

FINAL
ENVIRONMENTAL IMPACT STATEMENT/REPORT

**Cachuma Project Contract Renewal
Santa Barbara County, California**

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In essence, Alternatives 3A2 through 3A7 represent varying amounts of water that would be available for improving habitat conditions below the dam, particularly for steelhead/rainbow trout. In general, the more water that is available for downstream releases, the more often favorable passage and habitat conditions can be achieved along suitable portions of the river. When only a relatively small amount of water is available for release, the emphasis would be maintaining flows for fish passage rather than on creating mainstem habitat. With increasing amounts of Project water to maintain minimum flows, mainstem habitat for spawning and rearing can be improved along with fish passage conditions. Increasing the amount of Project water for fish will also increase the frequency of the suitable minimum flows during drier years.

All but Alternative 3A4 would utilize the flow scenario presented for Alternative 3A2, except in dry years. None of these alternatives call for specific flows to open the lagoon. An estimated 300 cfs would accomplish this depending on oceanographic conditions (see Appendix D, Section 1.2 or the Fisheries technical Report, Section 3.1.1). Once the lagoon was breached and the flood flows which caused the bread had subsided to below 25 cfs (the passage criteria), water would be released from the dam to bring the flows at the Solvang and Floradale Bridge gaging stations to 25 cfs. For purposes of allocating water within the model, the period from February 15 through April 15 was selected as the peak spawning period. This is based on analysis of historical exceedances (USGS Gaging Station 11128500) and the ability of steelhead to wait offshore until the mouth is breached (Beeman, 1946; SBNP, 1936, 1940 and 1950). The exceedance analysis indicates that steelhead have been able to enter the Santa Ynez River in January in only seven percent of years. Depending on the amount of water available for instream use in each alternative, upstream migration and spawning flows may be available for two weeks or for the full two month period. Alternative 3A4 provides a lower normal and wet year base flow than Alternative 3A2. In dry years when the mouth opened, Alternative 3A3 would not provide upstream migration and spawning flows.

According to the hydrologic modeling, natural flushing flows (500 cfs or more) occur on the river at an average interval of not more than every three years. Hence, it was determined that such flows were not specifically required in the release schedule for Alternatives 3A2 - 3A7.

Alternative 3A2 would require releases from Lake Cachuma to maintain the following minimum streamflows to enhance fish passage and steelhead spawning and rearing habitat along the mainstem of the river primarily between Bradbury Dam and Refugio Road:

- 48 cfs 15 February to 14 April for spawning, then
- 20 cfs to 1 June for incubation and rearing, then
- 25 cfs for one week for emigration, then
- gradually decrease releases to 10 cfs by 30 June, then
- hold at 10 cfs to 1 October for steelhead rearing and resident fish, then
- 5 cfs for the rest of the year for resident fish.

Based on the hydrologic modeling study described in Section 6.1, the above minimum streamflows would be maintained at both San Lucas and Alisal bridges in all years, including drought years. Passage flows would be maintained at Floradale Avenue Bridge. These streamflows would be created by both natural streamflows, as well as releases from the dam.

Under this alternative, the resultant average annual delivery to Member Units would be 14,235 acre-feet per year based on model simulations.

Alternative 3A3 involves the operation of Lake Cachuma to meet the minimum streamflows of Alternative 3A2 in as many years as possible, while allowing streamflows below the dam to drop to 5 cfs in all months of drier years to ensure that Member Unit yield is no less than 22,944 acre-feet per year. The 5 cfs streamflow would not be sufficient for steelhead passage, nor would it create suitable steelhead spawning or rearing habitat in the mainstem. Hence, during these dry years, the 5 cfs minimum streamflows would only benefit resident fish along the river.

Based on the hydrologic modeling results presented in Section 6.1, maintaining the lower streamflow would need to be implemented in 21 of 75 years of the simulation period, or about 28 percent of the time. The lower minimum streamflow would only be met at San Lucas Bridge.

Under this alternative, the resultant average annual delivery to Member Units would be 22,667 acre-feet per year based on model simulations.

Alternative 3A4 involves the operation of Lake Cachuma to meet a lower flow release schedule to create steelhead habitat, as follows:

- 35 cfs 1 March to 15 March for migration and spawning, then
- ramp releases to 10 cfs by 31 March, then
- hold releases at 10 cfs to 1 June for incubation and rearing, then
- 25 cfs for one week for emigration, then
- ramp releases to 10 cfs by 30 June, then
- 10 cfs from 1 July to 30 September for rearing, then
- 5 cfs for the rest of the year for rearing.

This alternative would provide passage flows for steelhead and a brief two-week period for mainstem spawning. The spring streamflows for rearing would be slightly lower than those produced under Alternative 3A2. This alternative would focus primarily on supply passage flows and a reduced opportunity for mainstem spawning.

The above minimum streamflows would be maintained at both San Lucas and Alisal bridges due to natural streamflow and release from the dam. The results of the hydrologic modeling described in Section 6.1 indicate that these minimum streamflows would be met in all years.

Under this alternative, the resultant average annual delivery to Member Units would be 17,097 acre-feet per year based on model simulations.

Alternative 3A5 involves the operation of Lake Cachuma to meet the minimum streamflows for Alternative 3A3. This alternative would provide the same minimum streamflows as Alternative 3A2 in wet years. However, during dry years, the minimum streamflows below the dam would be managed only to provide a limited period of passage flows for steelhead rather than maintaining very low flows (i.e., such as 5 cfs for Alternative 3A3) for resident fish for the year, as shown below:

TABLE ES-1

SUMMARY OF CACHUMA PROJECT AVERAGE ANNUAL DELIVERIES AND RELEASES

Alternative	Average Annual Project Yield (AFY) ¹	Releases for Environmental Purposes ²	Average Annual Releases For WR 89-18 and Environmental Purposes (AFY) ²	Average Annual Deliveries to Member Units (AFY)							Avg. Annual Storage In Deliveries (AFY)	Compared to Alternative 1, Gritnet Yield (+ = gain)
				Chujunetra County Water District	Sunrivers and Water District	Montezuma Water District	City of Santa Barbara	Golea Water District	SYRWCD Improvement District #1			
Alternative 1	25,684	No	5,671	2,809	321	2,382	8,267	9,310	2,649	0		
Proposed Contract	25,684	No	5,671	2,809	321	2,382	8,267	9,310	2,649	0		
3A1	26,205	No	NA	2,866	328	2,375	8,435	9,499	2,702	+521		
3A2	14,235	Yes	12,452	1,557	178	1,290	4,582	5,160	1,468	-11,449		
3A3	22,667	Yes	9,298	2,480	283	2,051	7,297	8,218	2,338	-3,017		
3A4	17,097	Yes	10,330	1,870	214	1,549	5,503	6,198	1,763	-8,587		
3A5	22,632	Yes	9,880	2,475	283	2,051	7,285	8,204	2,334	-3,052		
3A6	23,655	Yes	8,804	2,587	296	2,144	7,614	8,575	2,439	-2,029		
3A7	20,613	Yes	11,483	2,254	258	1,868	6,635	7,472	2,126	-5,071		
3B	26,136 - 26,588	No	5,600	2,908	332	2,410	8,558	9,638	2,742	+904 (+452)		
3C	25,684	No	5,671	2,809	321	2,328	8,267	9,310	2,649	0		
3D	29,014 (26,684)	No	5,821	3,173	363	2,629	9,338	10,519	2,992	+3,330 (+1,000)		
3E	25,684	No	4,710	2,809	321	2,328	8,267	9,310	2,649	0		
3F	17,203	No	6,273	1,882	215	1,559	5,537	6,236	1,774	-8,481		
Hybrid 1	25,684	Yes	6,644	2,809	321	2,382	8,267	9,310	2,649	0		
Hybrid 2	26,136 (23,136)	Yes	8,804 - 11,483	2,529 - 2,857	269 - 327	2,097 - 2,369	7,447 - 8,413	8,387 - 9,474	2,386 - 2,695	-452 to -3,548		
Hybrid 3	25,684	Yes	6,123	2,089	321	2,382	8,267	9,310	2,649	0		

AFY = acre-feet per year

¹ The amounts in parentheses reflect realistic estimates of changes in yield because of feasibility problems associated with Alts. 3B and 3D.² Relative amounts of water released for environmental purposes and to meet WR 89-18 are shown in Table 6.1-3. These amounts do not include water released for fish maintenance and study (up to 2000 acre-feet per year) pursuant to the 1994 Fish MOU and WR 94-5. The annual amount of these releases cannot be predicted at this time.