programs for maximum

water savings. Industrial sites: again the recommendations above apply. In addition, information on the large water using processes is necessary.

2. Programs

The following programs should be evaluated for potential water savings and implemented if found to be cost-effective. The CUWCC and other venues can also provide information that helps to identify additional program options.

- Audits: The audit program would help build the baseline mentioned above, and it would also be a way for the agencies to identify the large users and help them to become more efficient. For example, egregious residential users can be identified through billing systems and targeted directly for a water audit, pinpointing the source of waste. CII audits should consist of both end-use and process components.
- Leak detection programs: In general, a small proportion of housing units accounts for the largest proportion of leaks. In the REUW study 10 percent of the homes were responsible for 58 percent of the leaks. Leak reduction programs targeted at homes with the highest leak rates can therefore save substantial amounts of water and are generally cost-effective.
- Toilet rebate programs: Continued toilet rebate programs, as well as tiering rebates to offer higher amounts for dual-flush models.
- Retrofit on resale ordinance: A retrofit on resale ordinance specifies that a seller has to have low flow toilet and showerhead fixtures when they sell their home. A number of agencies across the state have this kind of ordinance, which does not require rebates or any other resource investment.
- Washing machine rebate programs: Rebates should be provided for both residential and CII customers. Programs that are aggressively marketed to large users such as hotels, large apartment complexes, and commercial Laundromats, should be evaluated. This is the type of program which would really benefit from regional collaboration, allowing agencies to purchase the machines at lower costs, to pool together resources for rebates, and to team with energy providers for rebates, among other things.
- Landscape programs: Aggressively promoting landscape conservation through education programs and through rebates should be evaluated. For example, working in conjunction with local nurseries to promote and rebate water efficient plantings and proper maintenance tips; providing developers with connection rebates if they install efficient landscaping; providing (bilingual) training to landscape managers.
- New technologies: There are a number of technologies that are currently being introduced into the market or are being studied such as low flow spray nozzles at restaurants, high efficiency x-ray machines, etc. Information on emerging technologies can be obtained through the CUWCC.
- Rates: Rates send a signal to the user regarding the appropriateness of their water use. There are a number of creative ways to structure an effective and equitable rate structure based on regional characteristics and some information on this can

- be obtained through the CUWCC. Some of the water agencies already have an appropriately priced and tiered rate structure (i.e., Santa Barbara), while others have set their rates relatively low (i.e. IID#1). Adjustments to costs and rate structure can send an appropriate signal to the consumer to use water efficiently.
- Education: Conservation is, at some level, always dependent on individual behavior and choices so an effective education program is integral to an effective conservation program. Regardless of the types of activities chosen by the agencies, they will require some investment in public education to ensure their success and continuity.

3. Cost-effectiveness of Programs

The program options identified above should be evaluated for cost-effectiveness. Economists use cost-effectiveness analysis to compare the unit cost of alternatives in dollars spent. In this case, evaluating cost effectiveness requires comparing the cost of conservation to the cost of other water supplies. Conservation measures are considered cost-effective when their unit cost is less than or equal to the unit cost of other available supply options. Regional collaboration can potentially have a significant impact on the cost effectiveness of conservation, allowing the agencies to benefit from economies of scale and reduce redundancies in their programs

4. Agricultural water use

Agricultural uses account for about 20 percent of water use in the Santa Barbara Region. As a first step towards evaluating the potential for water savings in this realm, the agencies should gather some basic information, including conducting an inventory of acreage by crop and by type of irrigation method over time. This would provide information on what is planted where, how it is irrigated, and how it has changed over time. This information is an important step towards evaluating potential water savings in this area.

APPENDIX 4

**STUDY PLAN
MODIFICATIONS TO DOWNRIVER WATER RIGHTS RELEASE SCHEDULE
CACHUMA PROJECT
SANTA YNEZ RIVER
SANTA BARBARA COUNTY, CALIFORNIA
FEBRUARY 2004**

INTRODUCTION

It has been recommended that a comprehensive study be conducted to evaluate the optimal coordination of downstream water rights releases and releases for steelhead in the lower Santa Ynez River, including investigating modifications to the manner in which releases are made for downstream users, potential benefits to steelhead, and potential benefits or impacts to downstream water supply as a result of such modifications.

The models used to conduct this study must be physically based models of the streams and the aquifers and their interactions, with percolation from the streams to the aquifers and return flows to the streams. Further they must include evapotranspiration, pumping, and diversions from and to the system. It is suggested that this study utilize models that have already been developed to evaluate groundwater flow and stream flow, at least as a starting point. These models include the Santa Ynez River Hydrology Model and models developed by Timothy Durbin. Both models should be used and their results compared to determine their appropriateness for simulating the system. The alternatives that are modeled will be evaluated for their ability to attain the basic goals of groundwater recharge / protection of downstream water rights and fishery management / public trust resource protection. A preferred release schedule will be selected and will be based on its ability to maximize protection of instream and consumptive uses to the extent feasible.

This modified downstream water rights release schedule will be implemented in the field to determine if it operates as modeled, and specifically to determine if it meets specific performance criteria for river hydrology and surface to groundwater delivery in the Above Narrows and the Below Narrows Areas. If the releases are not achieving the standards for success, the release schedule will be modified as necessary through an adaptive management approach to identify the maximum benefit possible for instream public trust needs and consumptive uses.

The study should be performed under the auspices and direct supervision of the State Water Resources Control Board, the California Department of Fish and Game, NOAA Fisheries, and U.S. Bureau of Reclamation. This study, overseen and conducted by experts from each agency, should be done in a transparent manner, with quarterly progress summaries, as well as all deliverables made available to all interested parties for their review and comment.

TASKS TO BE PERFORMED

TASK 1 (Begin 2 months after SWRCB decision):

Select Management Objectives with Measurable Performance Standards (e.g., locations and length or reaches for surface streamflow, minimum flows throughout management reaches, protection / enhancement of downstream groundwater aquifer recharge and levels, etc.).

Performance standards or standards for success must be able to quantitatively and objectively gauge success at achieving the two primary underlying goals: protecting downstream water rights and quality, and protecting instream public trust resources. These can be measured (miles of flowing river, minimum flow rates throughout reaches, and acre-feet per year of recharge); and must be measurable standards so that management approaches can be modified if the standards are not achieved.

TASK 2 (Start 4 months after the SWRCB decision):

Various downstream water rights release scenarios to be studied should be agreed upon among the interested parties, both the water users and those concerned with the fisheries. The scenarios should represent a range of options to the current water rights release schedule and would be intended to achieve protection of public trust resources and downstream water rights.

TASK 3 (Start Upon Completion of Task 2):

The Alternatives will be simulated with the surface and groundwater model or models to predict the seasonal and monthly flow characteristics and groundwater recharge the model would predict to occur under those scenarios per water year type. Alternatives modeled will include coordinated use of fish releases and downstream water users rights.

TASK 4 (Start Concurrently with Task 3):

Assess the potential for the environmental effects of each alternative. Assessment should focus on protection of the public trust resources and water supply including:

- groundwater recharge rates and quantities
- changes to riparian aquifer storage amounts
- surface flows
- habitat conditions for all life stages of steelhead (spawning, rearing, migration)
- temperatures
- coldwater upwelling and stratification
- dissolved oxygen
- food availability for steelhead
- algae in river
- riparian vegetation growth (as steelhead habitat)

- river bank stability and loss of farmland/property (associated with riparian vegetation)
- contribution of riparian vegetation to sedimentation in river bed
effect of changing aquifer storage on pumping costs

This will assist in determining which release schedule achieves maximum possible protection for downstream water rights and steelhead. The impact of those scenarios should be assessed and a report prepared comparing those impacts and enhanced beneficial uses with the present flow scenarios being implemented pursuant to Water Rights Order 89-18.

TASK 5 (Begin 18 months after SWRCB decision):

Selection of Management Action will be based on ability to maximize both instream and consumptive beneficial uses. The release schedule that provides maximum benefits to steelhead and downstream users will be selected. If no alternative modeled, provides maximum benefits to both steelhead and downstream users, without significant adverse impacts to either use, then the alternative which provides maximum protection for steelhead while avoiding adverse impacts to downstream water supply should be selected. If none of the alternatives avoid adverse impacts to downstream water rights and supply, then the alternative that minimizes impacts to those rights while improving conditions for steelhead should be selected. If there are no alternatives to the current downstream water rights release schedule that benefit steelhead without causing significant water supply impacts that cannot be mitigated, then the SWB would reconsider the suitability of modifying the downstream water rights release schedule and WRO 89-18.

TASK 6 (Begin After Task 5 Complete):

Field testing of Management Action should occur during a period of time that includes a variety of hydrological years in the Santa Ynez River basin. Such collection of data for field testing can be undertaken while the models are testing scenarios. The action will be tested against the predicted model results for those flow years to determine whether the river and aquifers operate as modeled under these modified flow releases. Extensive monitoring by the Bureau and AMC during this time will determine if the operation pursuant to the modified flow schedule achieves the measurable performance standards, and specifically if it results in the model predicted changes to the river and aquifer hydrology and biology. The environmental effects of the Management Action will be monitored and recorded.

TASK 7 (In years following Field Test Initiation):

Adapt Management to achieve desired outcomes/standards for success (i.e., maximization of public trust and groundwater recharge values). Continue monitoring and adapting, as needed, until the operation is fine tuned such that the river can be run above

ground to specific locations to ensure protection of public trust and consumptive uses. Only discontinue approach if infeasible (e.g., if significant water supply impacts cannot be mitigated through alternative sources of water and source reduction).

Variables the study should assess include:

1. Any changes to groundwater recharge above and below the Narrows. This will entail comparison of evapotranspiration losses for both the reservoir and the river for the current and any proposed water rights release operation, in particular longer duration releases at lower rates beginning earlier, before the river goes dry. This will include any changes to river vegetation and transpiration caused by sustained flows. The study should consider how increased vegetation may enhance conditions for steelhead through bank shading, bank stability, and reduced bank scour, and how that increase in riparian vegetation may counter existing river bed scour and, thus, inhibit potential lowering of the adjacent aquifers.
2. How changes in water releases will affect the pumping periods or amounts of water pumped as a result of any scenario of revised flows considered. Among scenarios which should be considered are Alternative 3A2 of the Cachuma Contract Renewal Final EIR and the Alternative 3A2 modified for dry years. Changes in cost of pumping should be assessed.
3. Salinity changes, if any, in the river and aquifers.
4. Changes in reservoir storage and aquifer storage. Determine whether drought conditions are impacted in a positive or negative manner as a result of a changed release scenario.

MONITORING

In order to achieve the purposes outlined above there should be an increased monitoring network during flow releases:

First, the time step used for simulation should be on a daily basis or shorter to account for the dynamic nature of infiltration and how it varies over time,

Second, measurements should be made at the division points in the river which separate the three groundwater sub-basins between Bradbury Dam and the Narrows in addition to the sites presently monitored for water allocation,

Third, measurements should be made of discharge, pH, salinity, and temperature at each site in order to monitor changes in those variables and to assess the accuracy of the models in simulating the changes in the flow as it travels downstream. All of these

variables affect aquatic life and salinity is particularly of importance to the below Narrows water users and,

Finally, the data should be used to verify the models and improve their performance to better simulate the water resources system between Bradbury Dam and the Narrows.

TIME FRAME AND DELIVERABLES FOR TASKS

TASK 1. Within two months after beginning of TASK 1 a report should be prepared listing the PERFORMANCE OBJECTIVES and their importance and justification.

TASK 2. Within two months after start of TASK 2 a report listing the RELEASE SCENARIOS shall be prepared outlining their importance and justification.

TASK 3. Once TASK 2 is completed, TASK 3 should commence and the agreed upon scenarios simulated with the present models. Results of these simulations shall be reported upon, and the shortcomings of the present structures of the models assessed and proposals for improving the models outlined. Revision of the time steps in the models and verification of model parameters are two components which should be covered in the report.

TASK 4. Six months after the TASK 3 is prepared revised models with appropriate time steps and parameters should be used to resimulate the RELEASE SCENARIOS. A draft report will be prepared assessing the items outlined in TASK 4 within 9 months of TASK 4 initiation, and a final report should be prepared within 1 year of TASK 4 initiation.

TASK 5. Concurrently with TASK 4, a report will be prepared outlining the SELECTED MANAGEMENT OPTION. Its justification will be presented, with how it meets the MANAGEMENT OBJECTIVES.

TASK 6. Collection of field data can begin as soon as TASK 2 is completed, and should continue through the period of model verification and improvement. These data should be continued to implement ADAPTIVE MANAGEMENT of the resource and to continue to improve model performance.

TASK 7. An ADAPTIVE MANAGEMENT PLAN should be developed and implemented. This TASK 7 should be implemented as soon as the first year of field data is analyzed.

Tasks will be conducted in a transparent manner with, with quarterly progress summaries, as well as all deliverables identified above, submitted to the State Water Resources Control Board and made available to all interested parties for their review and comment. At appropriate milestones (e.g., identification of selected management option) the State

Water Resources Control Board will consider whether Cachuma Project permit terms should be modified.