

# **Collaborative Process Revised Session 1 Summary August 13, 2002**



**Prepared for**

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## 1.0 Introduction

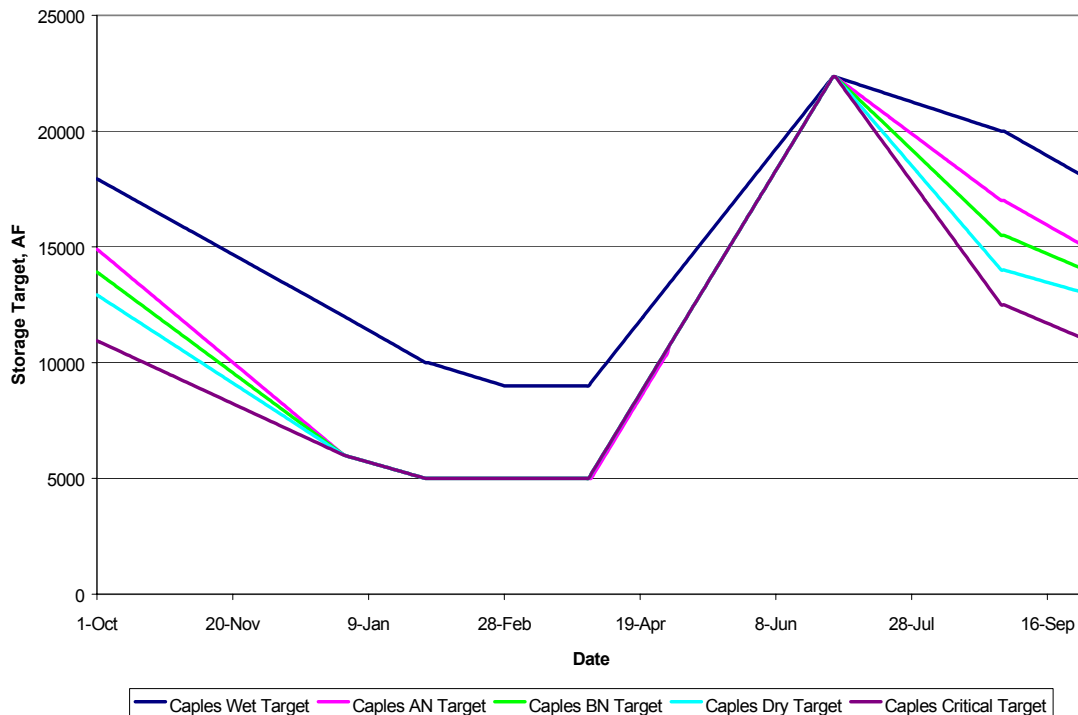
On August 13, 2002, El Dorado Irrigation District sponsored a computer-aided alternative operational exercise at Kirkwood, CA. Prior to the session, HydroLogics prepared the Project 184 model to accommodate the parameters, interests and desired output formats by meeting with members of the collaborative. The three alternatives presented at the session were Alternative 2B (current Project 184 operation), Collaborative Alternative 1, and Collaborative Alternative 2. A description of each alternative is presented below.

## 2.0 Proposals

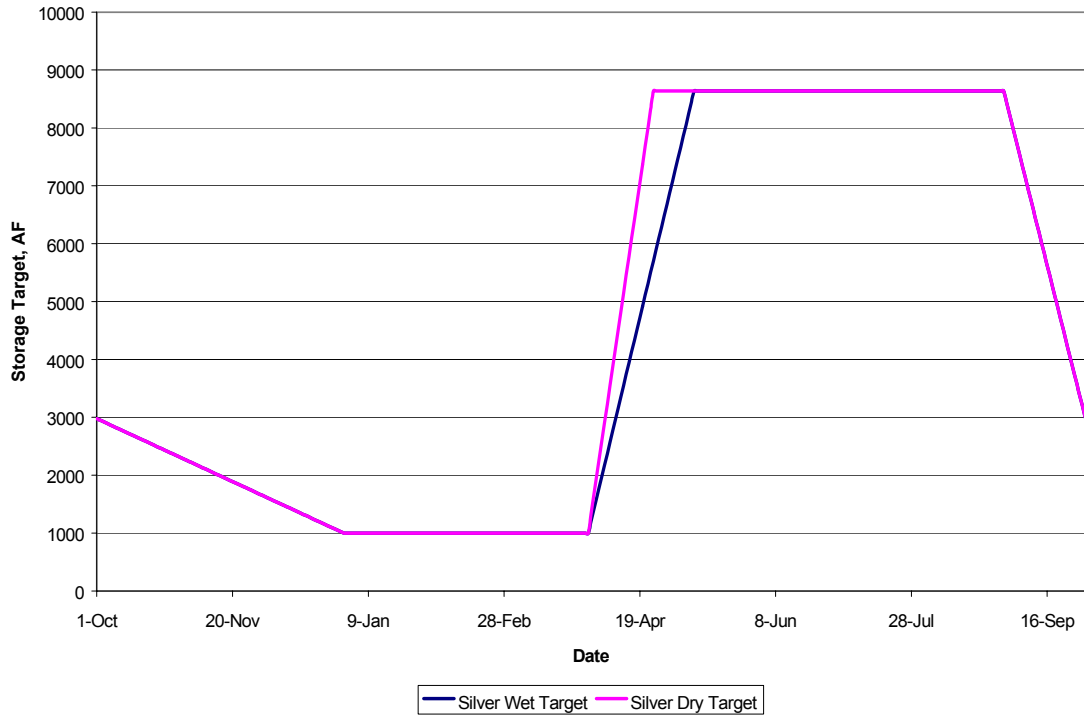
### Alternative 2B

Run 2B Monthly is the "current Project 184 operation." In addition to the information presented in "Modeling Assumptions for Project 184 – South Fork American River," this alternative includes target storages in Echo Lake, Caples Lake and Silver Lake which allow the model to simulate recent historic Project 184 operation criteria. This alternative differs from historic operations in that a consumptive use of 15,080 acre-feet/year is assumed from Forebay Reservoir.

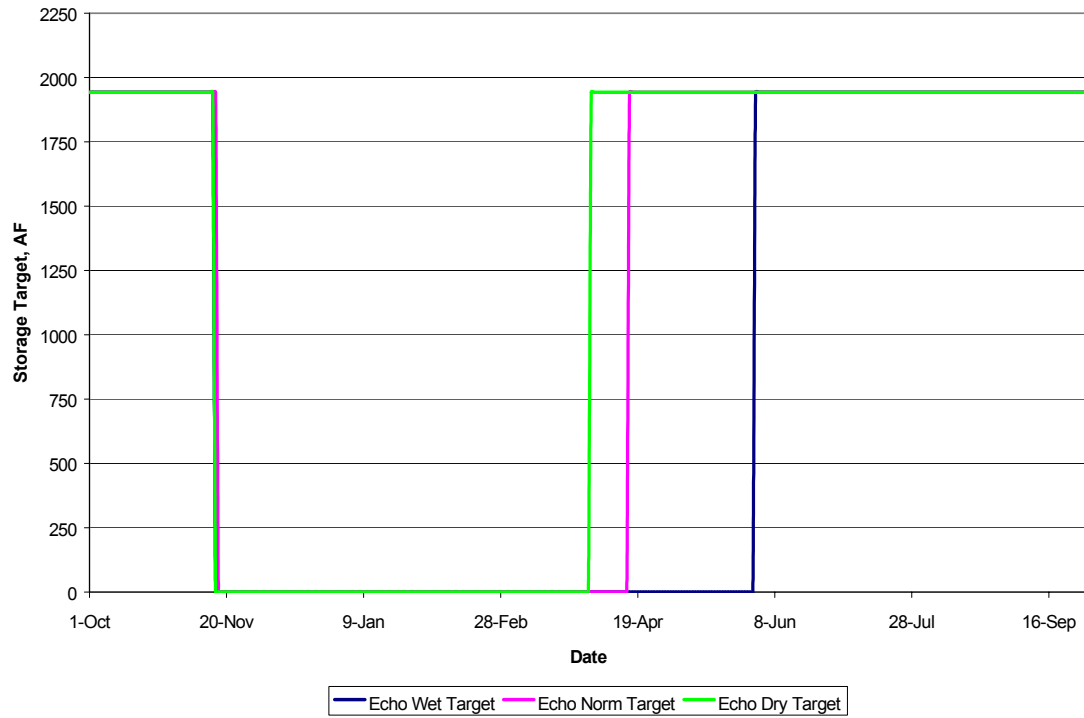
Caples Lake Storage Targets



### Silver Lake Storage Targets



### Echo Lake Storage Targets



### ***Collaborative Alternative 1***

One of the participants submitted comments to EID in a letter received on July 17, 2002. This alternative was created in an attempt to capture those comments in a base run. In this initial run we have assumed:

1. Caples lake EOM storage levels as presented in the participant's table dated June 1999 and attached to the July 17 letter were adjusted to be consistent with the stages presented in the letter. Stages and corresponding storages from the new SAE tables dated 1/20/00

### **Alternative 1 Proposed End of Month Lake Levels for Caples Lake**

Water Year Type	June Stage (feet)	June Storage (acre feet)	July Stage (feet)	July Storage (acre feet)	August Stage (feet)	August Storage (acre feet)	September Stage (feet)	September Storage (acre feet)	February Stage (feet)	February Storage (acre feet)
Critical	56	18,704	55.5	18,413	48.2	14,376	48.2	14,376	40.8	10,048
Dry	56.0	18,704	55.9	18,646	48.2	14,376	48.2	14,376	40.8	10,048
Below Normal	62.0	22,338	61.6	22,089	54.8	18,006	54.8	18,006	40.8	10,048
Above Normal	62.0	22,338	62.0	22,338	54.8	18,006	54.8	18,006	40.8	10,048
Wet	62.0	22,338	62.0	22,338	54.8	18,006	54.8	18,006	40.8	10048

2. Existing FERC minimum flow requirements
3. The Silver Lake Agreement
4. Power generation will have a lower weight than maintaining Caples Storage above required levels.
5. EID consumptive use out of Forebay will have a lower weight than maintaining Caples Storage above required levels

### ***Collaborative Alternative 2***

This run is a variation of the Collaborative Alternative 1 Proposal.

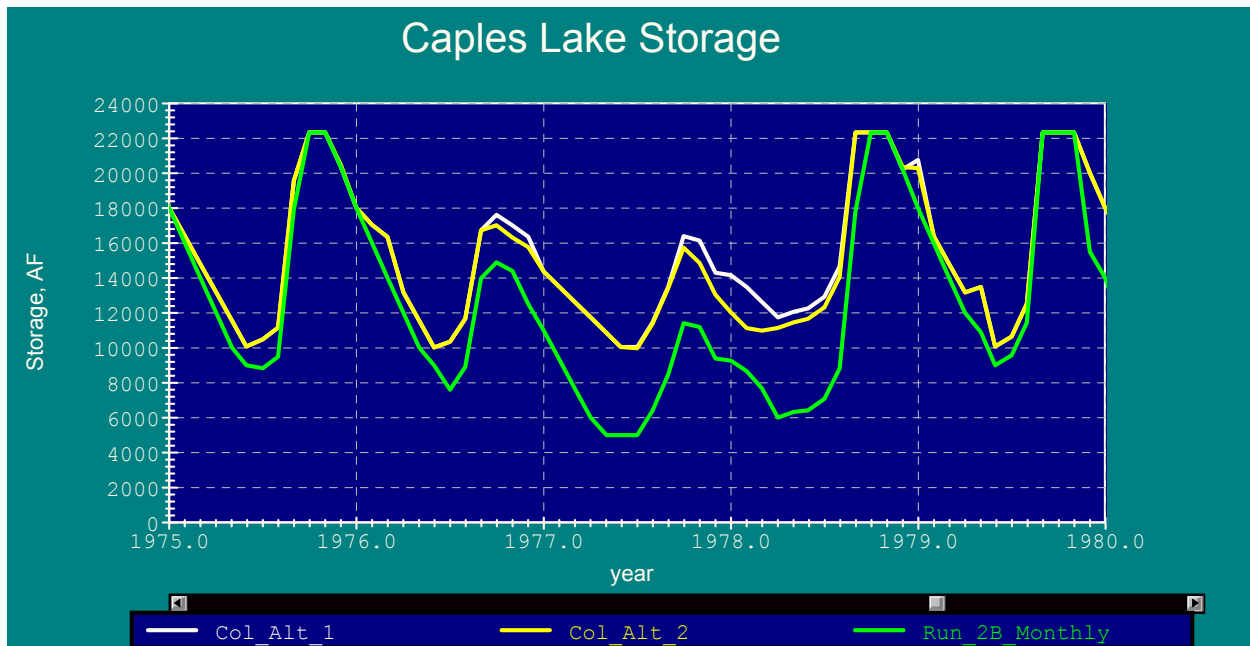
Trial 1: We took Alternative 1 and increased the minimum required outflow from Caples Lake to 20 cfs from May through November. For the December through April period the requirement remained the minimum of 5 cfs or natural inflow. We also increased the minimum required outflow from Silver Lake to 8 cfs during the May through November period. From December through April, the requirement remained the minimum or 2 cfs or natural inflow. All other parameters remained the same.

Trial 2: After reviewing the results from Trial 1, the participant suggested a change to the minimum required outflow from Caples Lake to 15 cfs from May through November. We also changed the minimum required total outflow from Silver Lake to 10 cfs including leakage during the September through November period. During the December through August period the requirement is the minimum of 4 cfs or natural inflow. All other parameters remained the same.

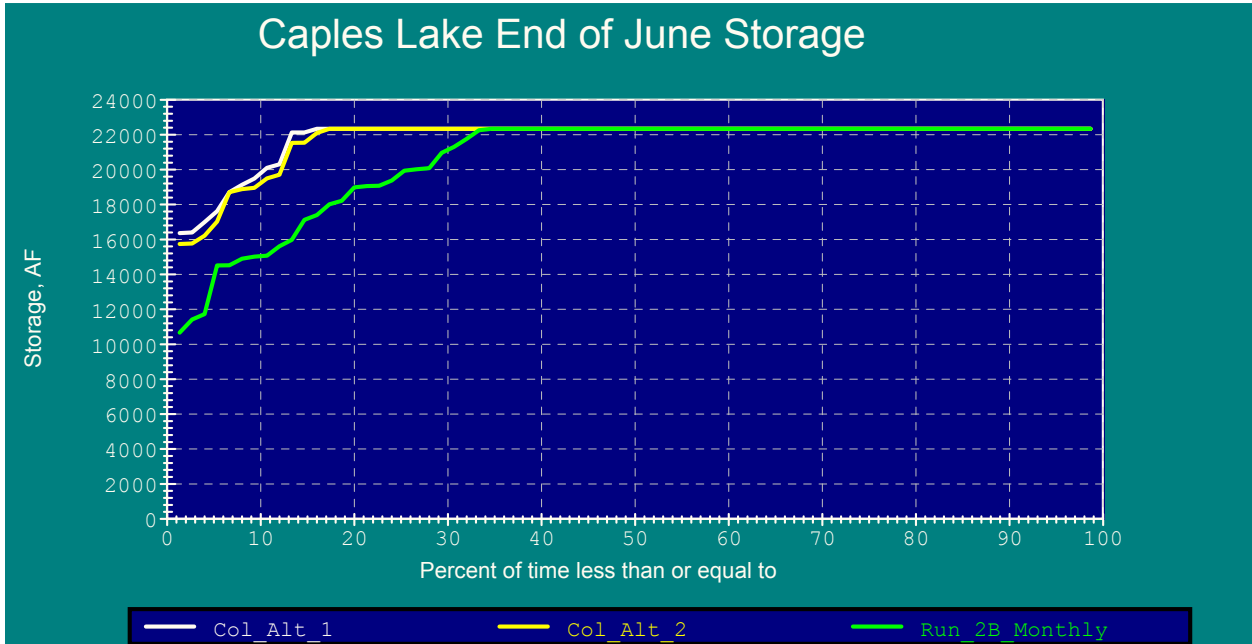
Trial 3: Modifications from Trial 2 include changing the Caples 15 cfs release to the June through November period and to remove the natural inflow as a conditional minimum from both Silver and Caples lakes. In other words, minimum flow from Caples is 5 cfs December through May and from Silver is 4 cfs December through August.

### 3.0 Results

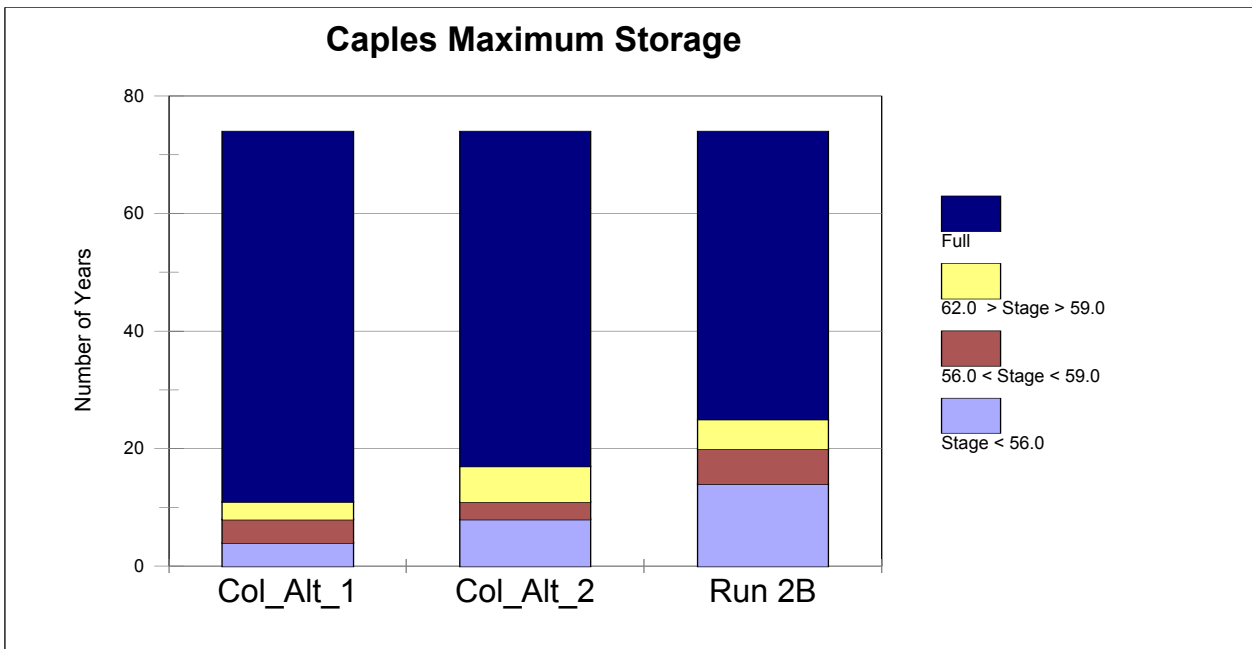
Presented here are the results of the first proposals from the collaborative. The results herein are a starting point for more discussions and do not necessarily represent the final proposal of any of the participants. This is only a sample of the data that can be produced by the model. If additional information is requested or if data in another format is desired, it most likely can be provided.



The Caples Lake Storage graph above shows the chronologic comparison of Alternatives 1 and 2, and the current operations. The differences in storage targets and flow requirements cause the differences in storage. Caples Lake is the focus for many of the proposed changes and experiences the largest differences in the system.

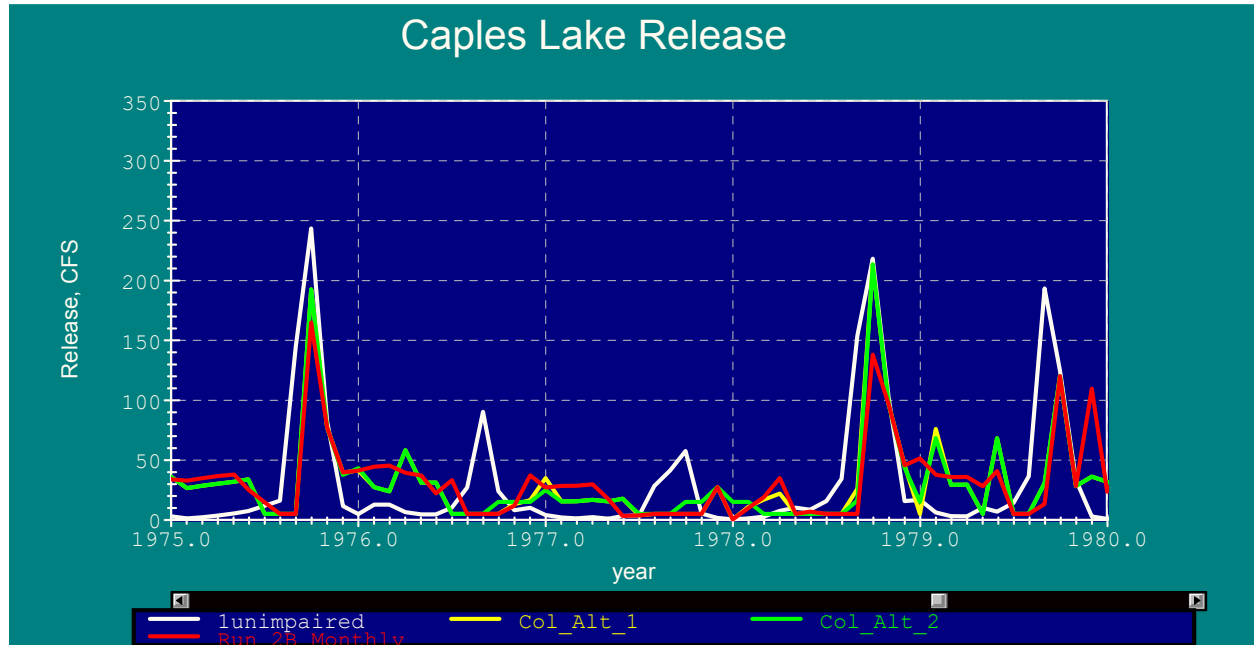


This probability plot shows the frequency of Caples Lake being full in June. In Alternatives 1 and 2, Caples Lake is less than full in June less than 20% of the time. In other words, it is full more than 80% of the time.

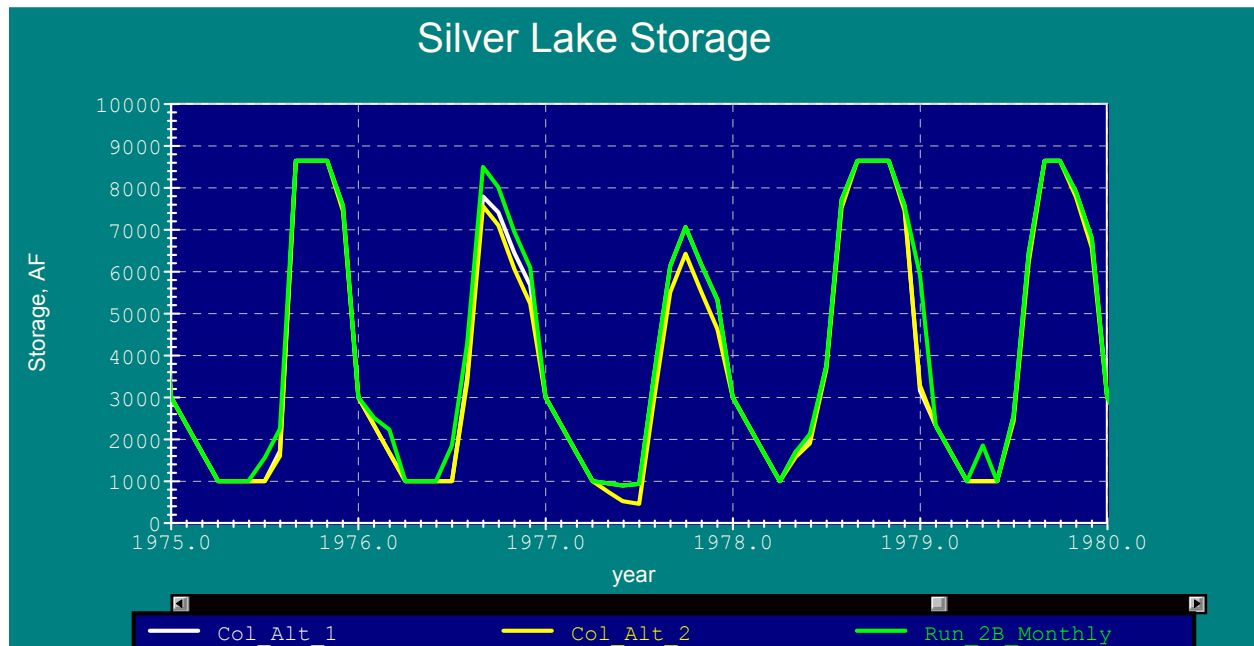


The Caples Maximum storage plot shows the number of years that Caples Lake maximum storage was full, between stage 62 and stage 59, between stage 56 and stage 59, and below stage 56. The maximum storage could occur at anytime during the year, but generally occurs between

April and July. The plot above shows that the Alternatives 1 and 2 produce the largest number of Caples Lake fills.

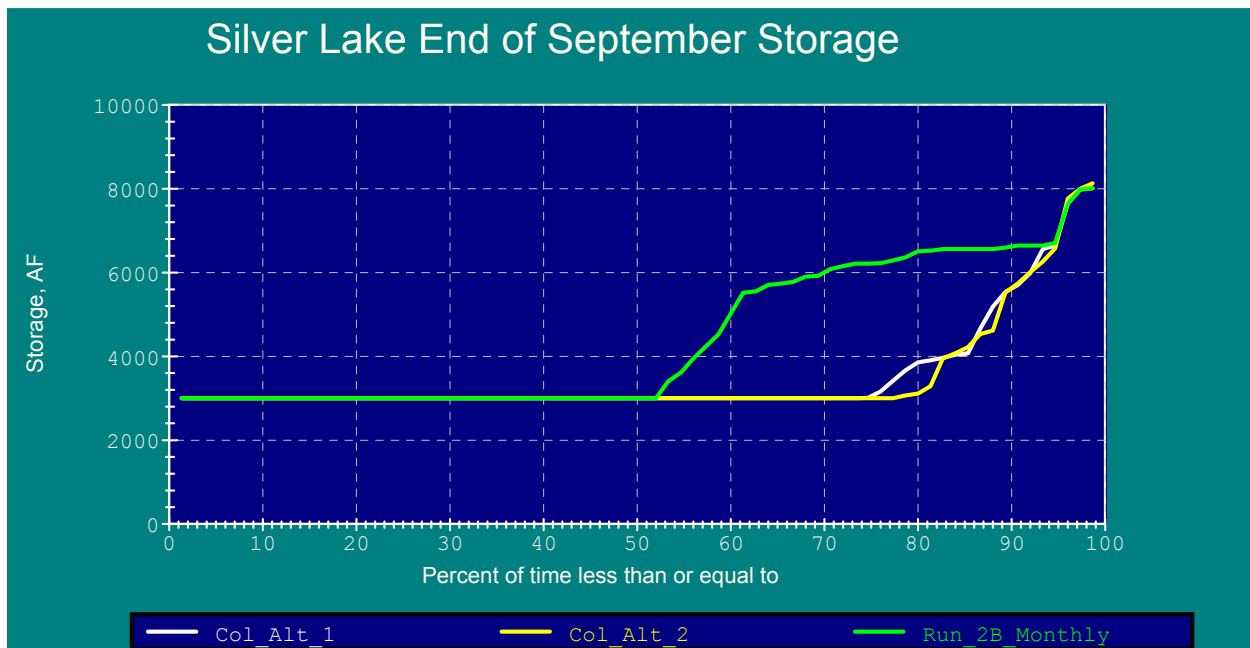


The Caples Lake release plot above shows the three current proposals compared to the unimpaired flow at Caples Dam. The difference between the proposals and the unimpaired flow shows the effects of the operation of the dam.



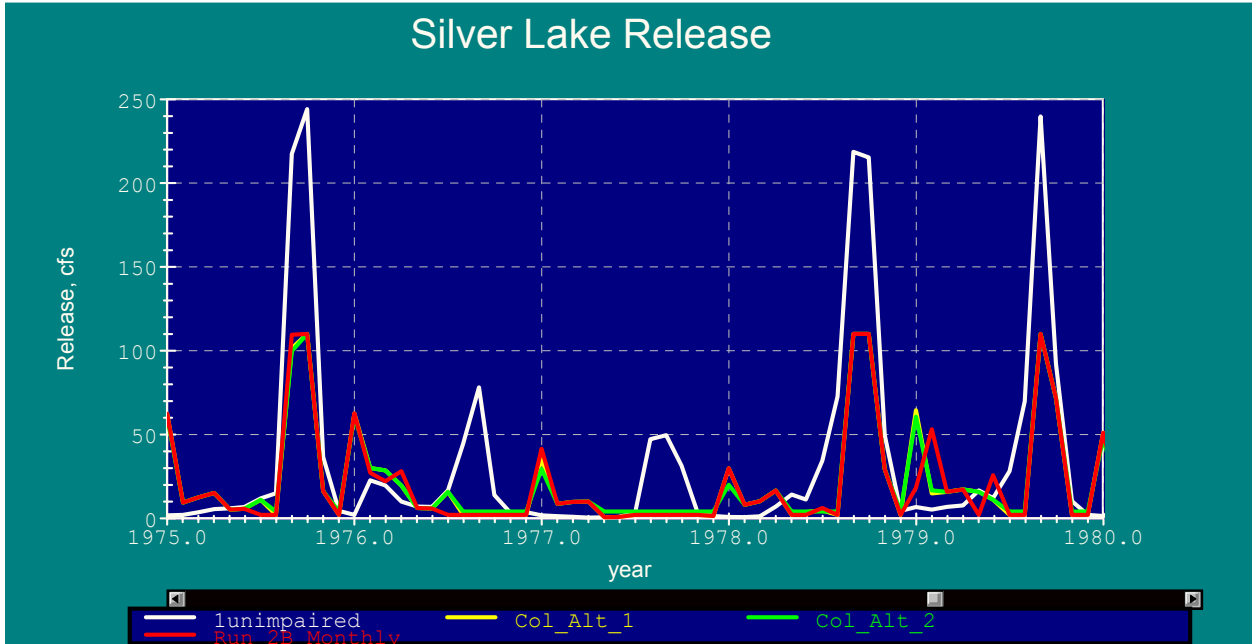
The Silver Lake Storage graph above shows the chronologic comparison of Alternative 1 Proposal, Alternative 2 Proposal, and the current operations. Although there are a few changes

to the flow requirements below Silver Lake, most of the differences in the operation of Silver Lake are relatively minor.

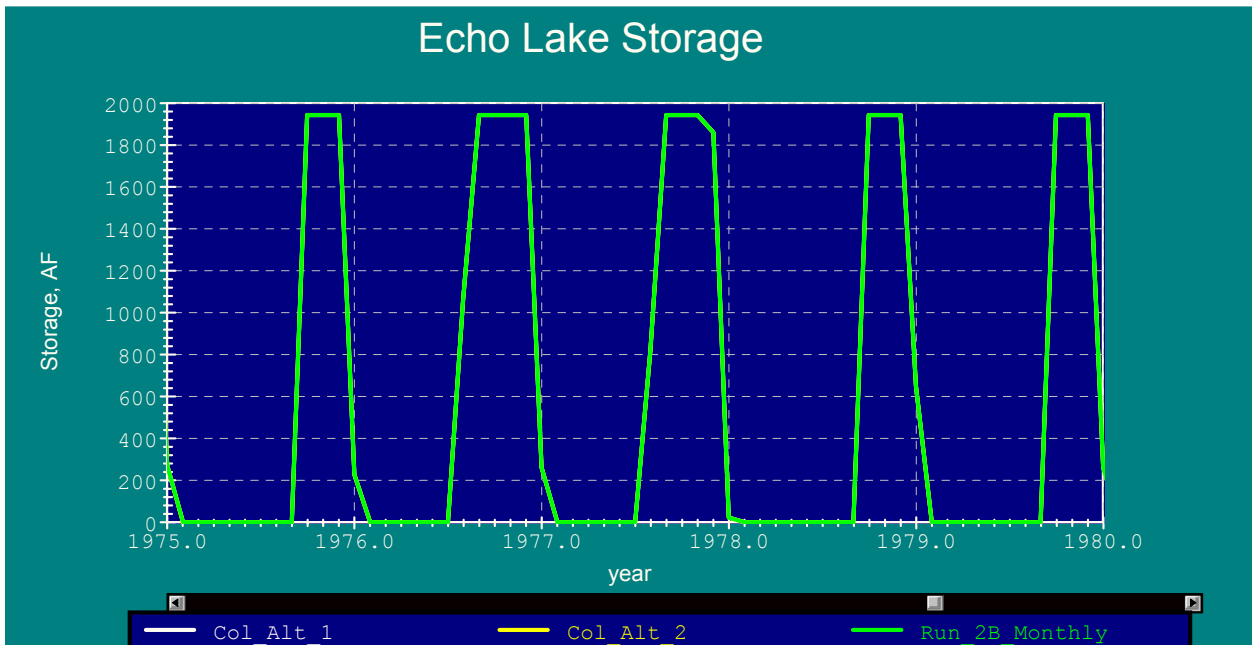


According to the agreement between EID and Amador County, to protect Silver Lake’s summer recreational uses and scenic beauty, EID or the other El Dorado Party shall not release prior to Labor Day of each year water from the lake for consumptive use, power production, rediversion or other purposes excluding any non-discretionary releases required by FERC License 184 or the State Division of Safety of Dams. In general this means Silver Lake cannot be drawn down until after Labor Day except for meeting minimum flow requirements. The operational significance of this rule is that after Labor Day Silver Lake is drawn down to supply water for both consumptive use and power generation. In Alternatives 1 and 2 the draw down is accelerated because of the storage targets at Caples Lake. Rather than drawing Caples Lake storage down, Silver Lake is used.

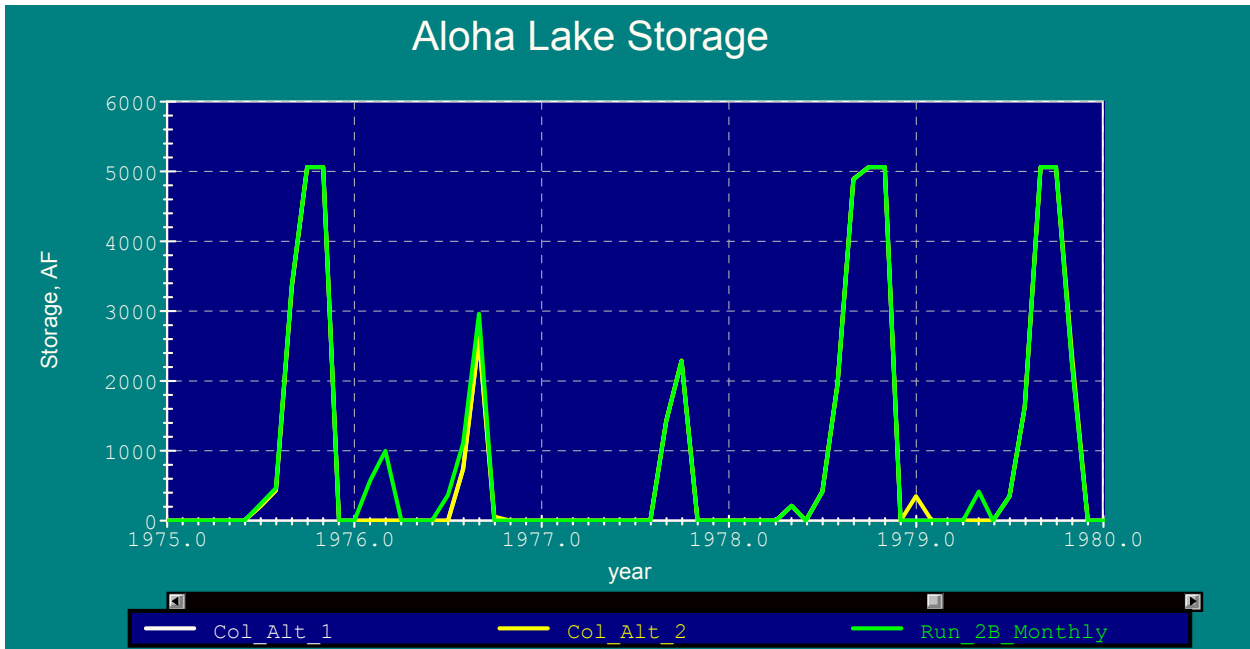




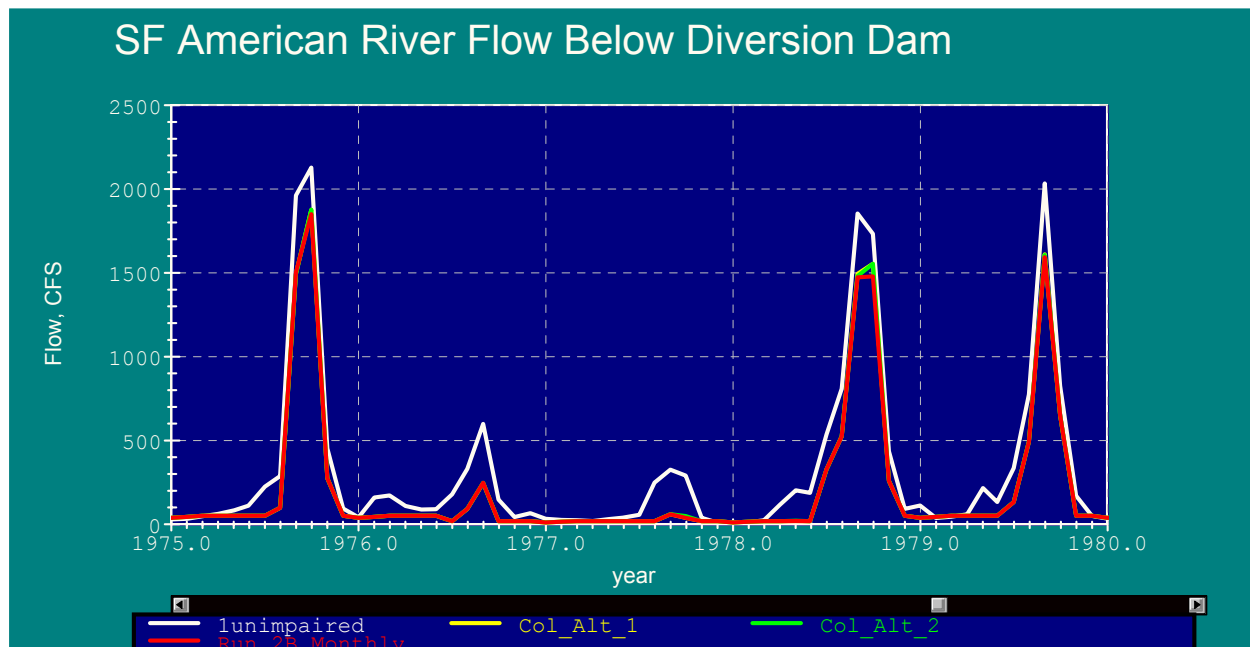
The Silver Lake release plot above shows the three current proposals compared to the unimpaired flow at Silver Lake Dam. The difference between the proposals and the unimpaired flow shows the effects of the operation of the dam.



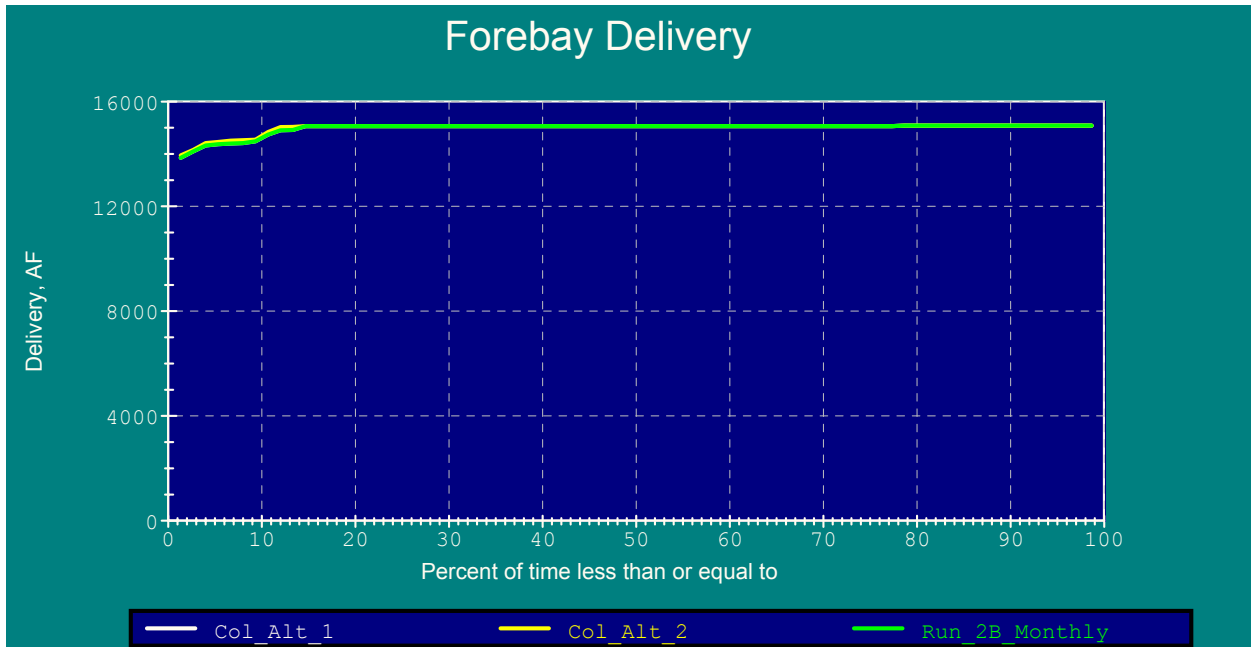
This graph displays the differences in Echo Lake operations between alternatives. Although the plot appears to have only one line, all three proposals are represented. There is no significant difference in the operation of Echo Lake in the three proposals.



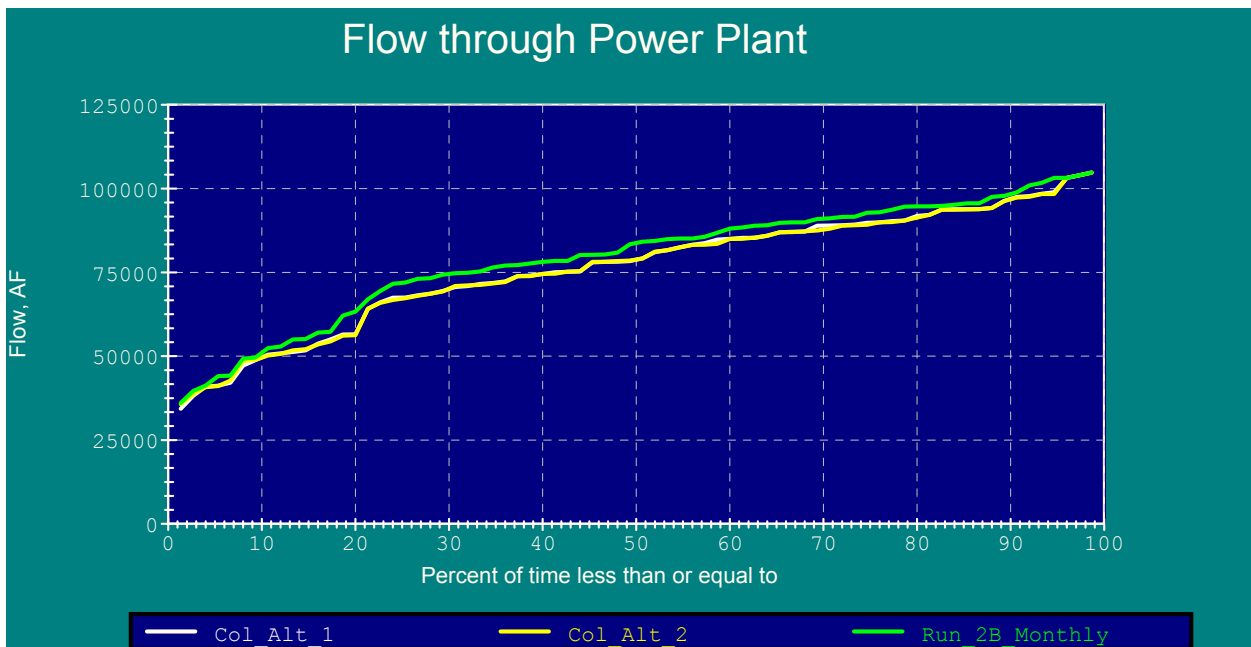
The operation of Aloha Lake is very similar between proposals. The differences in the plot above are due to the reaction necessary to accommodate the changes in the operation of Caples Lake.



The chart above shows a comparison of the three proposals against unimpaired flow at the South Fork American River below the diversion dam.



Since delivery from Forebay to EID consumptive use demand is one of the most important objectives in the model, there is little change in the amount of water delivered from alternative to alternative. This graph displays the differences in delivery between alternatives. Although the plot appears to have only one line, all three proposals are represented. The changes are so small that the differences are difficult to see with this plot.



The chart above is a frequency plot showing the annual flow through the power plant. Alternative 1 and Alternative 2 result in slightly less generation than the Run 2B.