

Cachuma Project Water Rights Hearing

November 2003

Rebuttal Testimony

Presenter:

Ali Shahroody
Stetson Engineers Inc.

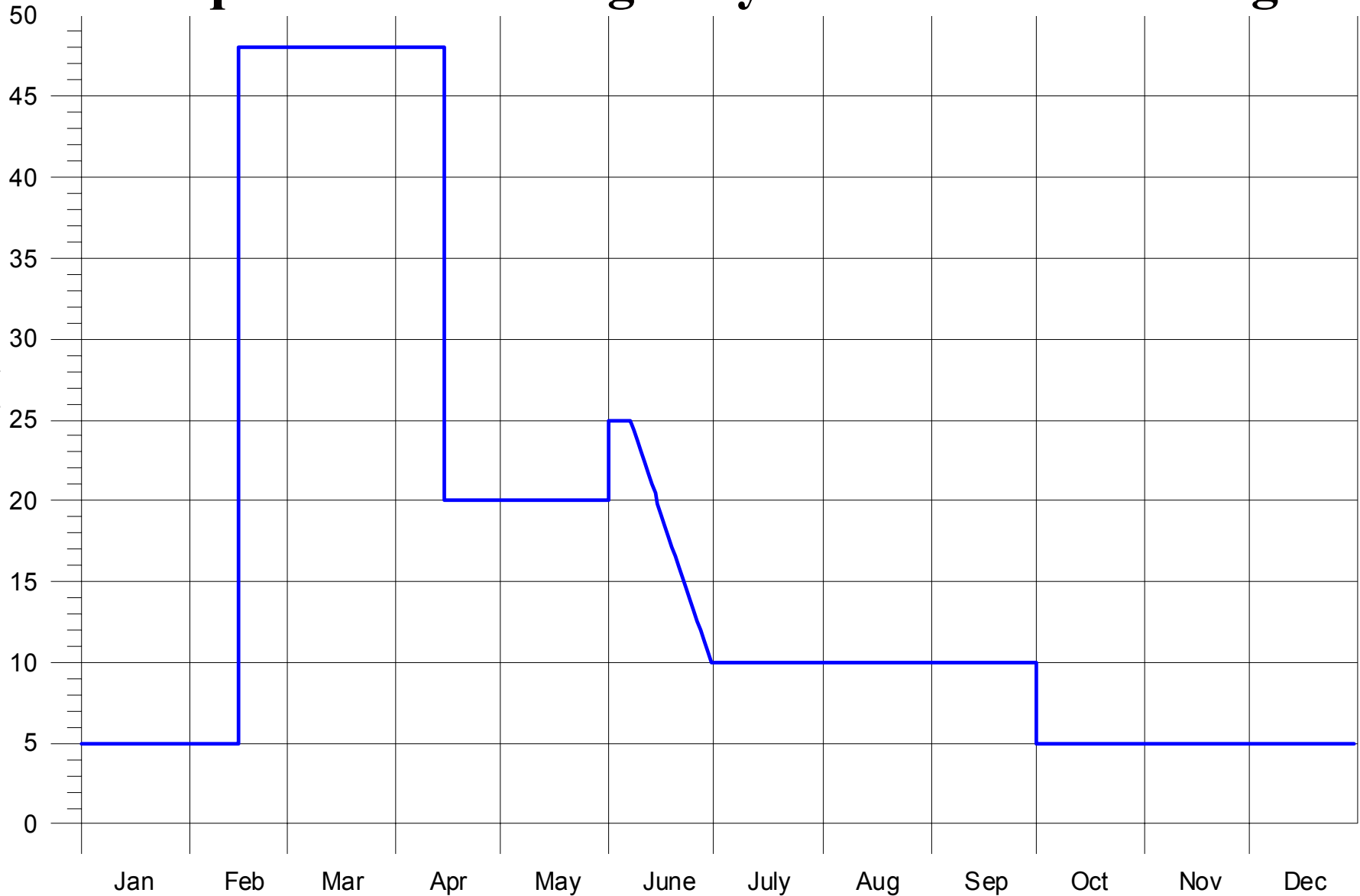


Water Supply Analyses for Alternatives “3A2” and “3A2 Adjusted for Dry Years”

- The Cachuma Contract Renewal EIR states that 3A2 involves operations of Lake Cachuma to provide the following flows in downstream areas:
 - 48 cfs February 15 to April 14, then
 - 20 cfs to June 1, then
 - 25 cfs for one week, then
 - Ramp releases to 10 cfs by June 30, then
 - Hold at 10 cfs to October 1, then
 - 5 cfs for the rest of the year (until February 14)
- “3A2” for Dry Years reduces passage flows to 5 cfs in 20% of years

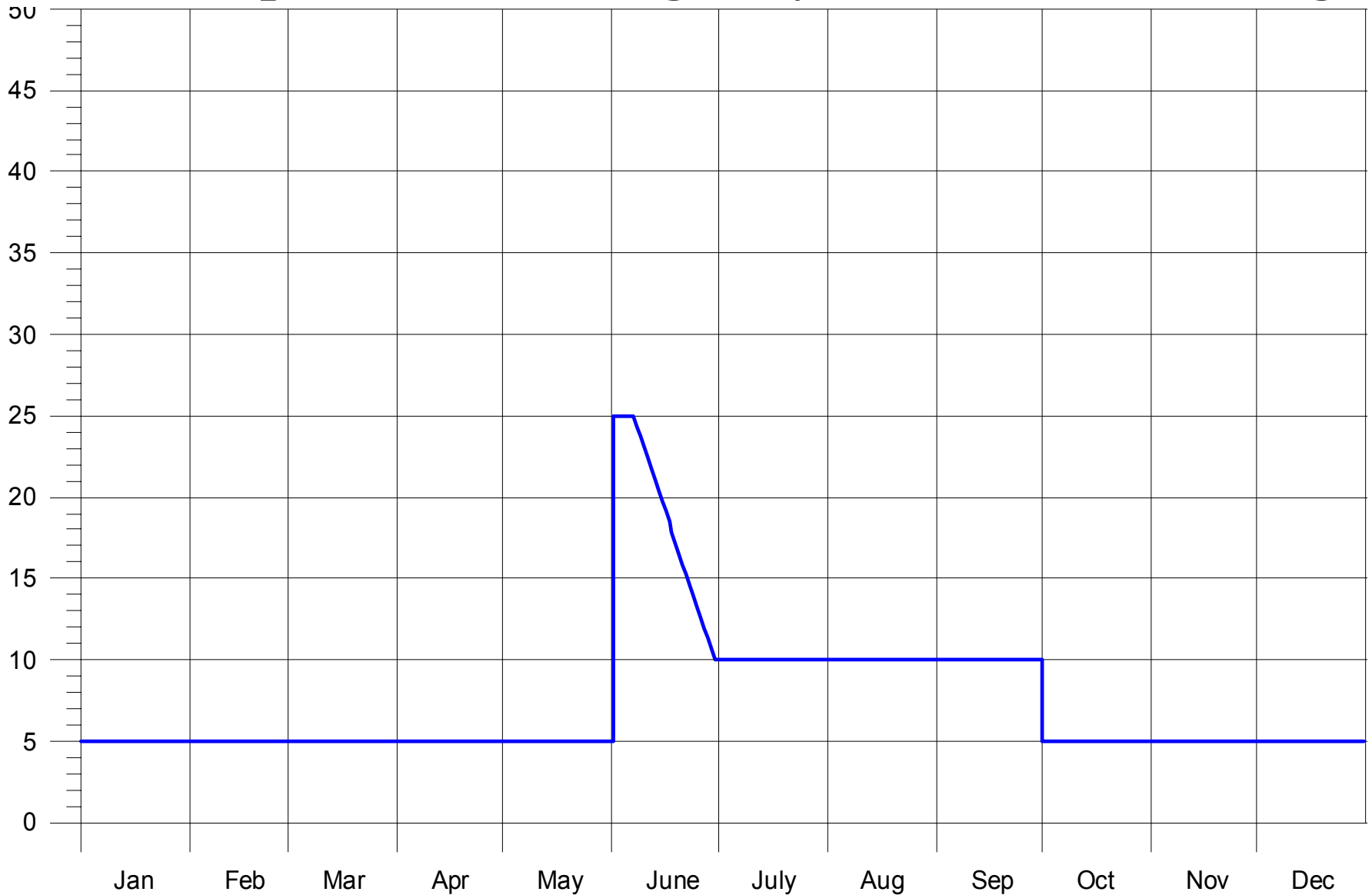


Cachuma Contract Renewal Alternative "3A2" Flow Requirements at Highway 154 and Alisal Bridges



“3A2” for Dry Years

Flow Requirements at Highway 154 and Alisal Bridges



CalTrout Underestimates Project Water Requirements for Fish

- Underestimates conversions from cfs to acre-feet
- Uses incorrect number of days for flow intervals and ramping for June
- Overestimates the occurrence of water rights releases
- Overestimates the occurrence of spills
- Does not account for net losses between Bradbury Dam and Alisal Bridge



Evaluation of CalTrout Estimate of Cachuma Project Water Needed for Fish Flows under “3A2 with Dry Year Adjustment”

	Column A <u>3A2 Normal (AF)</u>	Column B <u>3A2 Dry (AF)</u>
• CalTrout Estimate of Average Annual Project Water Released for Fish	7,878	3,766
• Correction for Conversions, Number of Days, and Ramping	709	468
• Correction for Occurrence of Downstream Water Rights	344	344
• Correction for Occurrence of Spills	393	0
• Corrected Estimate of Average Annual Project Water Released for Fish	9,324	4,578
	Column A X 8	74,588
	Column B X 2	9,156
	10 Year Avg. AF	8,374
• CalTrout 10 year average		7,056
• Corrected 10 year average		8,374
• Corrected average to include net losses between Bradbury Dam and Alisal Bridge		9,445



Impacts on Project Water Supply

- Results of analysis based upon Santa Ynez River Hydrology Model show severe shortages under “3A2” and “3A2 Adjusted for Dry Years” for Project water users
- Shortages in critical drought year (1951) would be 96% and 84% for “3A2” and “3A2 Adjusted for Dry Years”.
- Both “3A2” and “3A2 Adjusted for Dry years” would not only produce severe shortages during the critical drought period (1949-1951) but increases the frequency and magnitude of shortages in other drought periods as well.



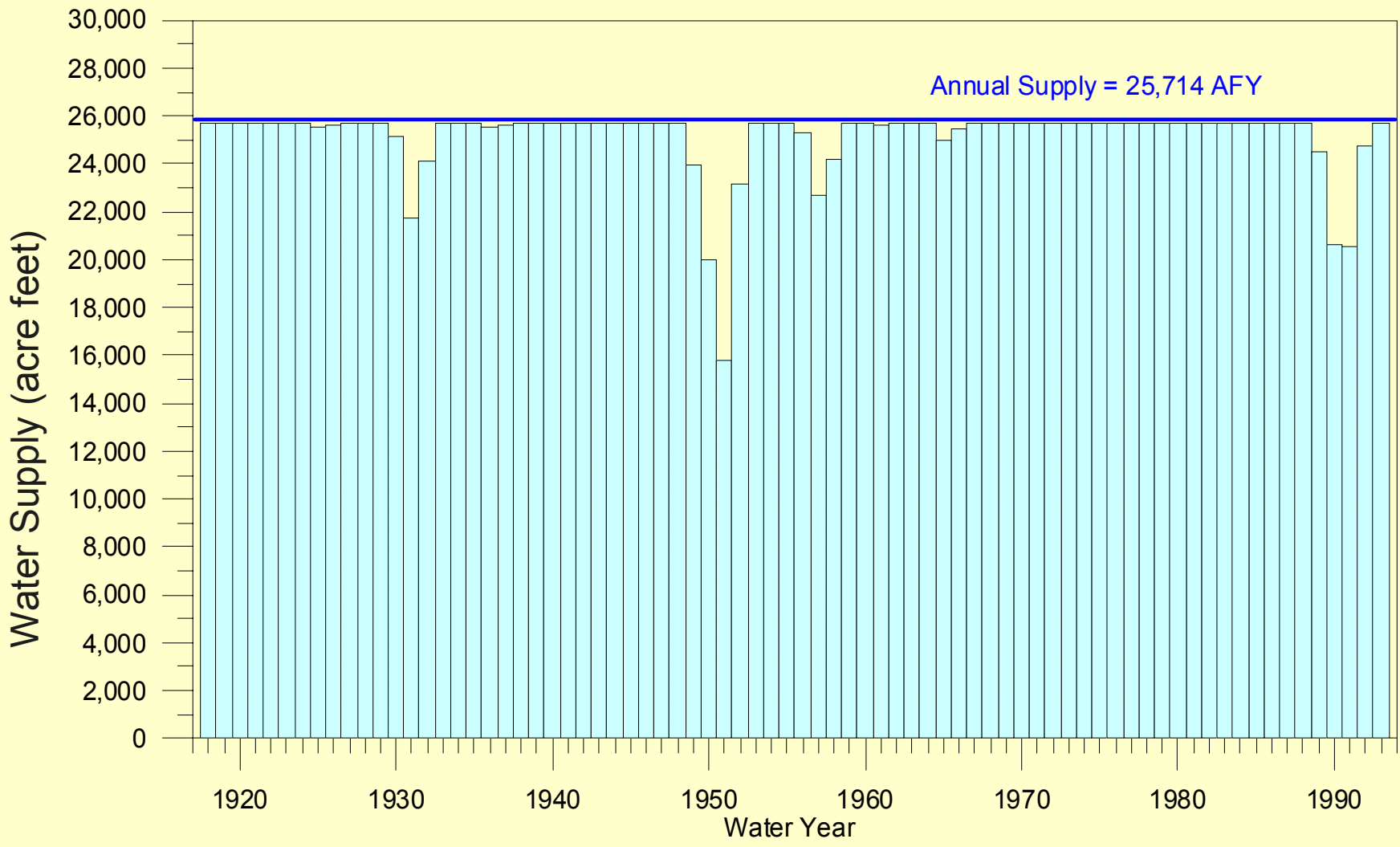
Impacts of Fish Releases on Project Water Supply in Critical Drought Period, 1949 Through 1951 (acre-feet)

EIR Alternative	Shortage in Critical Drought Year (1951)	Shortage as Percentage of Annual Draft	Cumulative Shortage in Critical Drought Period (1949-1951)	Shortage as Percentage of Annual Draft for Three Years
1	7,070	27	14,210	18
2	9,810	38	20,130	26
3A	11,810	46	24,850	32
3B	11,260	44	23,270	30
3C	9,890	38	19,920	26
4A&B	9,350	36	17,470	23
“3A2”	24,740	96	61,810	80
“3A2 Adjusted for Dry Years”	21,700	84	51,570	67

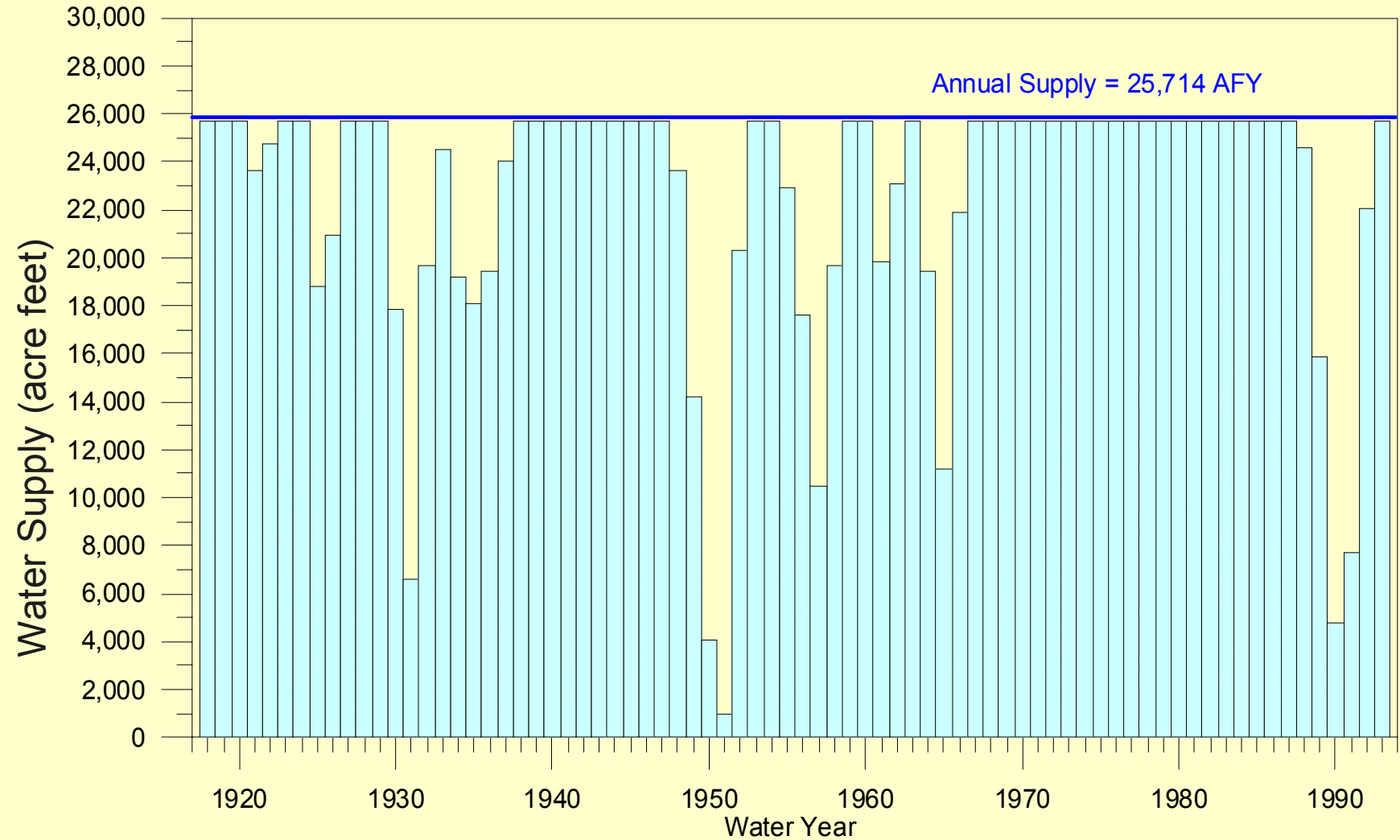
Note: Annual draft from Cachuma Project is 25,714 acre-feet.



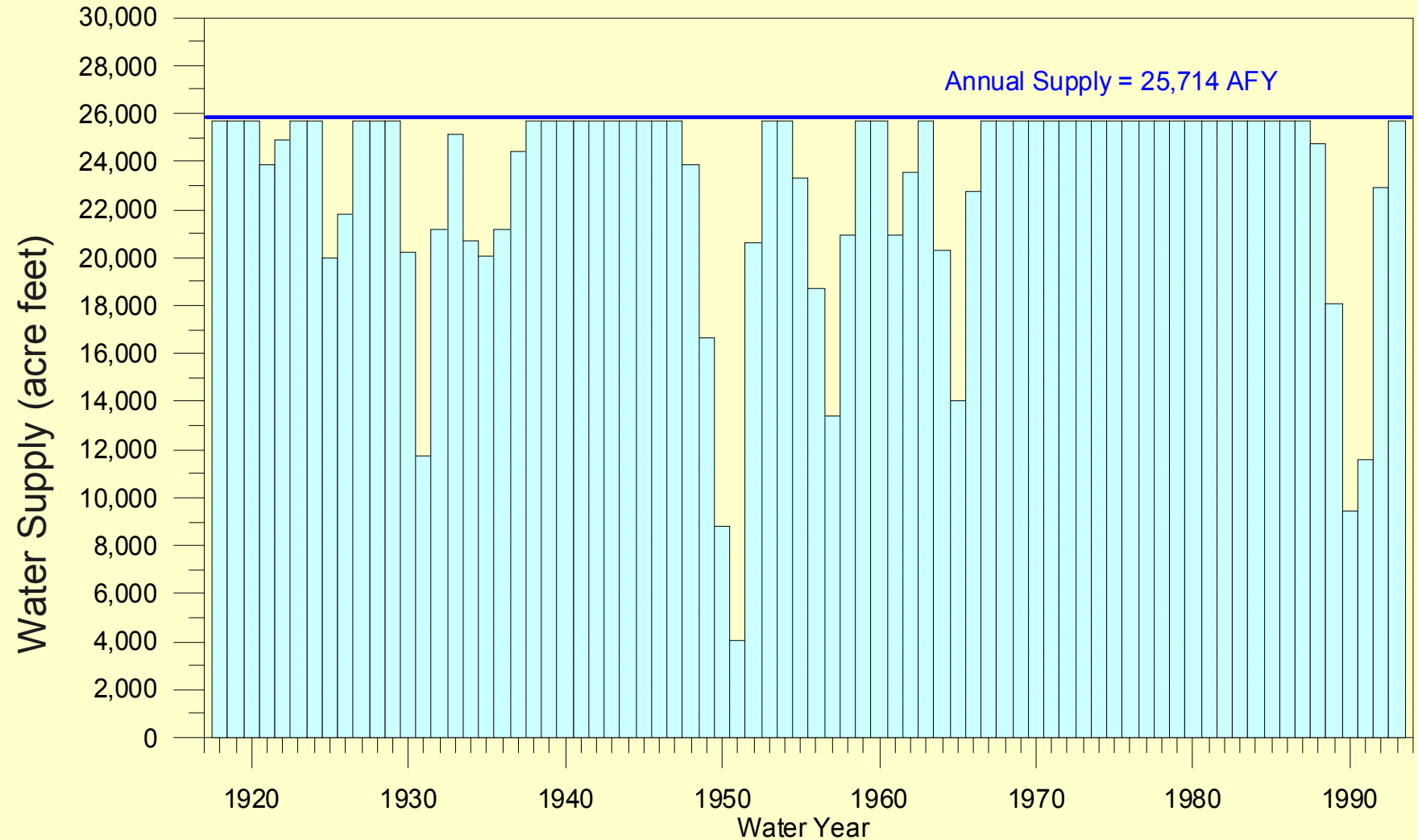
Cachuma Project Water Supply Under EIR Alternative 3C



Cachuma Project Water Supply Under “3A2”



Cachuma Project Water Supply Under “3A2 Adjusted for Dry Years”

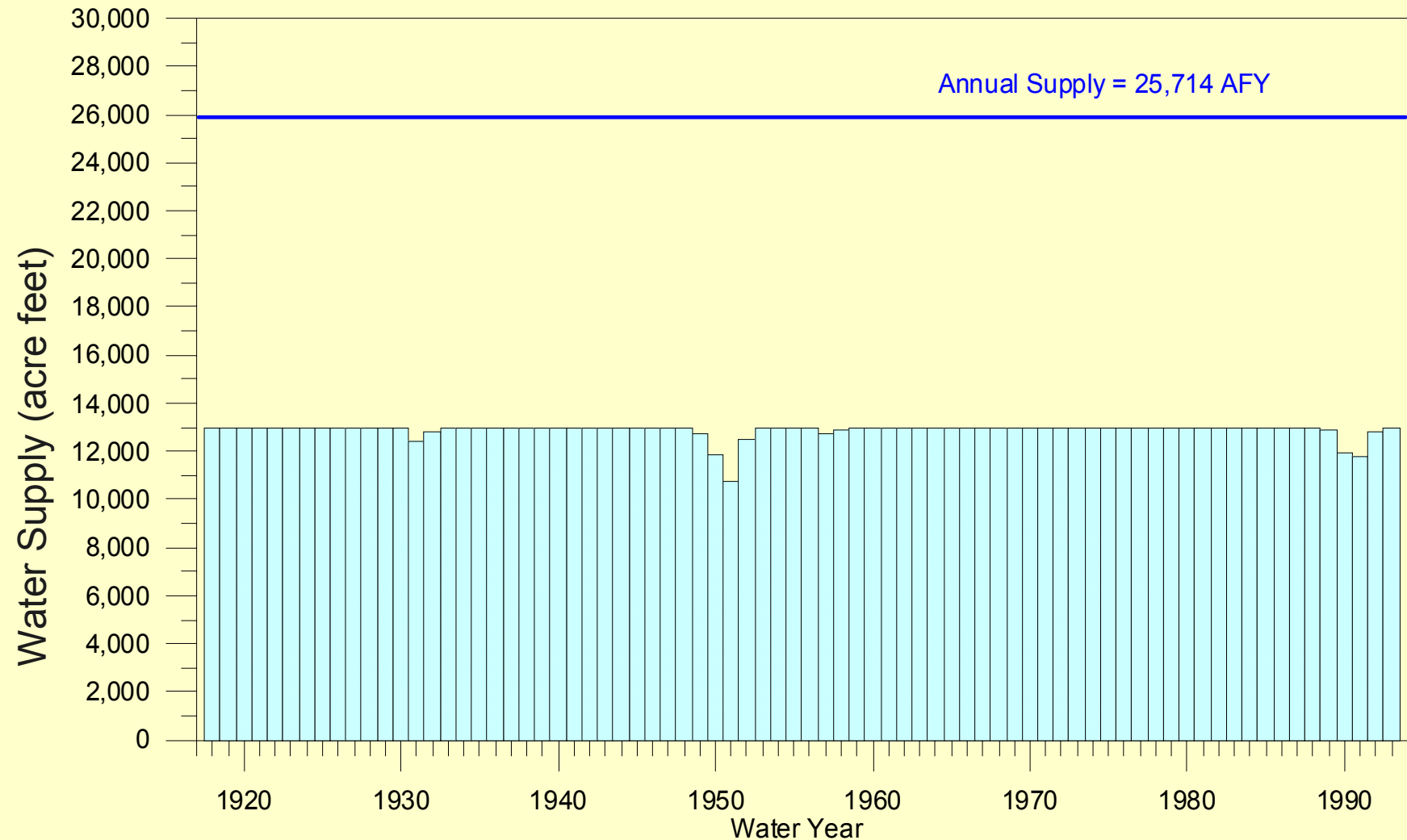


Impacts on Project Water Supply

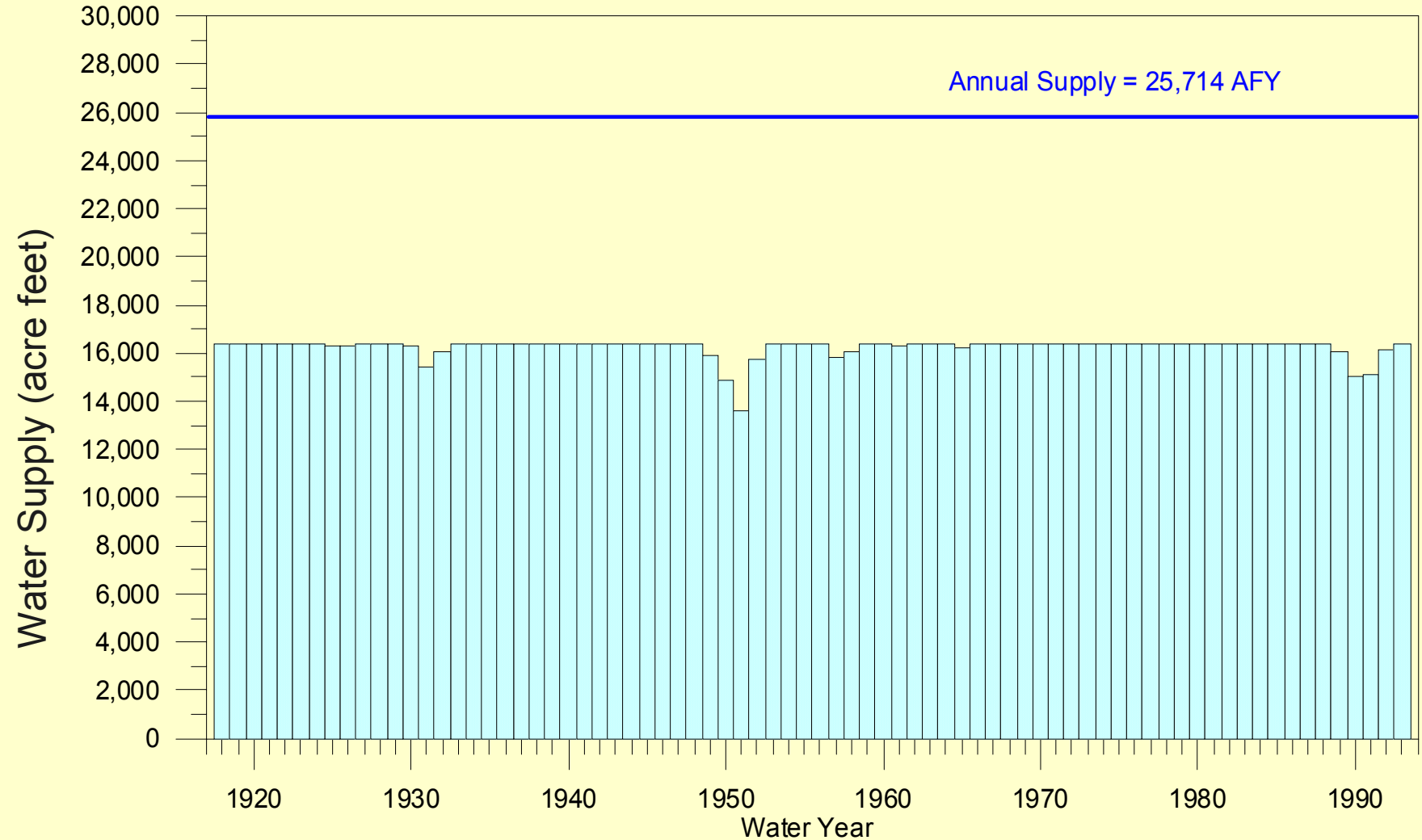
- Project water users would most likely reduce annual draft to a more reliable yield for each year.
- Annual draft would be reduced from 25,714 to 13,000 af for “3A2” and to 16,400 af for “3A2 Adjusted for Dry Years.”



Cachuma Project Water Supply Under “3A2” with Reduced Cachuma Annual Draft



Cachuma Project Water Supply Under “3A2 Adjusted for Dry Years” and Reduced Cachuma Annual Draft



Impacts to SWP Water Deliveries Under “3A2 Adjusted for Dry Years”

- High releases for fish would require releases through outlet works in addition to Hilton Creek Facility.
- SWP water deliveries are restricted when outlet works are being used for releases to river.
- Overall, South Coast deliveries would be decreased by about 15% in comparison to EIR Alternatives 2 through 4AB.

Alternative	Total Imports under South Coast Contracts	Shortage as Percentage of 13,750 AF
1	0	0%
2	10,135	74%
3A	10,152	74%
3B	10,167	74%
3C	10,199	74%
4A&B	10,369	75%
" 3A2	7,944	58%
3A2 adjusted for dry years "	8,372	61%



Additional Hydrologic Impacts

- Lower Lake Storage Levels
- Reduction in WR89-18 releases
- Negation of efforts in Settlement Agreement to improve water quality for the Lompoc Plain

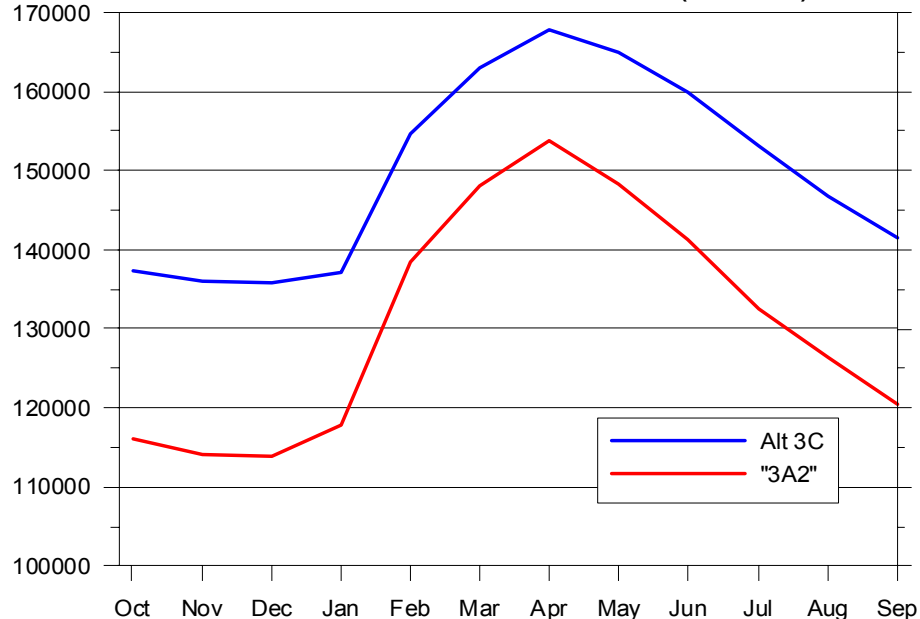


Simulated Impacts to Water Right Releases for Water Years 1918-1993 (acre-feet/year)

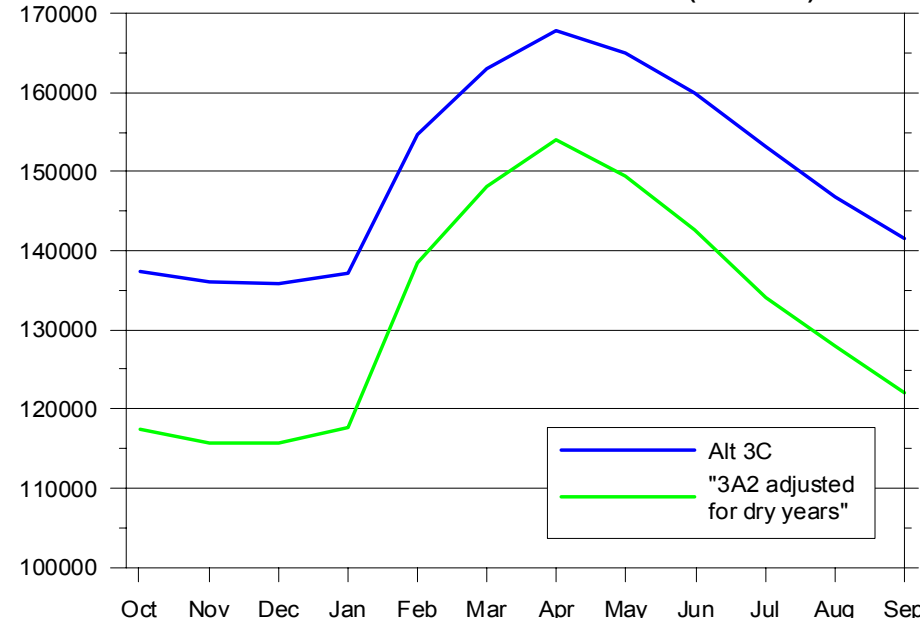
	Alt 1	Alt 2	Alt 3A	Alt 3B	Alt 3C	Alt 4 A&B		“3A2”	“3A2 Adjusted for Dry Years”
WR89-18 Releases	6,322	6,023	5,658	5,682	5,737	5,711		4,439	4,621
Difference in WR89-18 Releases	---	-299	-660	-640	-590	-611		-1,883	-1,701
Percent Reduction in WR89-18 Releases	---	4.7%	10.4%	10.1%	9.3%	9.7%		29.7%	26.9%



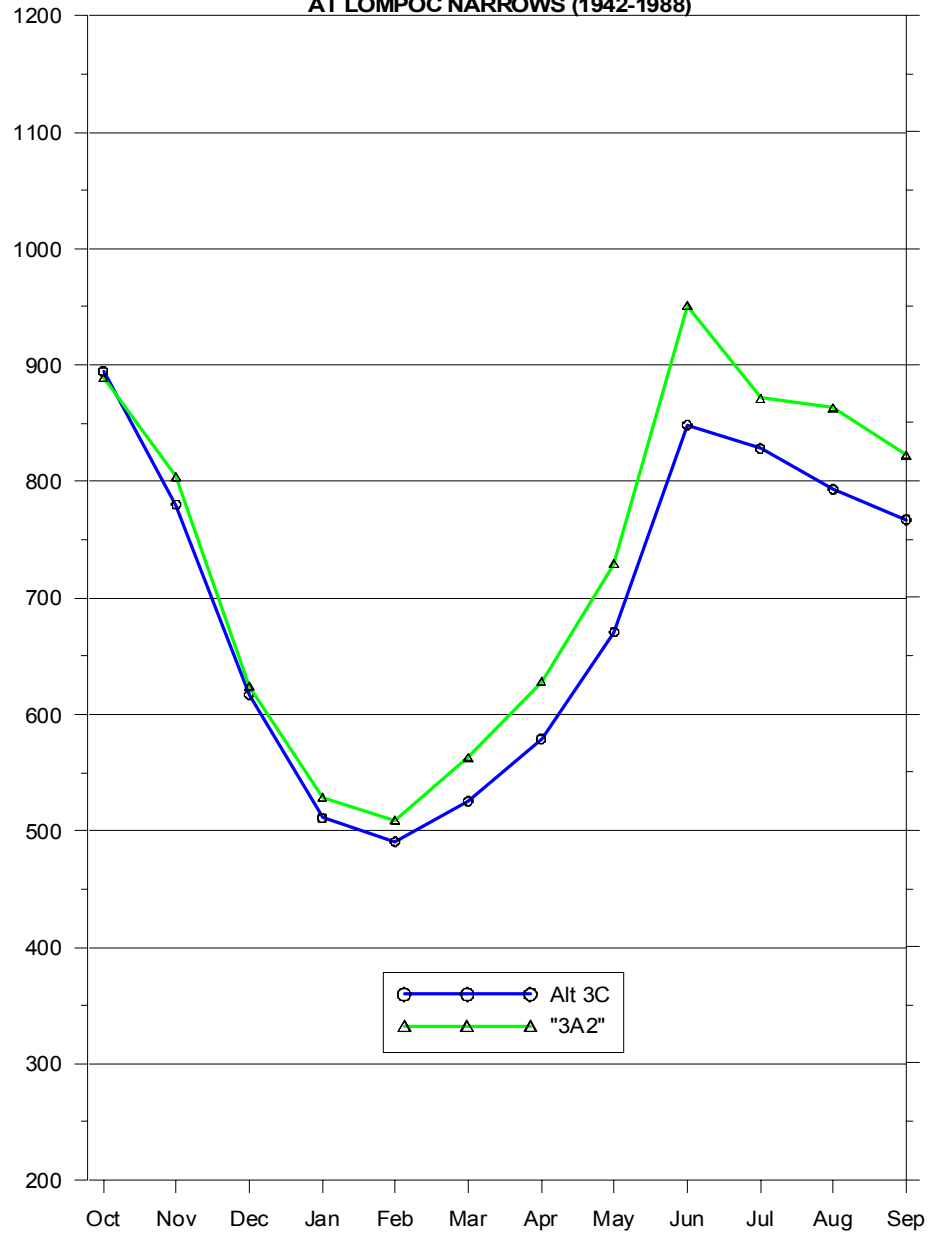
SIMULATED MEDIAN LAKE STORAGE (1918-1993)



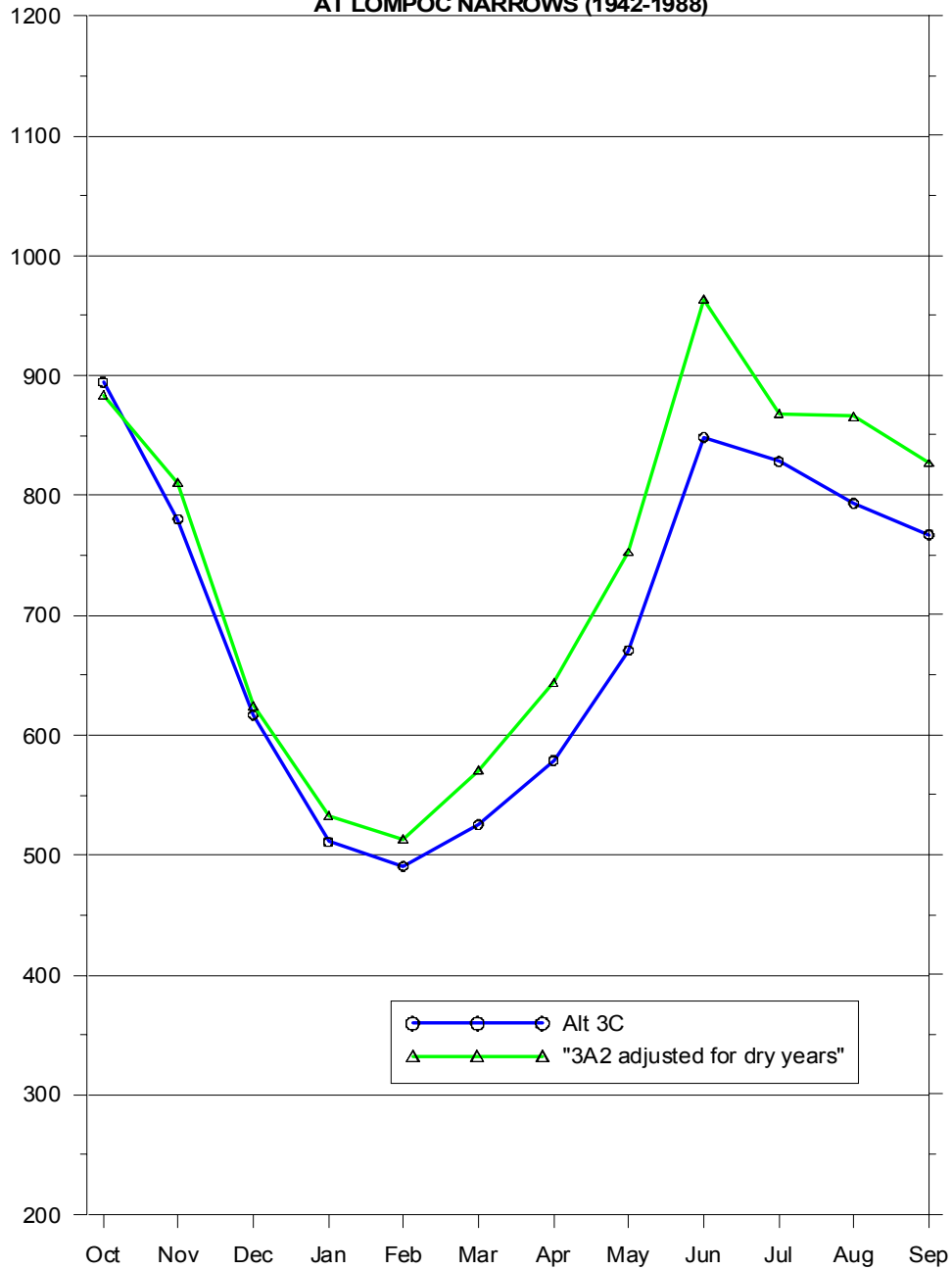
SIMULATED MEDIAN LAKE STORAGE (1918-1993)



**SIMULATED MONTHLY MEAN FLOW WEIGHTED TOTAL DISSOLVED SOLIDS
AT LOMPOC NARROWS (1942-1988)**



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End

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