Chapter 12 CVP and SWP Delta Operations

This chapter focuses on the effects of the CVP and SWP project operations in the Delta. The results in this chapter are from monthly CalSim-II output and are a coarse example of the hydrologic and hydraulic effects that project operations will have in the Delta. The effects analyzed in this chapter are due to the changes in operations and demands between the four OCAP Studies 6.0, 7.0, 7.1 and 8.0 as detailed in Chapter 10. Modeling results analyzed in this chapter will be Delta inflow, Delta outflow, Delta exports (Banks, Jones, Contra Costa Water District, and North Bay Aqueduct), SWP demand assumption changes, and EI ratio. The SWP demand assumptions (including both Table A and Article 21) will be compared against the 2004 OCAP SWP demand assumptions. The chapter's final section will focus on potential transfers amounts that were post-processed from the CalSim-II results for Study 8.0. Refer to Chapter 9 for a list of model limitations on which this analysis was based.

Inflow

Total Delta inflow in the model is treated as the sum of Yolo Bypass, Sacramento River, Mokelumne River, Calaveras River, Cosumnes River, and the San Joaquin River. Table 12-1 lists the difference in average annual inflow into the Delta on a long-term average and 1929 to 1934 average bases. The total annual inflow decreases in all comparisons on average between studies.

Table 12-1 Differences in annual Delta Inflow for Long-term average and the 1929-1934 Drought

Difference in Thousands of Acre-feet [TAF]	Study 7.0 - Study 6.0	Study 7.1 - Study 7.0	Study 8.0 - Study 7.0	Study 8.0 - Study 7.1
Longterm Annual Average Total Delta Inflow	-69	-201	-270	-70
29 - 34 Annual Average Total Delta Inflow	136	-272	-403	-130

Figure 12-1 shows the chronology of total inflow for all three of the studies. The highest inflows occur January through April due to flood flows, and July when pumping is increased through the late summer with the 50th percentiles being greater than 20,000 cfs (Figure 12-2). In the other months the inflow tends to be less than 20,000 cfs. Considering the monthly averages by 40-30-30 water year classification (Figure 12-3 to Figure 12-8), the results show little difference on average. In water years classified as critical years, Figure 12-1, the summer pumping in those years is higher for Studies 6.0 and 7.0 versus the other two studies. The increase in Studies 6.0 and 7.0 inflows for critical years during the summer are from EWA transfers being wheeled at a higher rate than in Studies 7.1 and 8.0 which are limited EWA studies.

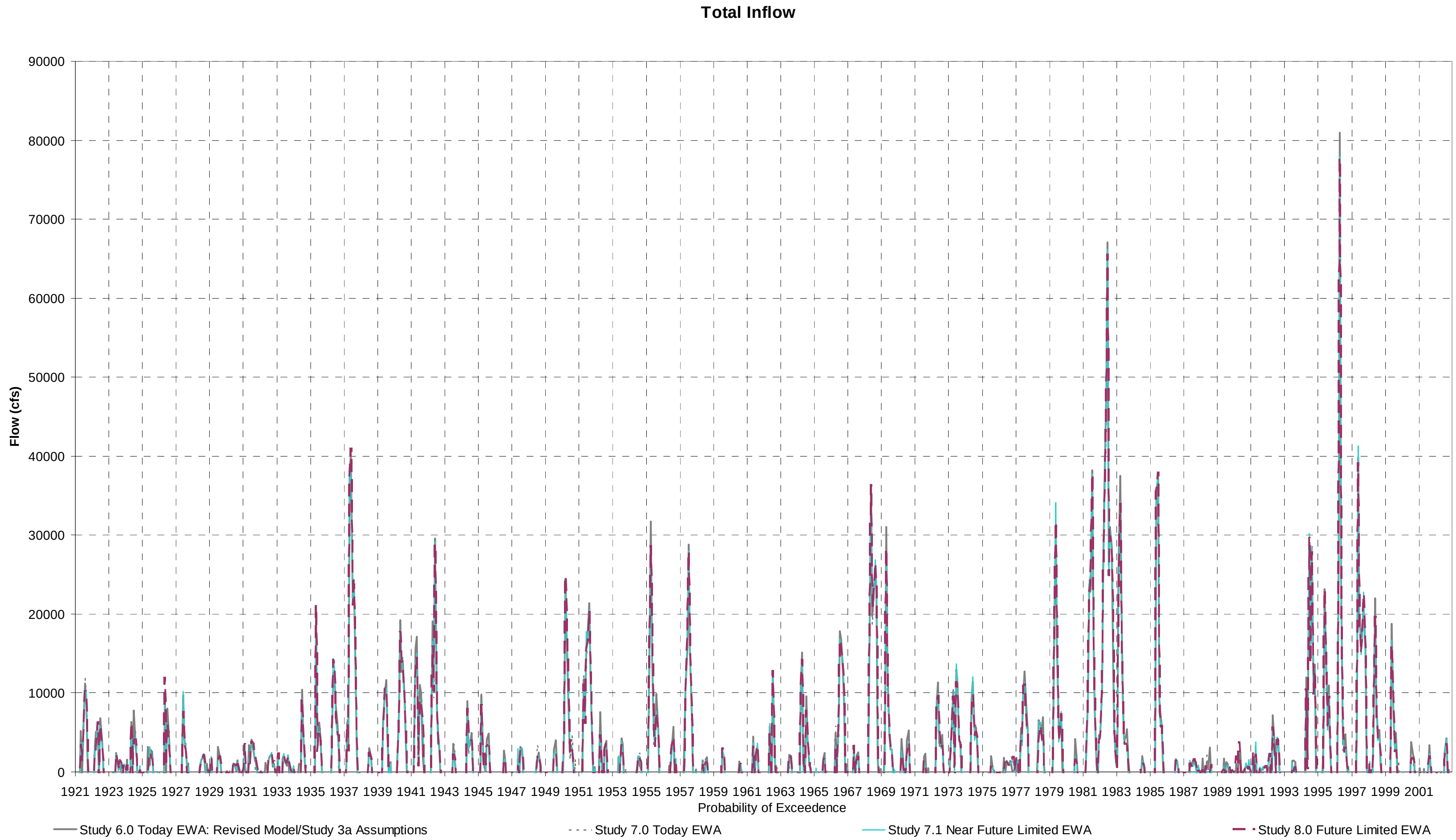

Figure 12-1 Chronology of Total Delta Inflow

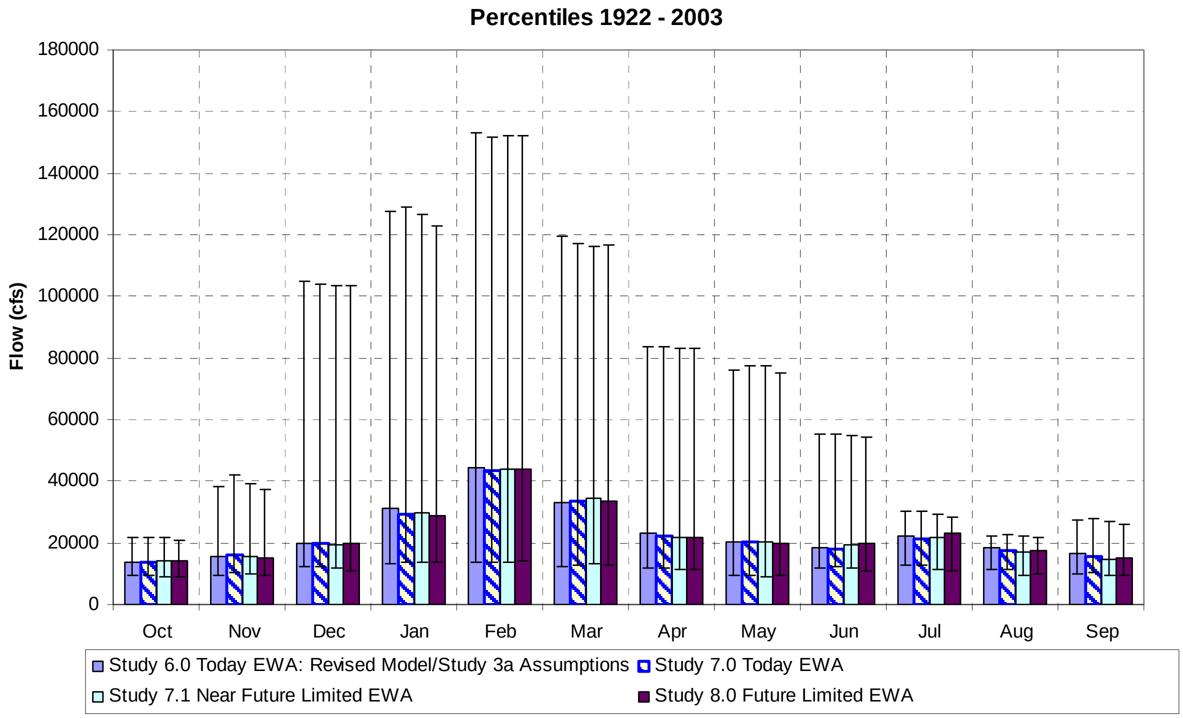

Figure 12-2 Total Delta Inflow 50th Percentile Monthly Flow with the 5th and 95th as the bars

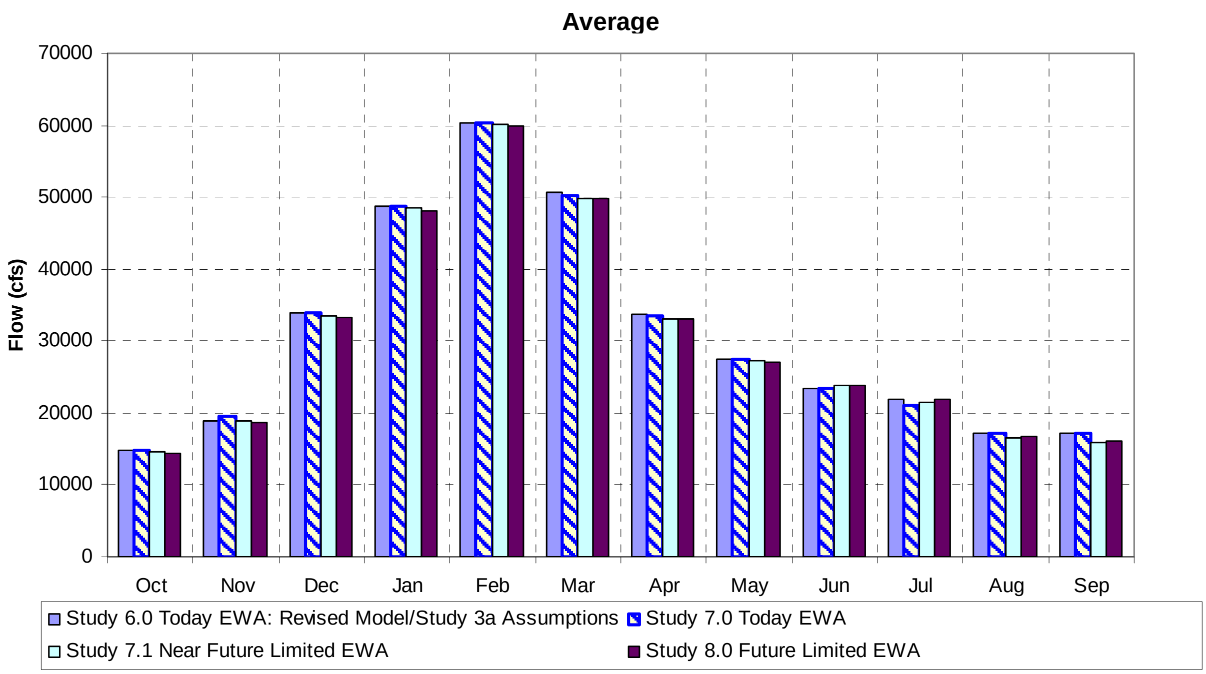

Figure 12-3 Average Monthly Total Delta Inflow

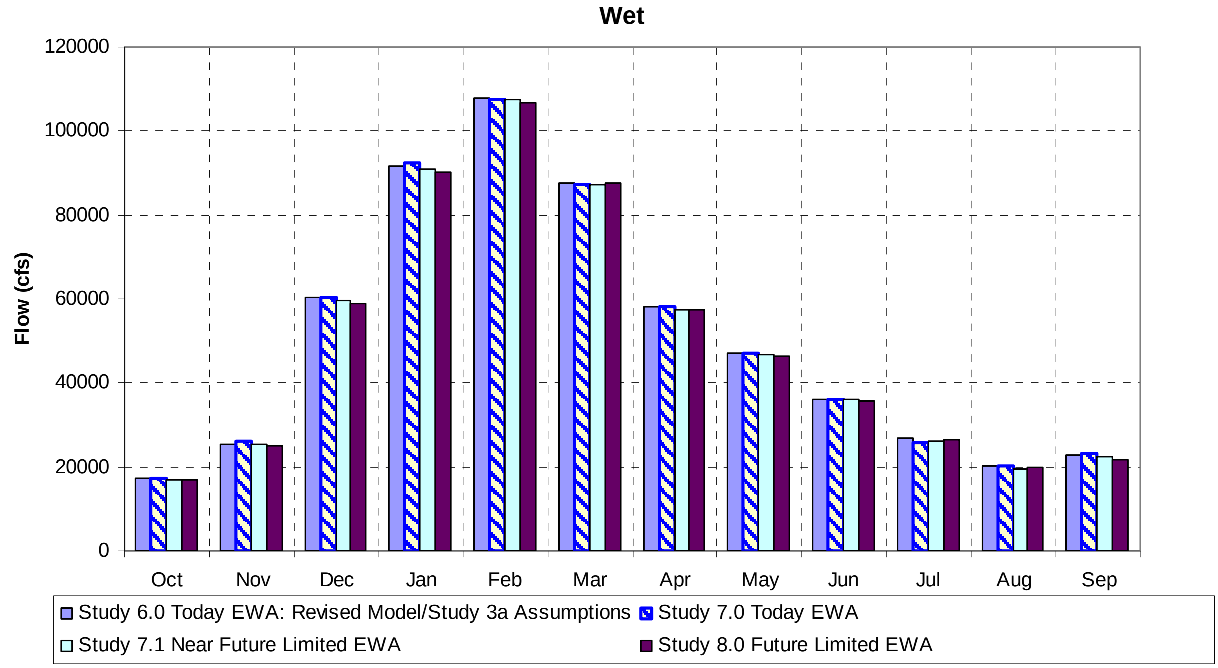

Figure 12-4 Average wet year (40-30-30 Classification) monthly Total Delta Inflow

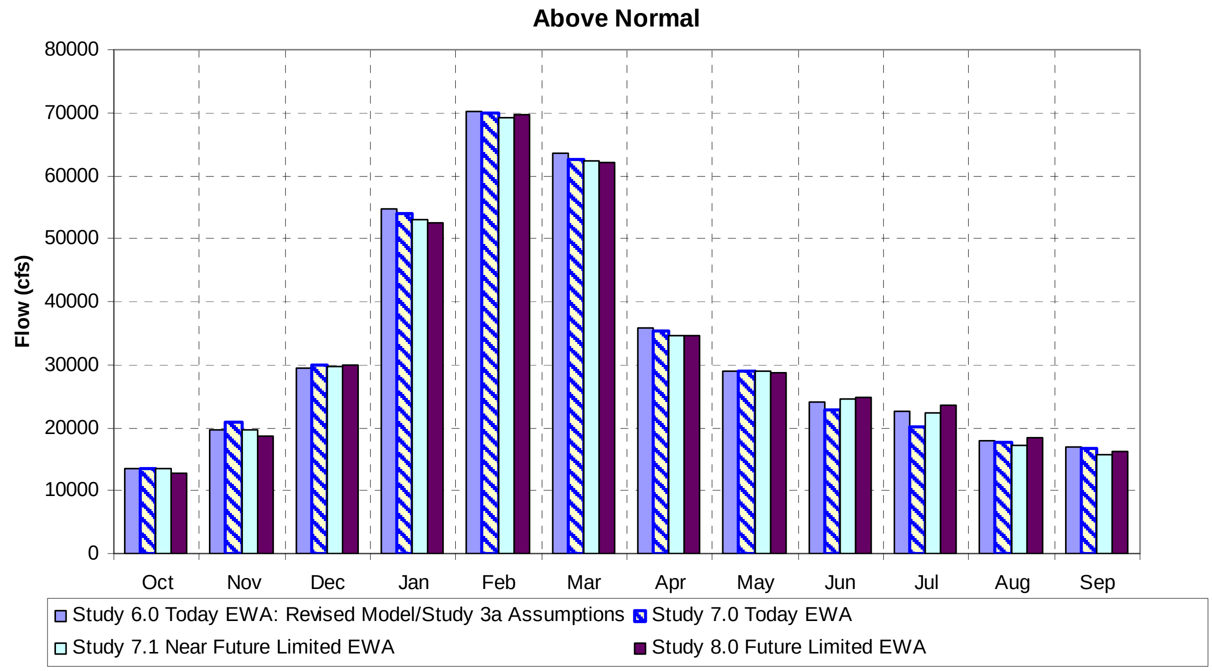

Figure 12-5 Average above normal year (40-30-30 Classification) monthly Total Delta Inflow

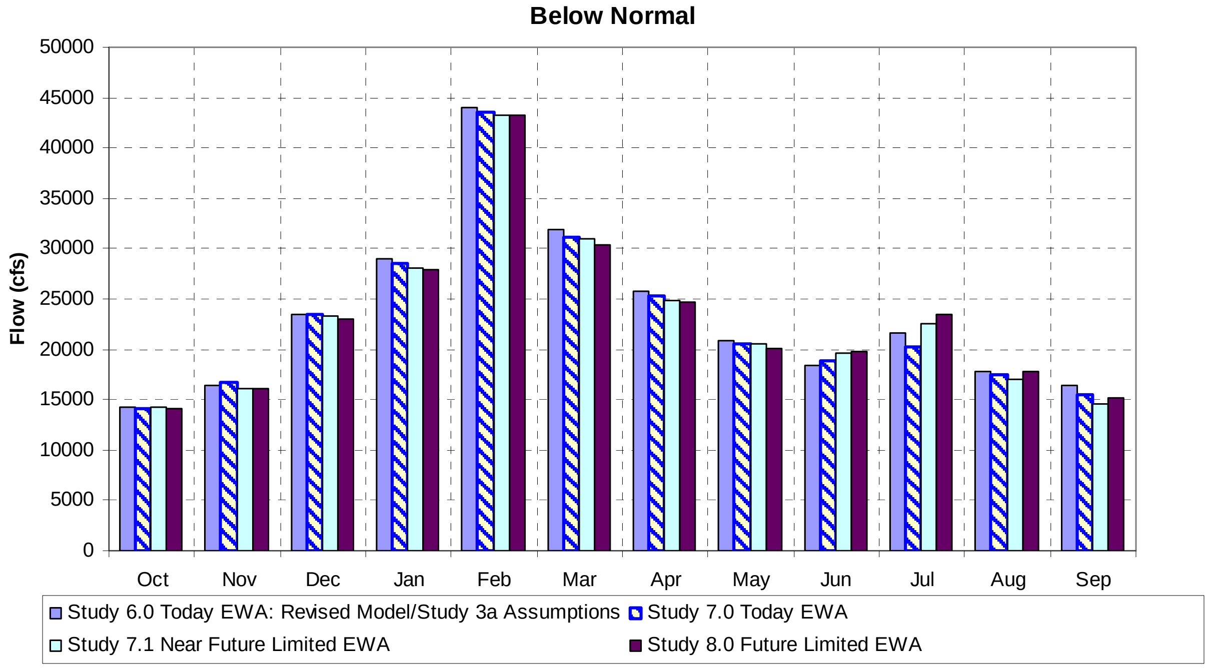

Figure 12-6 Average below normal year (40-30-30 Classification) Total Outflow Delta Inflow

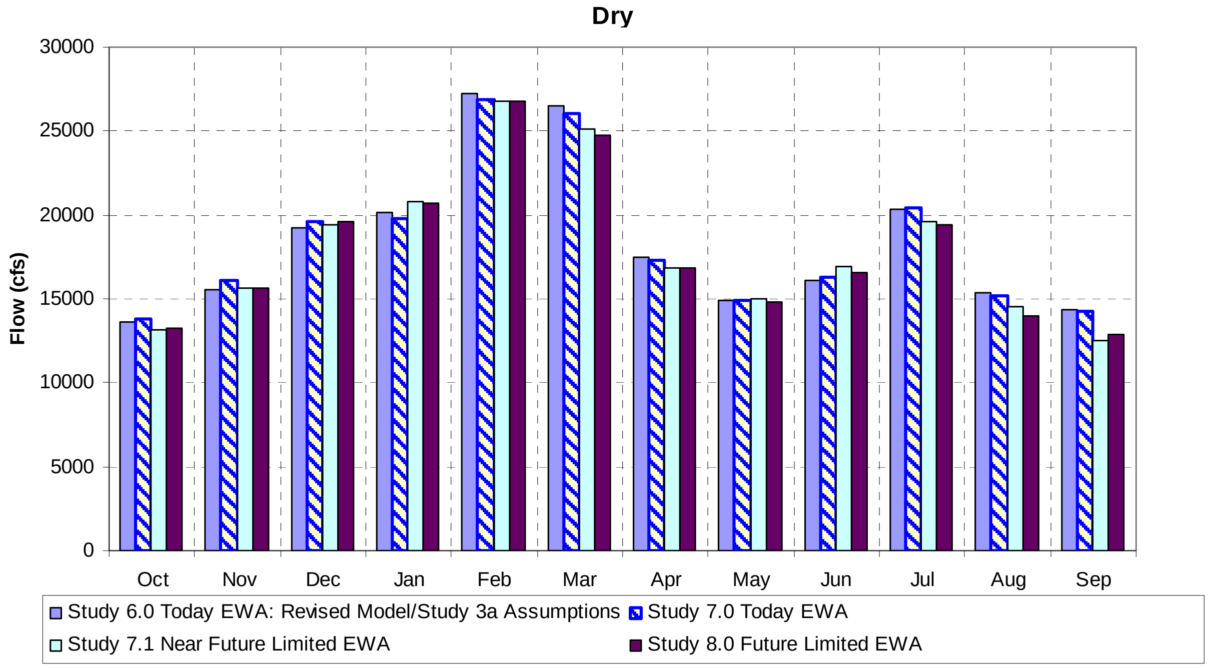

Figure 12-7 Average dry year (40-30-30 Classification) monthly Total Delta Inflow

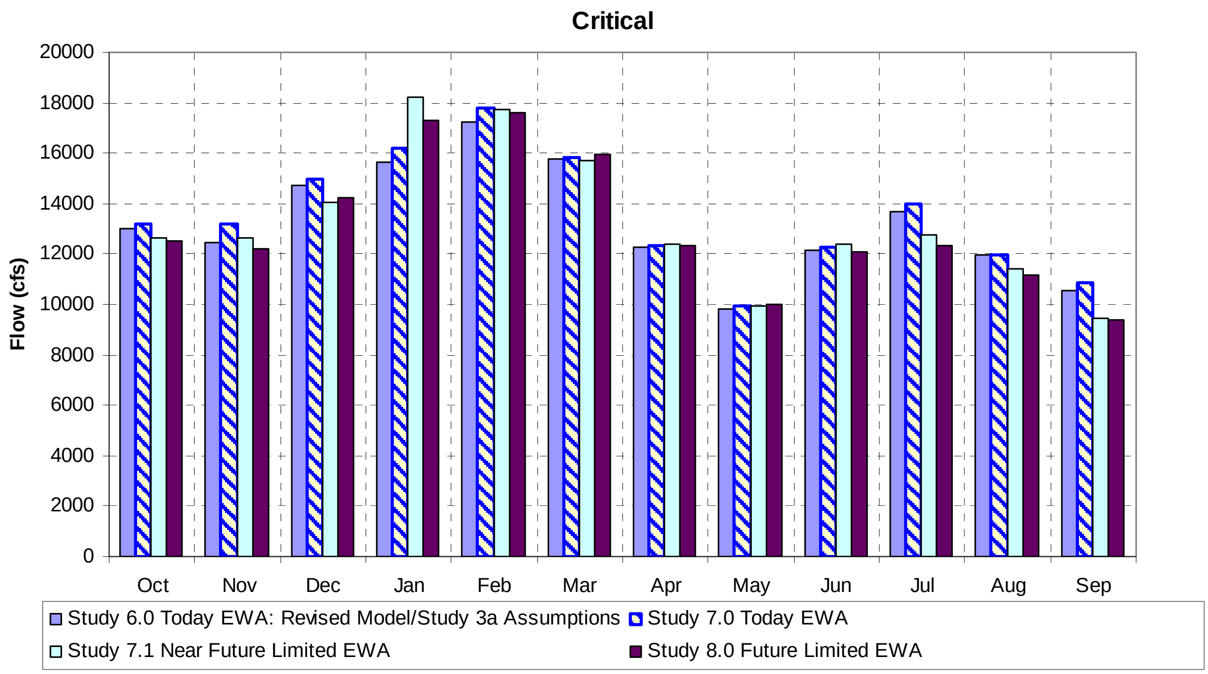

Figure 12-8 Average critical year (40-30-30 Classification) monthly Total Delta Inflow

Outflow

The chronology of Delta outflow is shown in Figure 12-9. Table 12-2 shows the difference in total outflow for the four studies. When comparing the differences from Studies 7.1 and 8.0 to Study 7.0 in Table 12-2 the average annual outflow decreases by 300 to 400 TAF for the long-term average. Study 8.0 shows a decrease in average Delta outflow of 100 TAF when compared to Study 7.1.

Both the percentile, average monthly, and average monthly by water year type for total Delta outflow can be seen in Figure 12-9 to Figure 12-16. The figures show some differences in the winter and spring months with the biggest differences in below normal, dry and critical years. The differences are generally in the late winter months where outflow increases are seen in Studies 6.0 and 7.0 versus the other two, due to Studies 6.0 and 7.0 being "full" EWA runs and the winter reductions in exports are occurring and pushing more of the flow out of the Delta.

Table 12-2 Differences in annual Delta Outflow and Excess Outflow for Long-term average and the 1929-1934 Drought

Difference in Thousands of Acre-feet [TAF]	Study 7.0 - Study 6.0	Study 7.1 - Study 7.0	Study 8.0 - Study 7.0	Study 8.0 - Study 7.1
Longterm Annual Average Total Delta Outflow	-149	-296	-400	-104
29 - 34 Annual Average Total Delta Outflow	-93	-195	-164	32

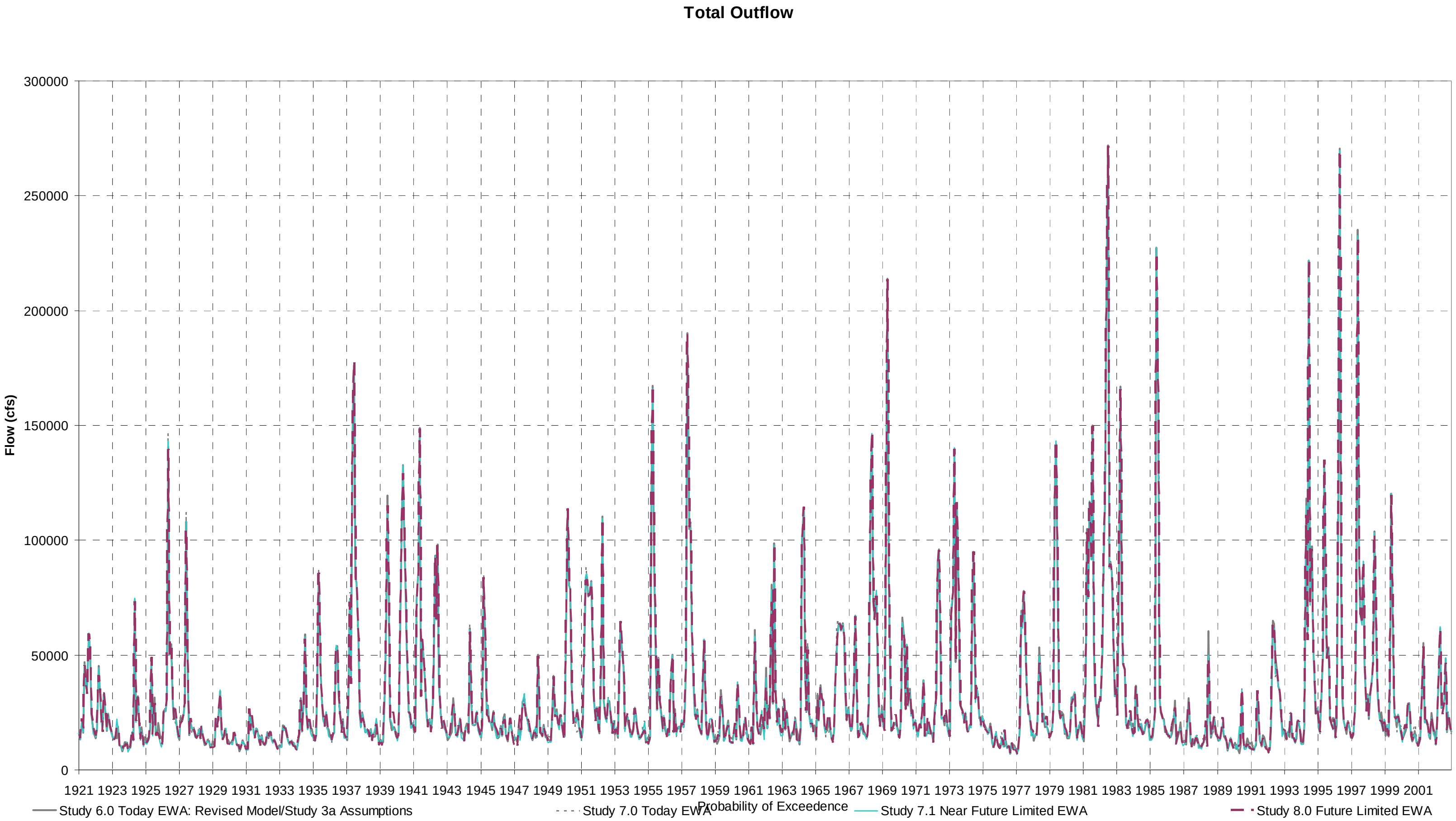

Figure 12-9 Chronology of Total Delta Outflow

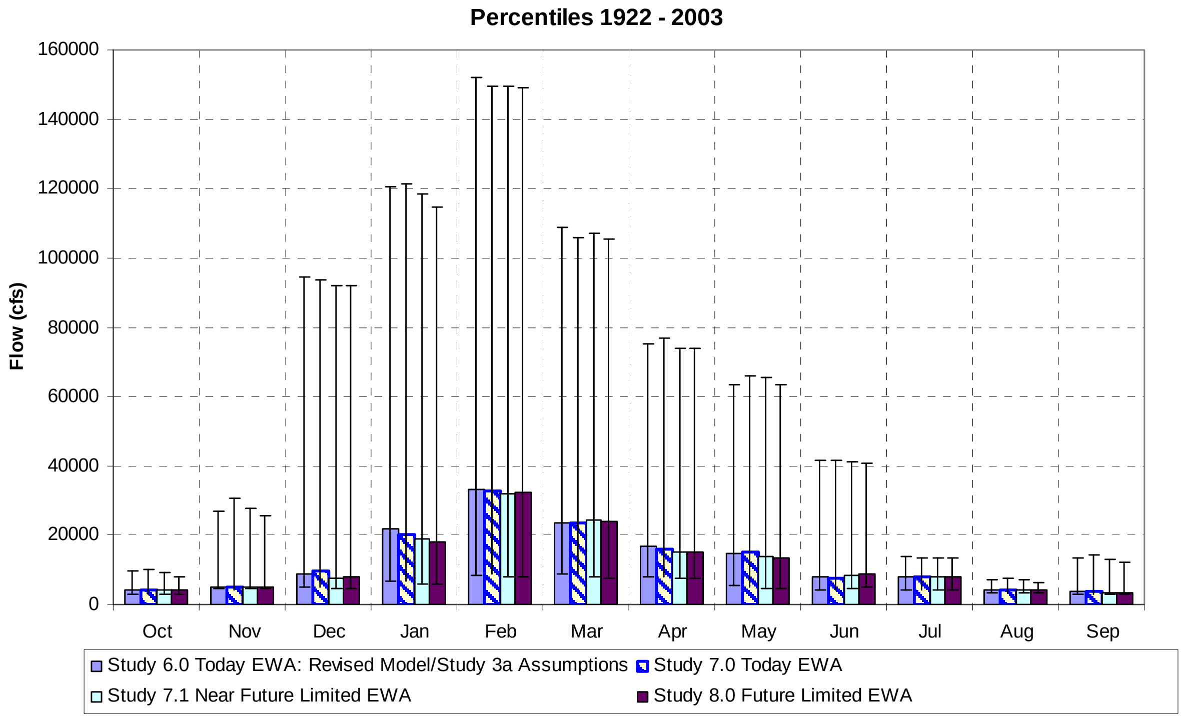

Figure 12-10 Total Delta Outflow 50th Percentile Monthly Flow with the 5th and 95th as the bars

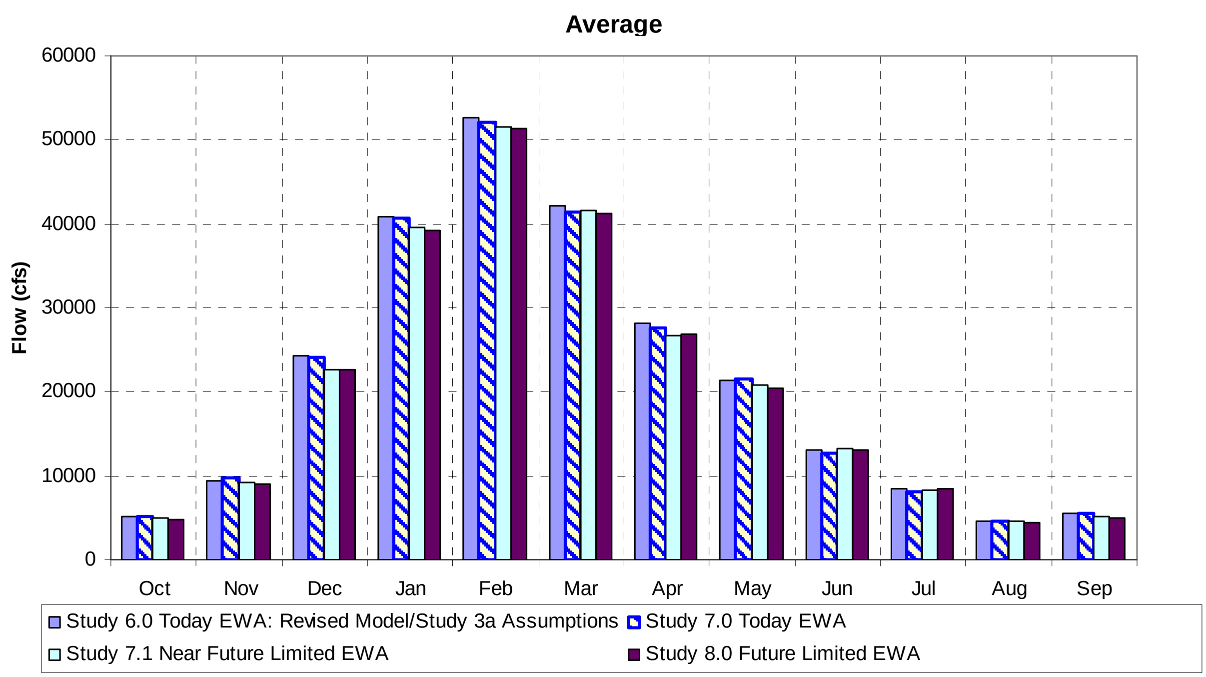

Figure 12-11 Average Monthly Total Delta Outflow

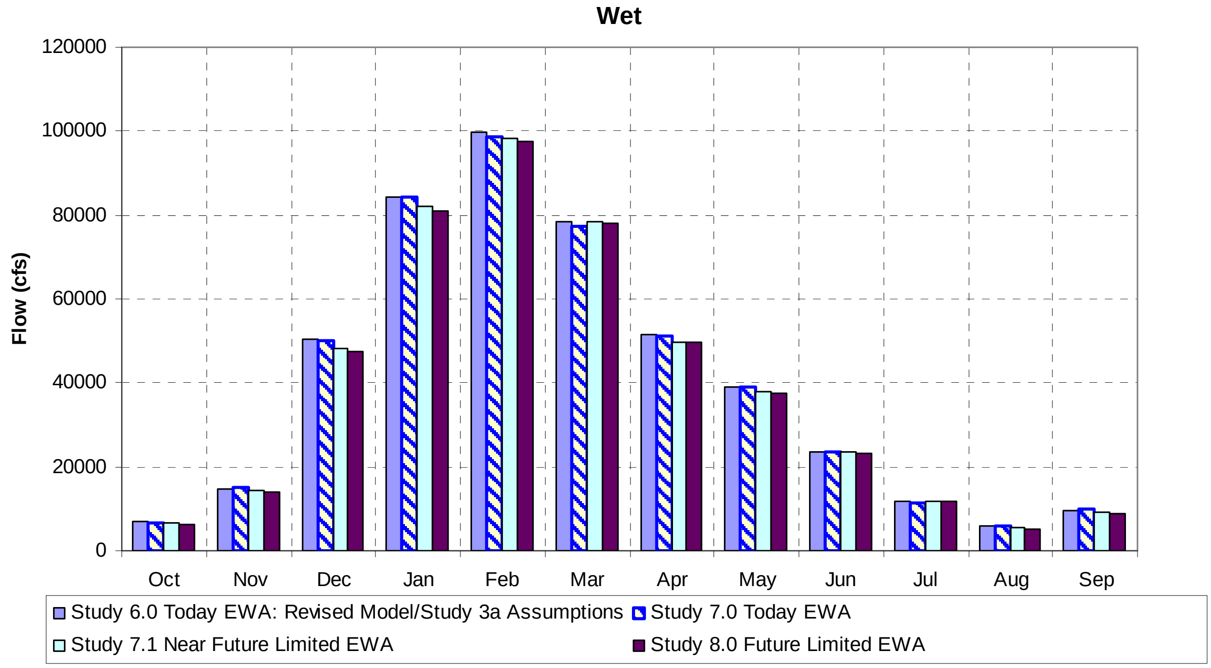

Figure 12-12 Average wet year (40-30-30 Classification) monthly Delta Outflow

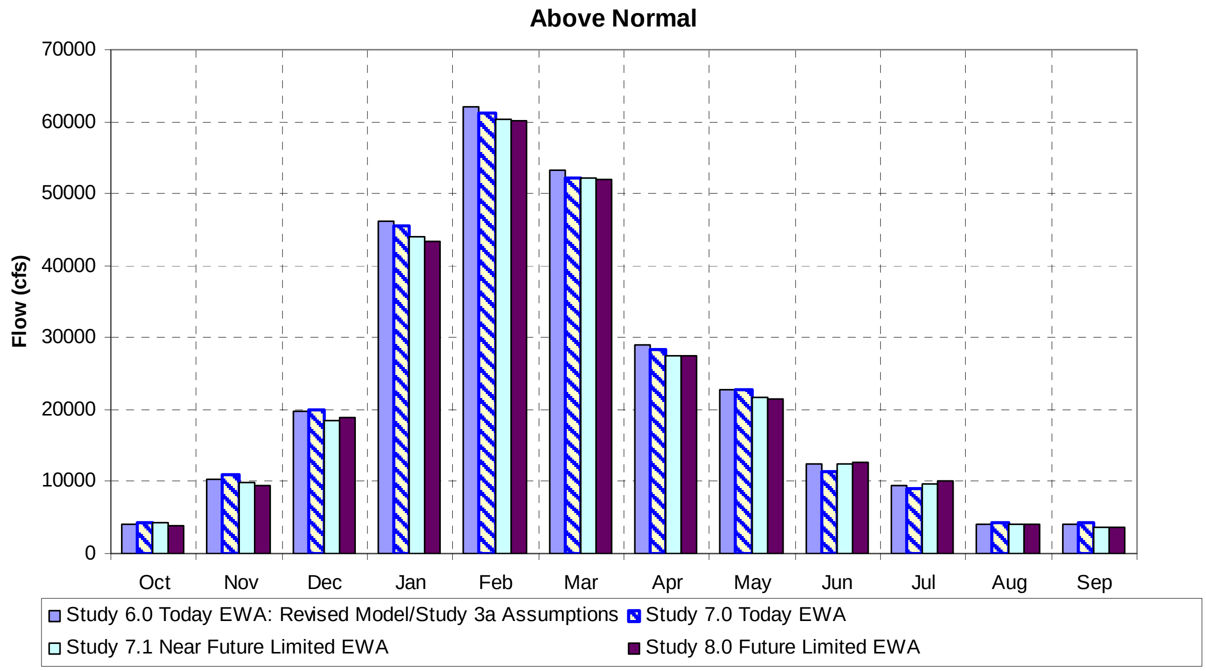

Figure 12-13 Average above normal year (40-30-30 Classification) monthly Delta Outflow

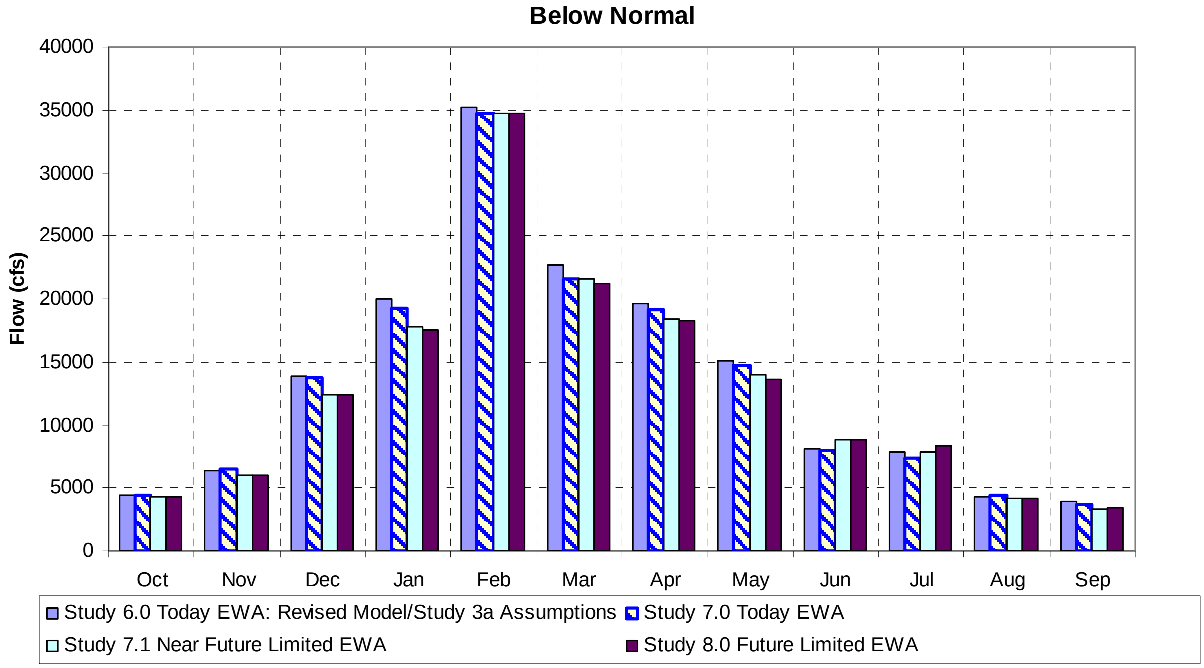

Figure 12-14 Average below normal year (40-30-30 Classification) monthly Delta Outflow

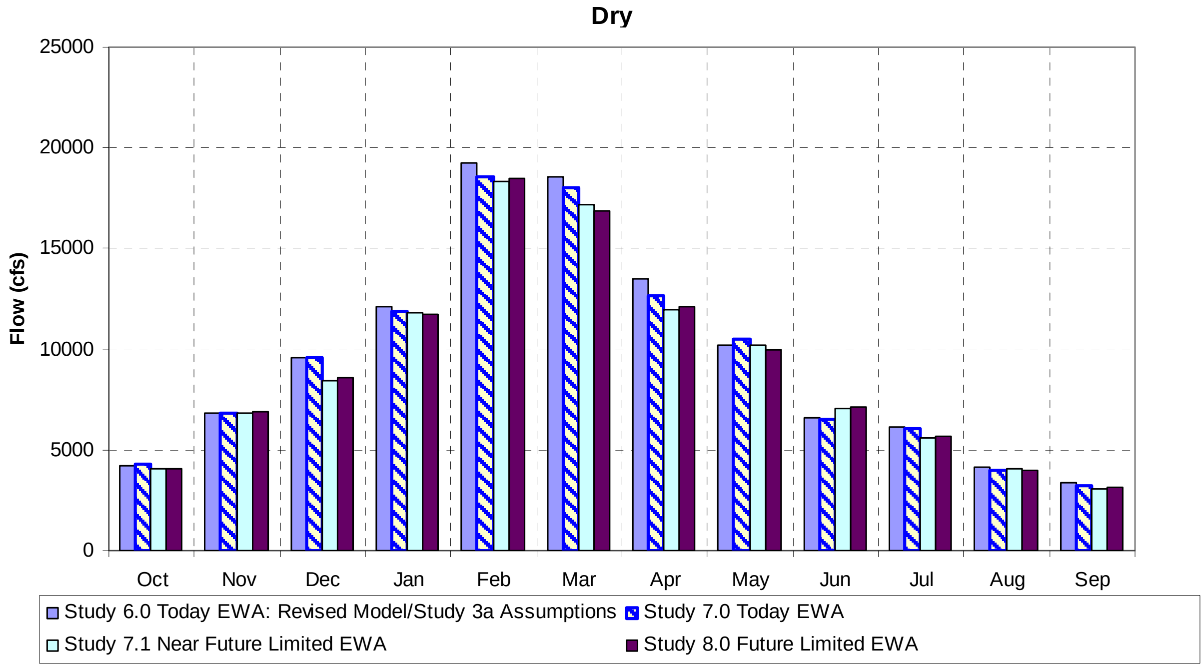

Figure 12-15 Average dry year (40-30-30 Classification) monthly Delta Outflow

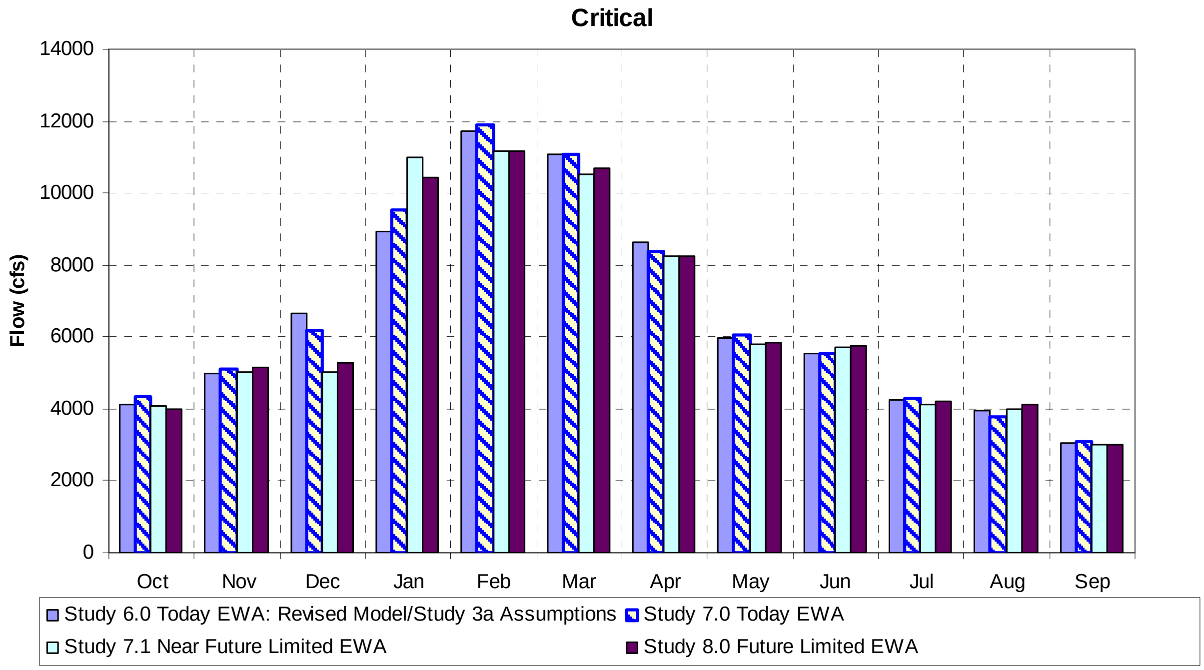

Figure 12-16 Average critical year (40-30-30 Classification) monthly Delta Outflow

Exports

The exports discussed in this section are Jones pumping, Banks pumping, Federal Banks pumping, and diversions for Contra Costa Water District (CCWD) and the North Bay Aqueduct (NBA). Figure 12-17 shows the total annual pumping of Jones and Banks facilities. Looking at Figure 12-17, Study 8.0 tends to be the more aggressive for pumping of the Studies on an annual basis because of the higher future demands south of the Delta. Study 8.0 also has lesser reductions in exports due to EWA actions relative to Studies 6.0 and 7.0. Study 7.1 also shows more aggressive annual pumping regimes due to a lesser amount of EWA actions relative to Studies 6.0 and 7.0 as well.

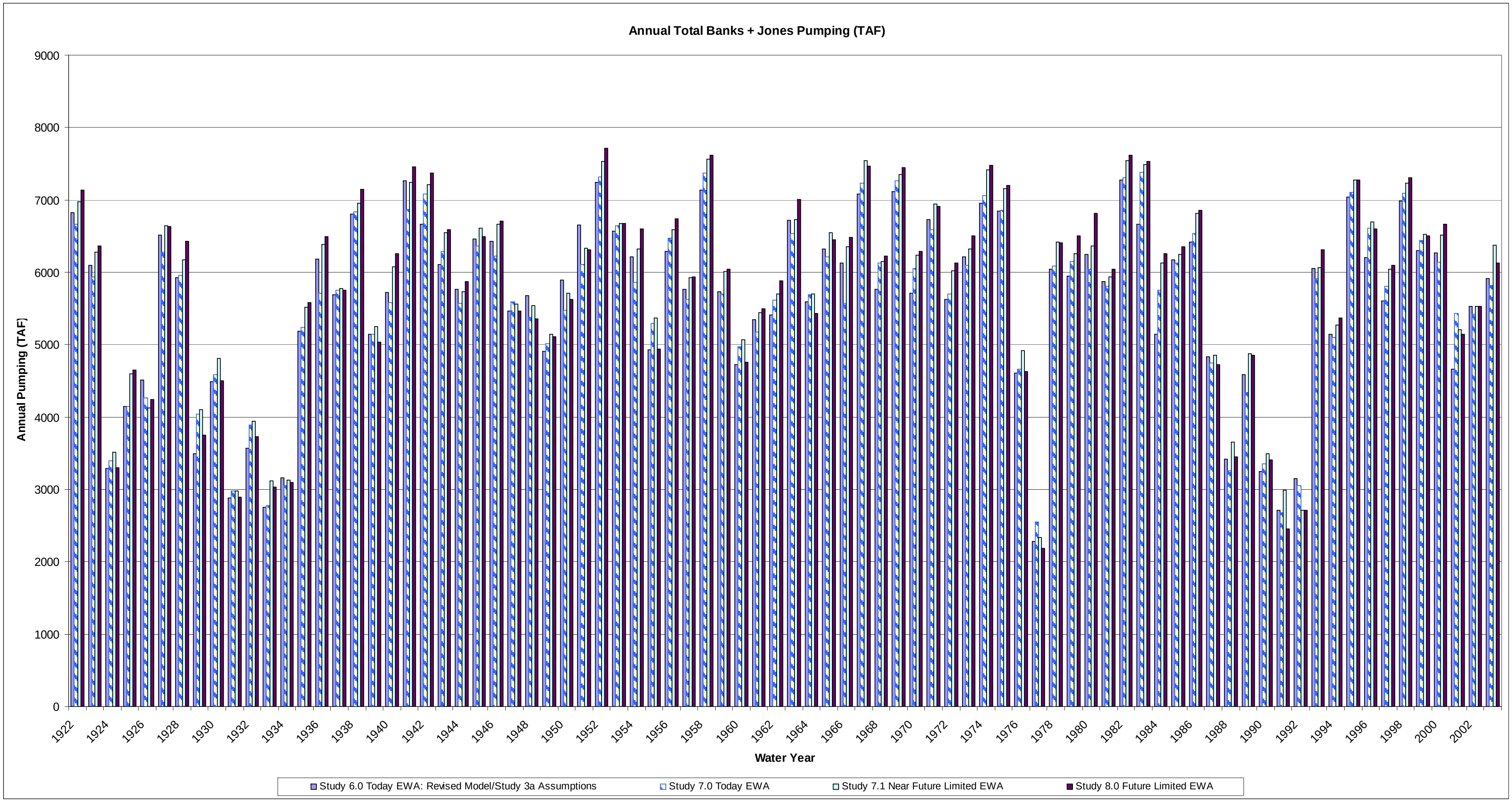

Figure 12-17 Total Annual Jones + Banks Pumping

Jones Pumping

The Jones pumping in Studies 6.0 and 7.0 is limited to 4,200 cfs plus the diversions upstream of the constriction in the Delta Mendota Canal (DMC). In Studies 7.1 and 8.0 the DMC/California Aqueduct Intertie allows pumping to increase to the facility design capacity of 4,600 cfs. Figure 12-18 shows the percentile values for monthly pumping at Jones. November through January are the months when Jones most frequently pumps at 4600 cfs with the 50th percentile at that level for most of the months in Studies 7.1 and 8.0. Wet years tend to be when Jones can utilize the 4,600 cfs pumping in Study 7.1 and Study 8.0 (see Figure 12-20).

From Figure 12-18 December through February the pumping is decreased during this time frame in Studies 6.0 and 7.0 due to the 25 taf/month pumping restriction from the EWA program. April, May, and June see reductions from the other months because of the Vernalis Adaptive Management Program (VAMP) restrictions and May has further reductions in the EWA studies due to EWA spending some assets to supplement the May Shoulder pumping reduction. July through September see pumping increasing between the three studies generally for irrigation deliveries. July and August have the 5th percentiles down to the 800 cfs minimum pumping (assumption of pumping rate with one pump on) and to 600 cfs when Shasta gets below 1,500 taf [taf or TAF] in storage.

Figure 12-19 to Figure 12-24 show similar trends in monthly average exports by year type, with pumping being greatest December through February and July through September.

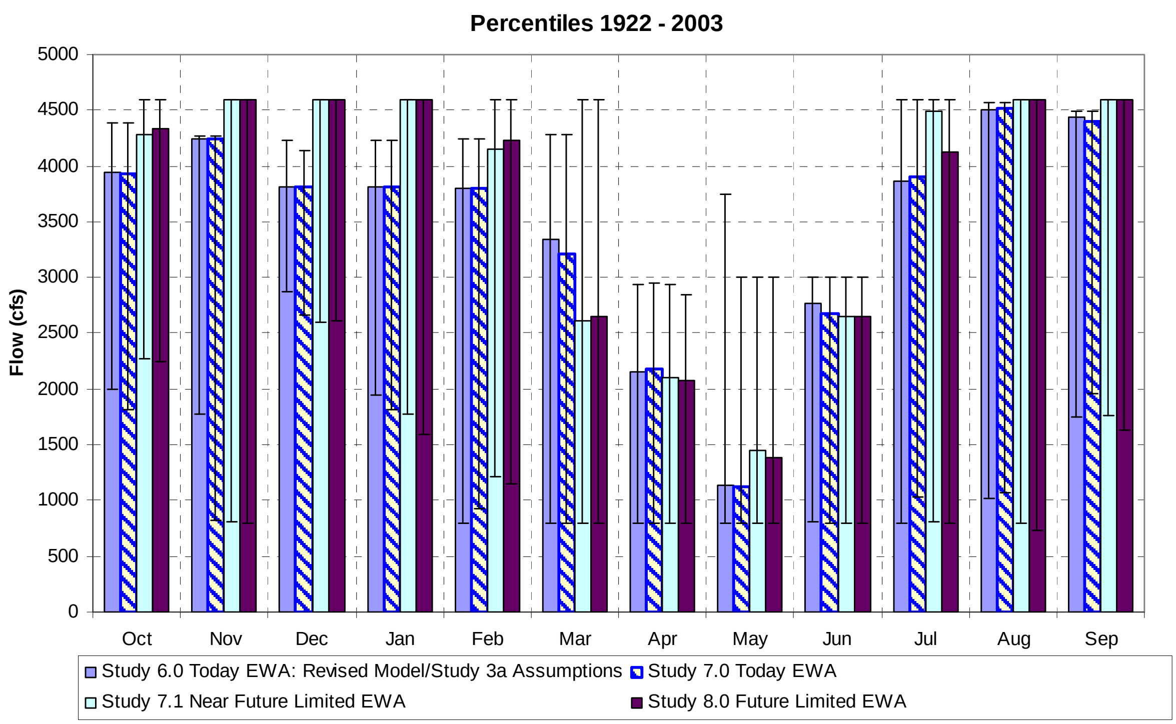

Figure 12-18 Jones Pumping 50th Percentile Monthly Export Rate with the 5th and 95th as the bars

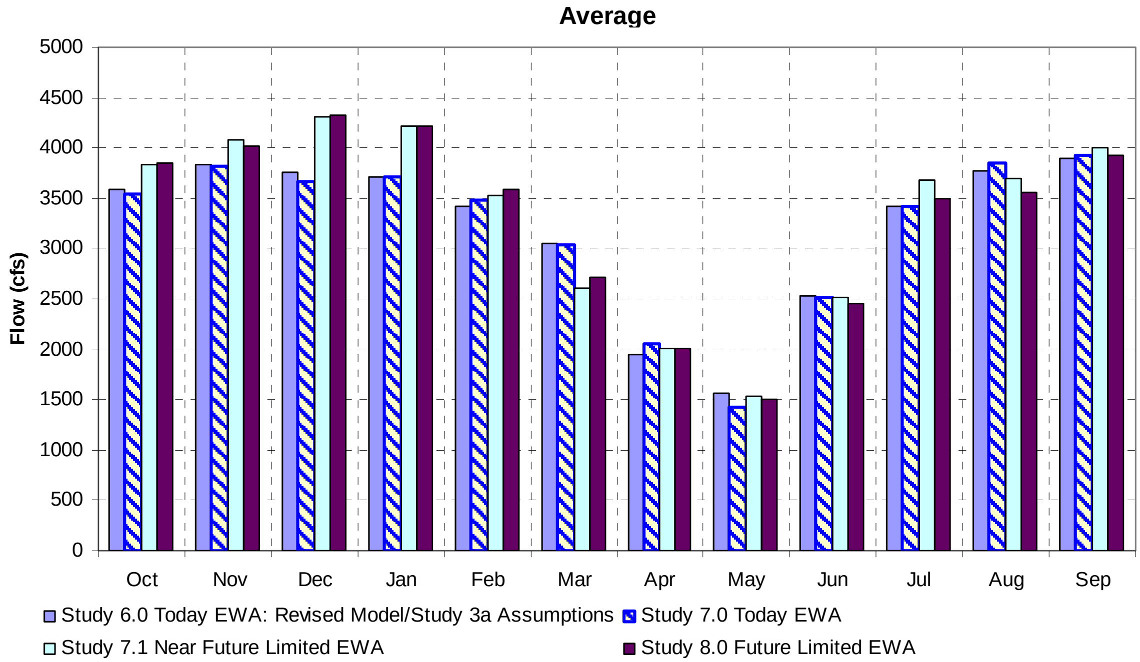

Figure 12-19 Average Monthly Jones Pumping

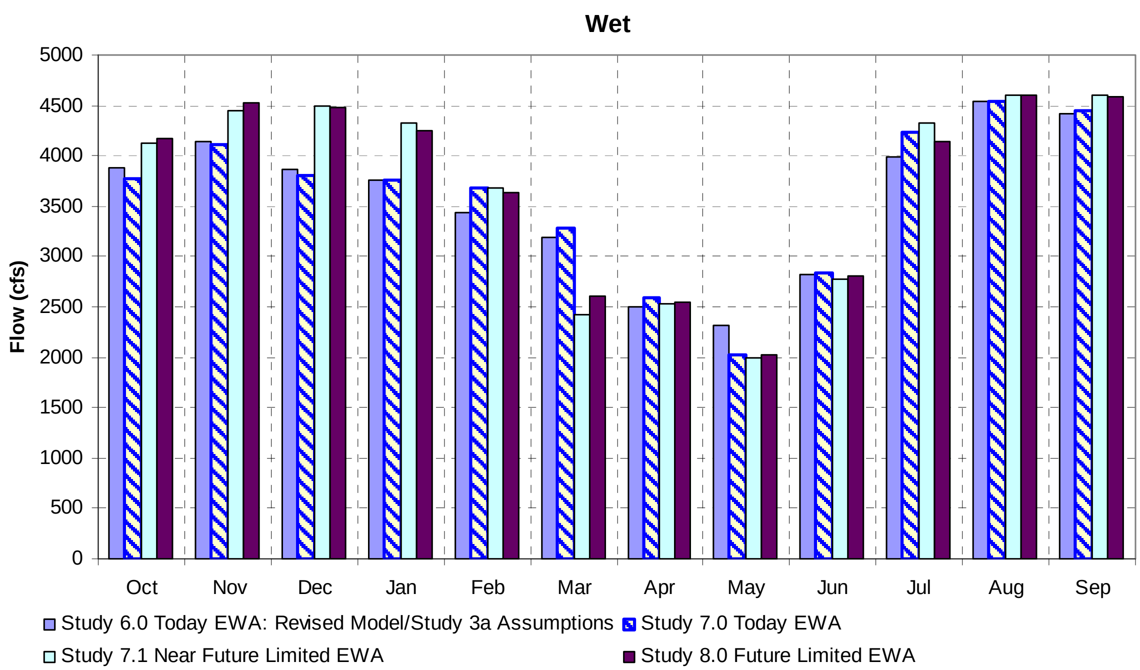

Figure 12-20 Average wet year (40-30-30 Classification) monthly Jones Pumping

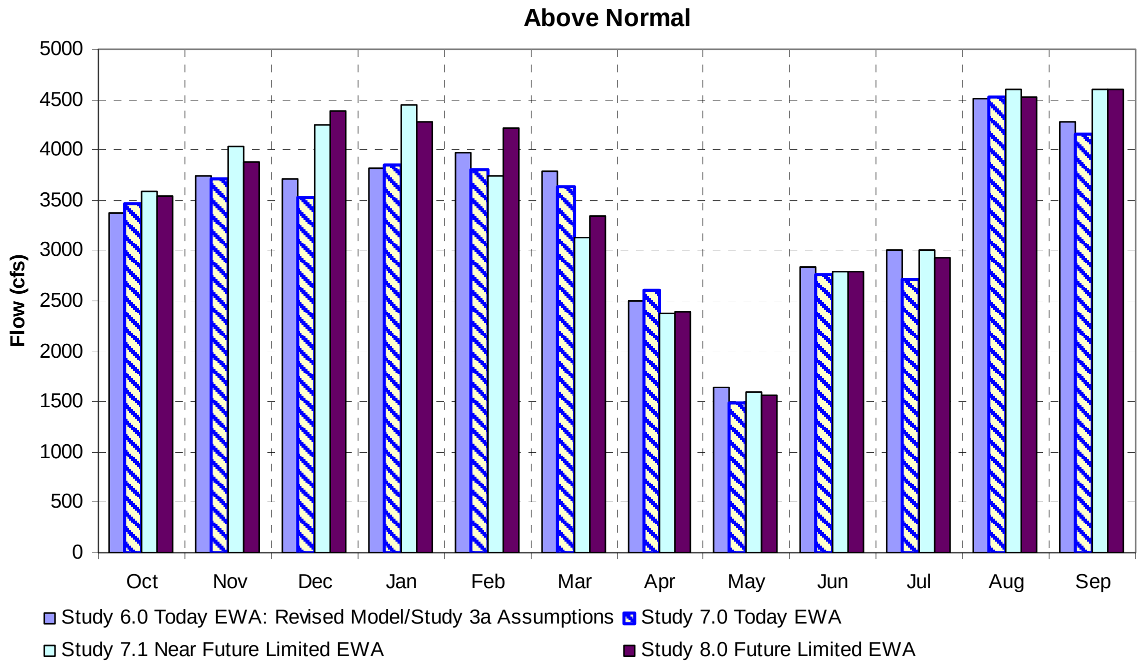

Figure 12-21 Average above normal year (40-30-30 Classification) monthly Jones Pumping

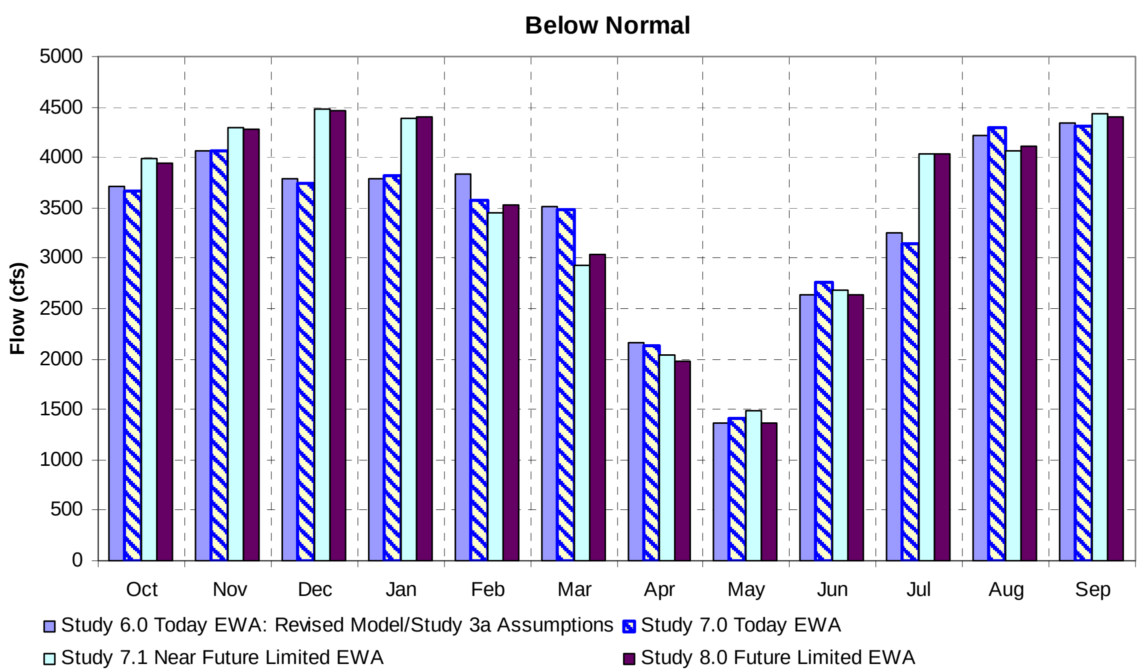

Figure 12-22 Average below normal year (40-30-30 Classification) monthly Jones Pumping

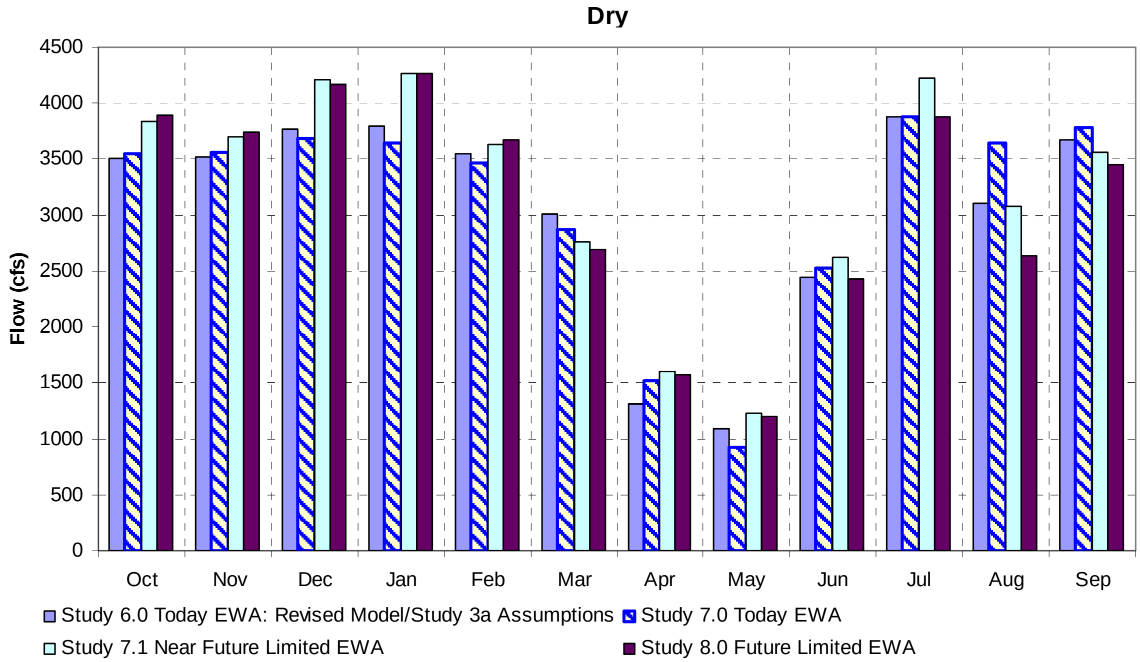

Figure 12-23 Average dry year (40-30-30 Classification) monthly Jones Pumping

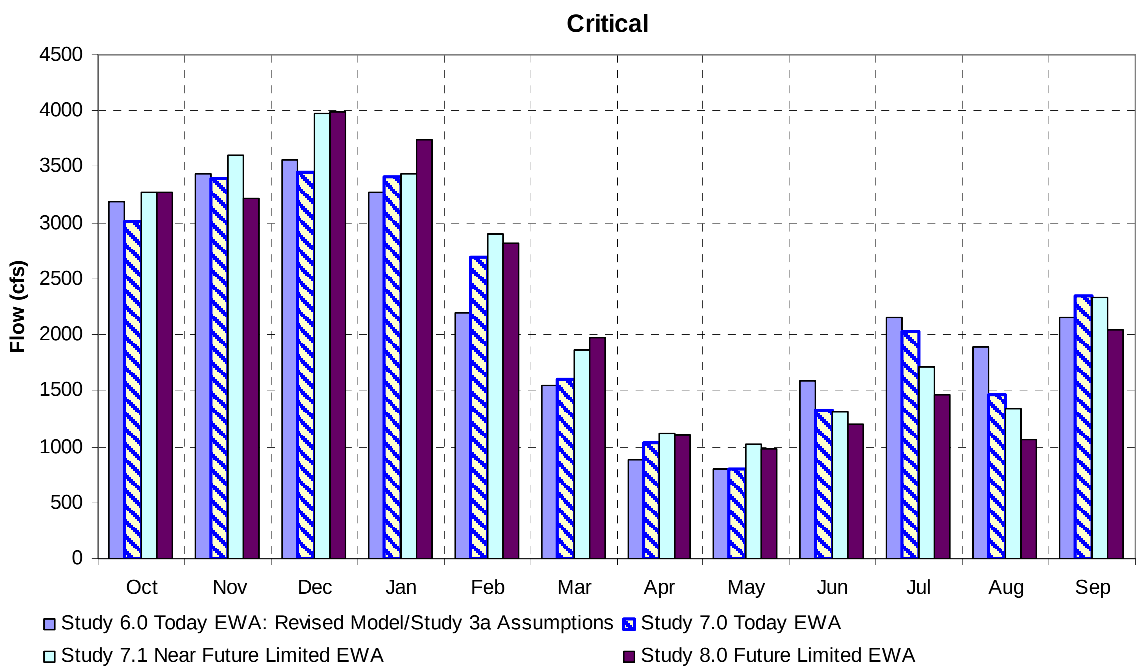

Figure 12-24 Average critical year (40-30-30 Classification) monthly Jones Pumping

Banks Pumping

Figure 12-25 through Figure 12-31 show total Banks exports for the four studies. Figure 12-25 shows a reduction in Banks pumping December, January, and February for Studies 6.0 and 7.0 due to the availability of a full EWA as compared to the limited EWA in Studies 7.1 and 8.0. In the limited EWA studies pumping reductions do not occur at Banks in the months of December to February. The figure also shows larger reductions in pumping during the April, May and June period for Studies 6.0 and 7.0 which is due to a greater amount of assets available in the full EWA. In Study 7.1 and 8.0 pumping reductions occur during VAMP up to the amount of assets in-hand and anticipated through Yuba Accord. During the summer period, July to September, Banks pumping utilizes the additional 500 cfs in order to wheel EWA assets in all of the studies.

Studies 6.0 and 7.0 show lower pumping in the winter and spring months when EWA reductions occur and higher pumping in the summer and fall month when wheeling EWA assets through Banks at a higher rate versus Studies 7.1 and 8.0 (see Figure 12-26 to Figure 12-31.).

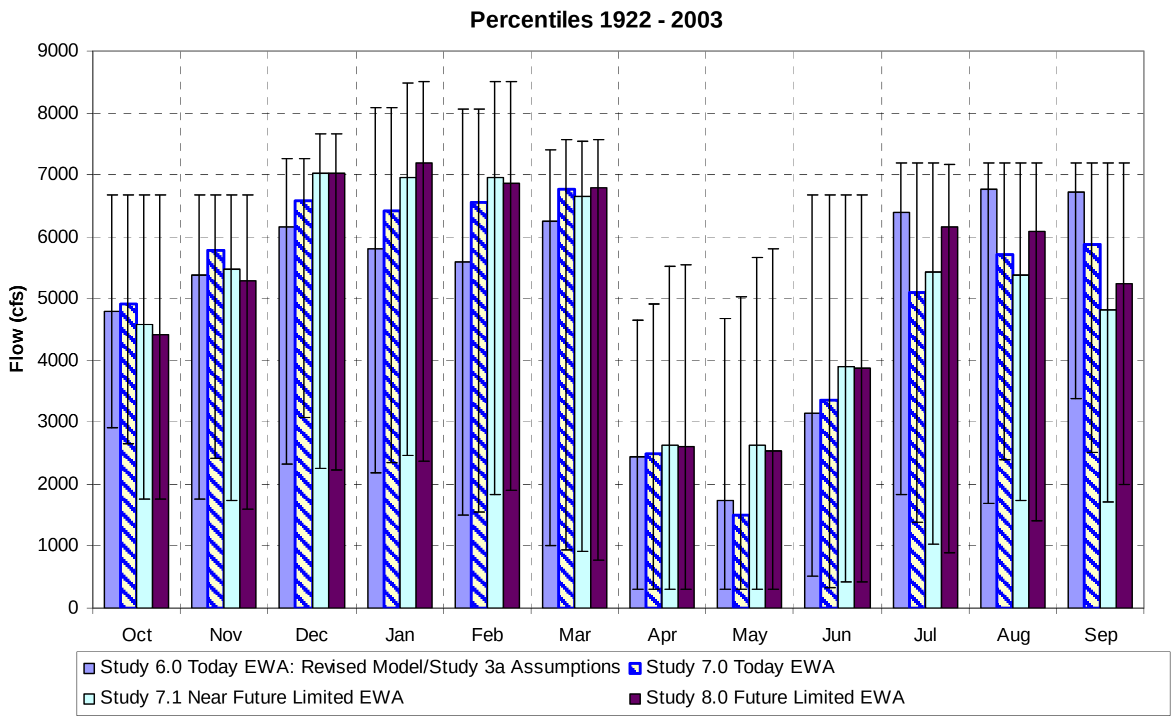

Figure 12-25 Banks Pumping 50th Percentile Monthly Export Rate with the 5th and 95th as the bars

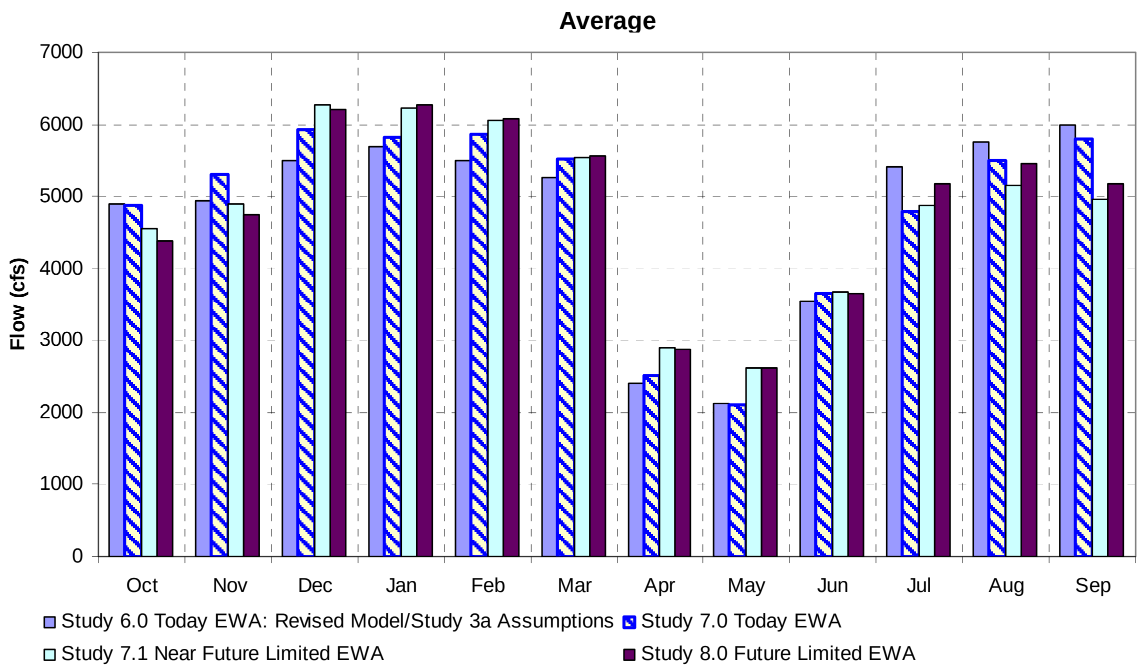

Figure 12-26 Average Monthly Banks Pumping

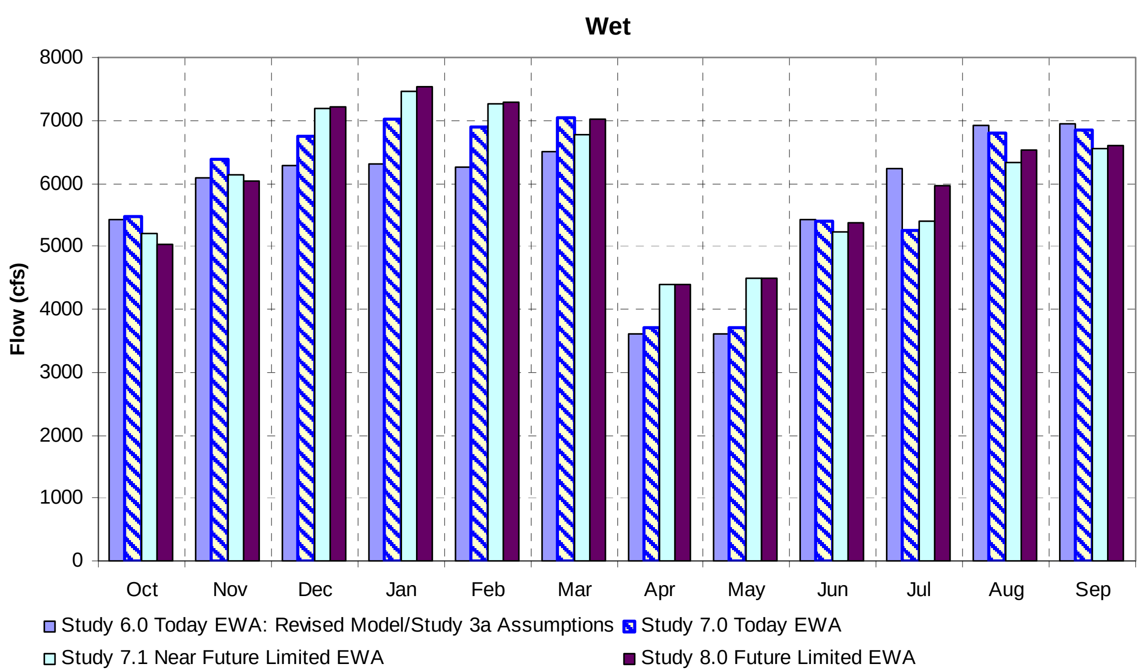

Figure 12-27 Average wet year (40-30-30 Classification) monthly Banks Pumping

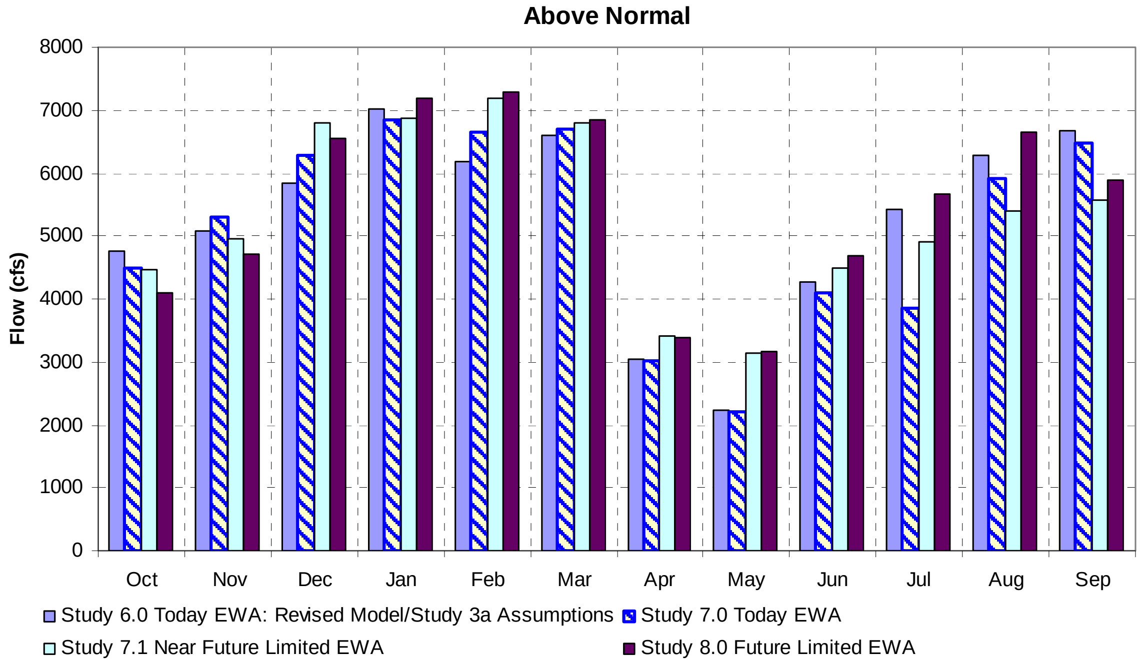

Figure 12-28 Average above normal year (40-30-30 Classification) monthly Banks Pumping

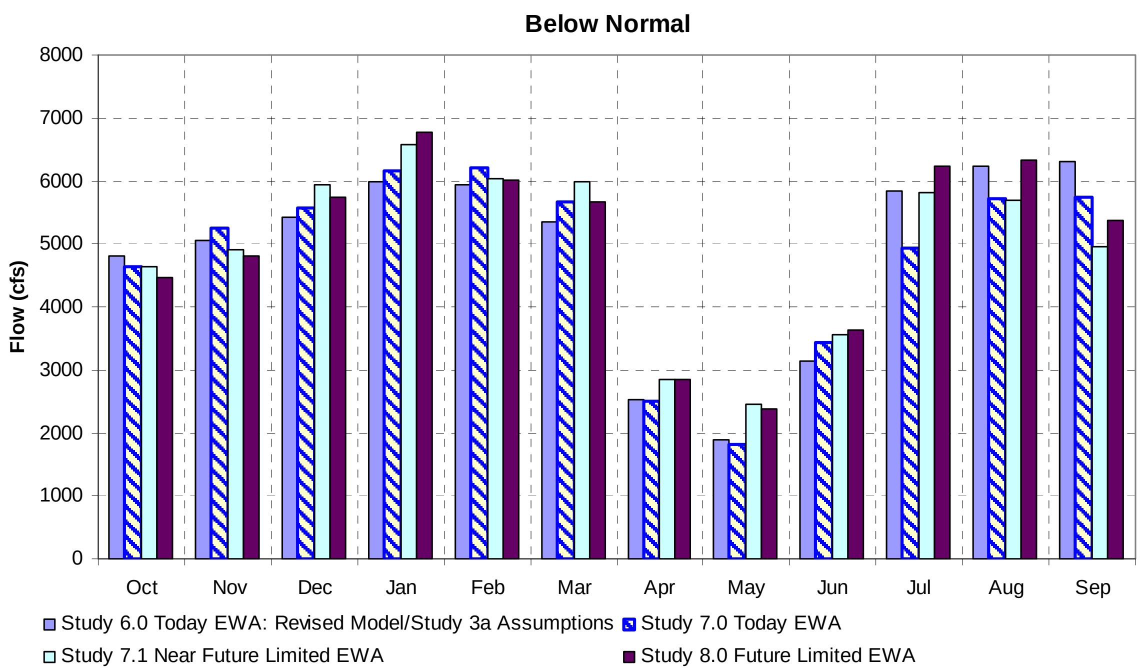

Figure 12-29 Average below normal year (40-30-30 Classification) monthly Banks Pumping

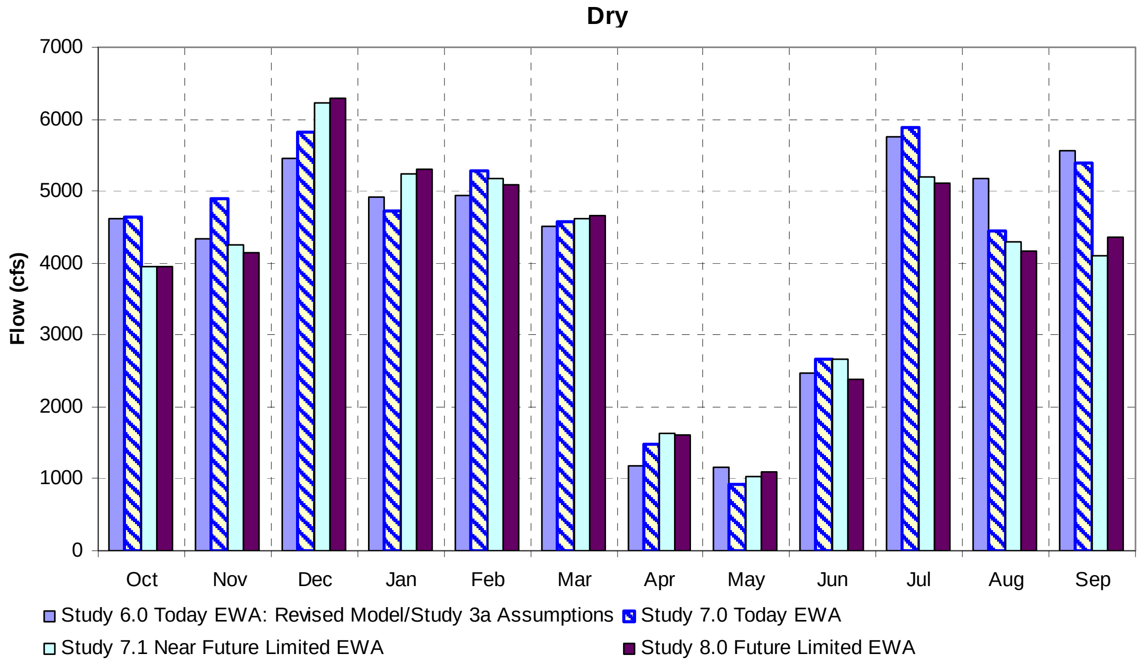

Figure 12-30 Average dry year (40-30-30 Classification) monthly Banks Pumping

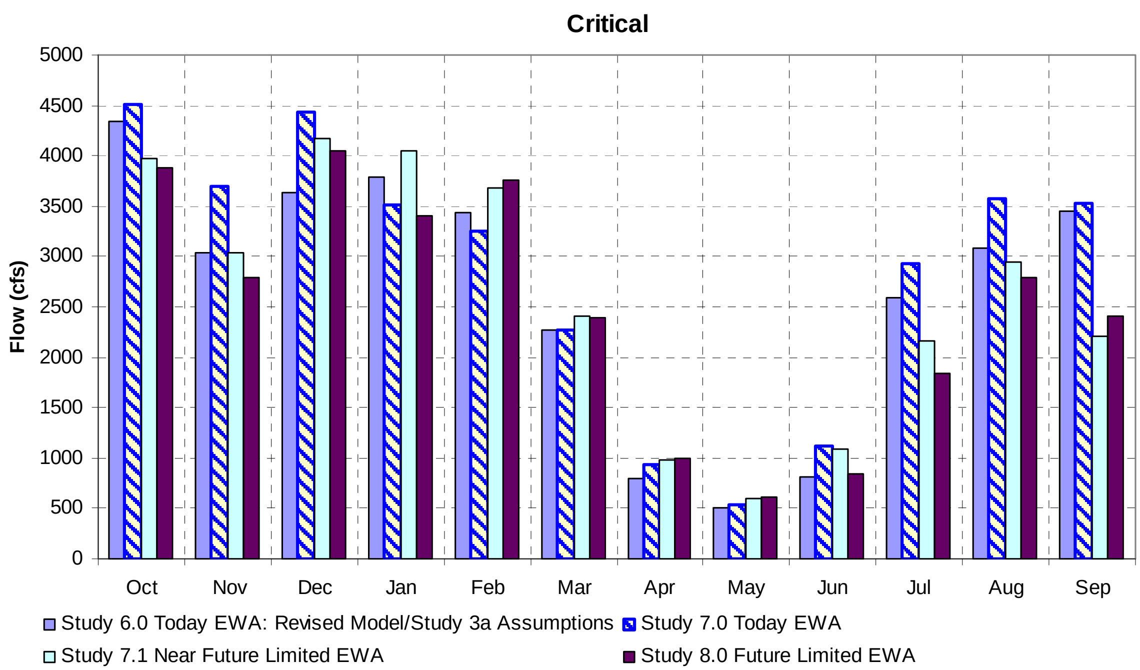

Figure 12-31 Average critical year (40-30-30 Classification) monthly Banks Pumping

Federal Banks Pumping

The use of Banks Pumping Plant for pumping CVP water is based on many factors including available capacity at Banks, available water upstream or in the Delta, and CVP South of Delta demand. Figure 12-32 shows the annual average use of Banks pumping for the CVP by study. Federal pumping at Banks generally occurs in the late summer months into October (Figure 12-33 through Figure 12-39). Some Federal pumping occurs during November through March for Cross Valley Contractors. For the most part, Federal Banks pumping is similar between the studies. However, Federal Banks pumping is a little higher in Study 7.1 due to the lack of EWA wheeling relative to Study 7.0. The available Banks capacity is reduced in Study 8.0 due to a higher SWP South of Delta demand which reduces the ability of Federal use of Banks pumping. Study 6.0 shows higher use of Federal Banks pumping primarily due to changes in the model logic. As described in Chapter 9, the intention of Study 6.0 was to mimic the assumptions in the OCAP BA 2004 model which included demand patterns. With the new demand patterns (Studies 7.0, 7.1, and 8.0) Article 56 is modeled explicitly, as discussed in the SWP Demand Assumptions section of this chapter starting on page 12-36. With modeling Article 56 is a requirement on San Luis storage to match the amount of Article 56 requested. This additional requirement reduces the amount of Federal Banks pumping during the late fall and early winter periods as shown in Figure 12-34 and Figure 12-35. Wet years show the most pumping at Banks, with pumping averages decreasing as the years get drier.

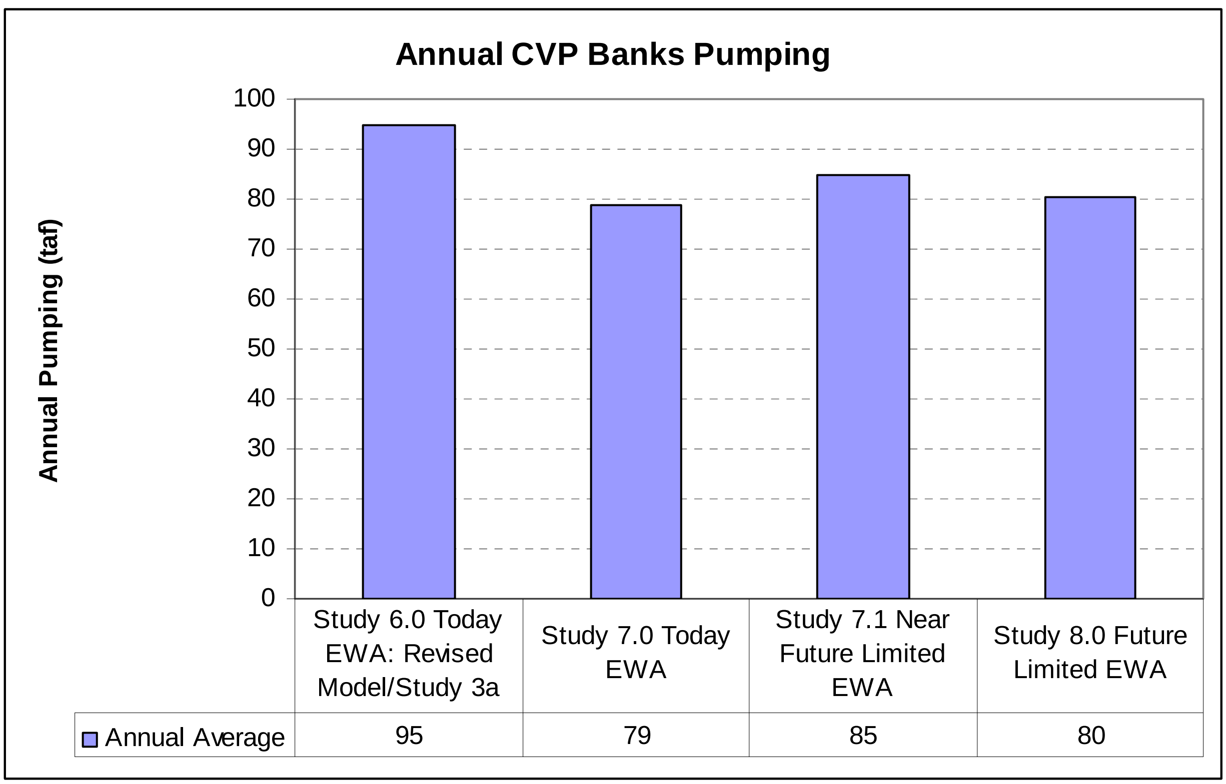

Figure 12-32 Average use of Banks pumping for the CVP

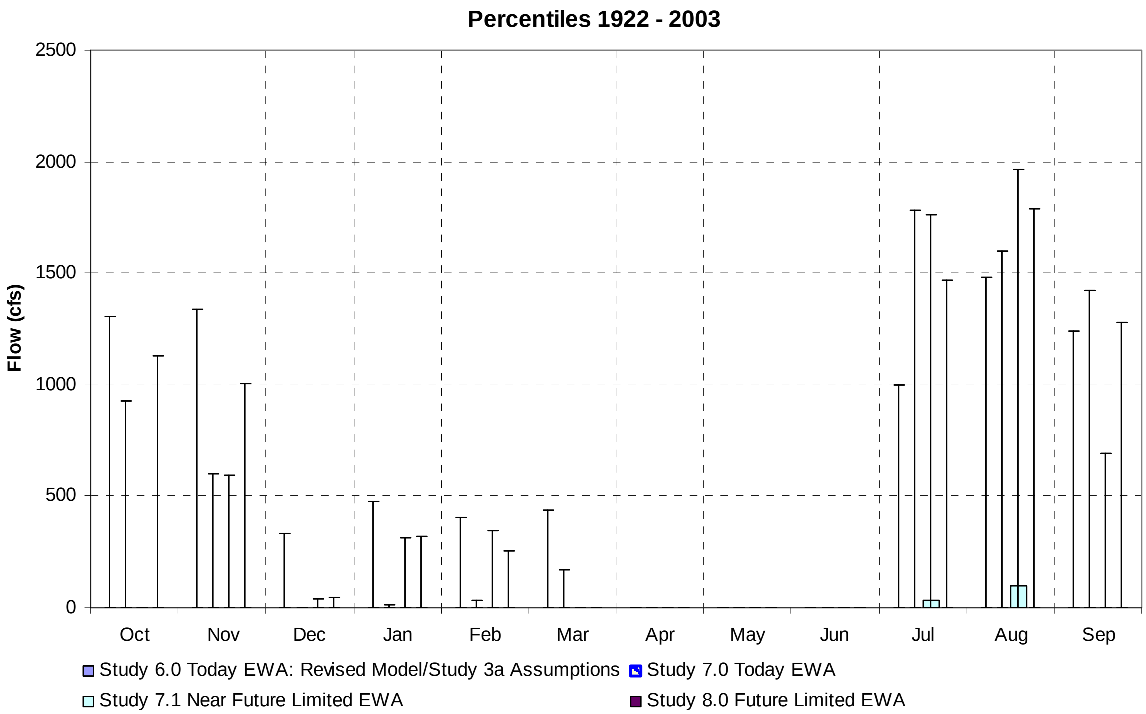

Figure 12-33 Federal Banks Pumping 50th Percentile Monthly Export Rate with the 5th and 95th as the bars

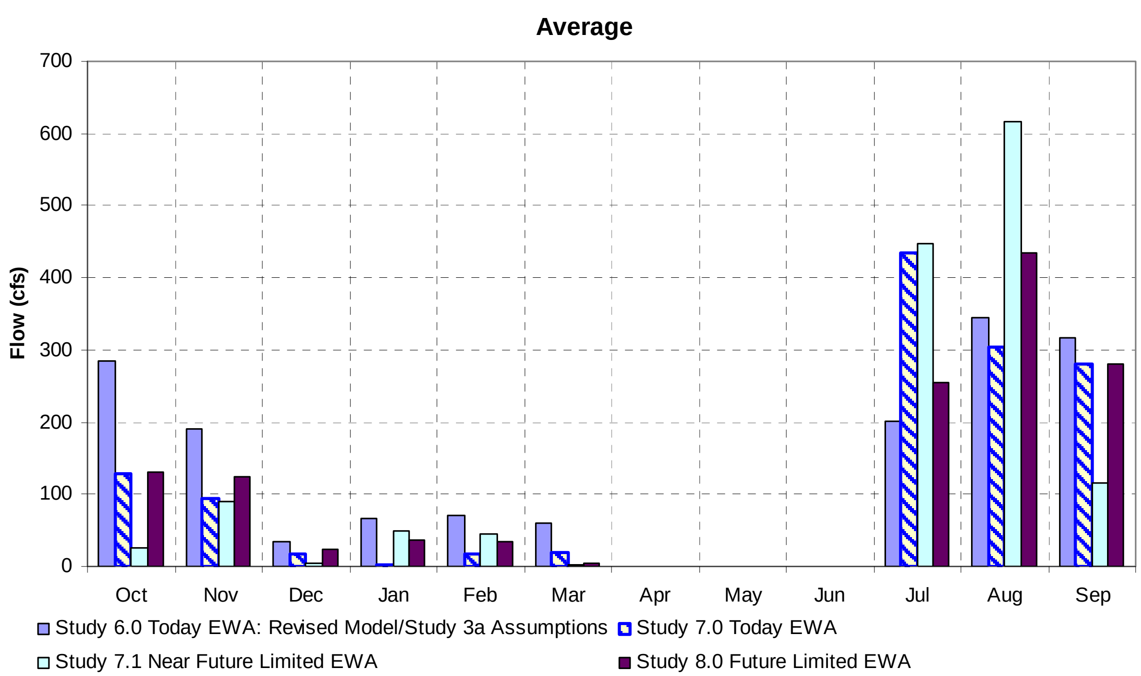

Figure 12-34 Average Monthly Federal Banks Pumping

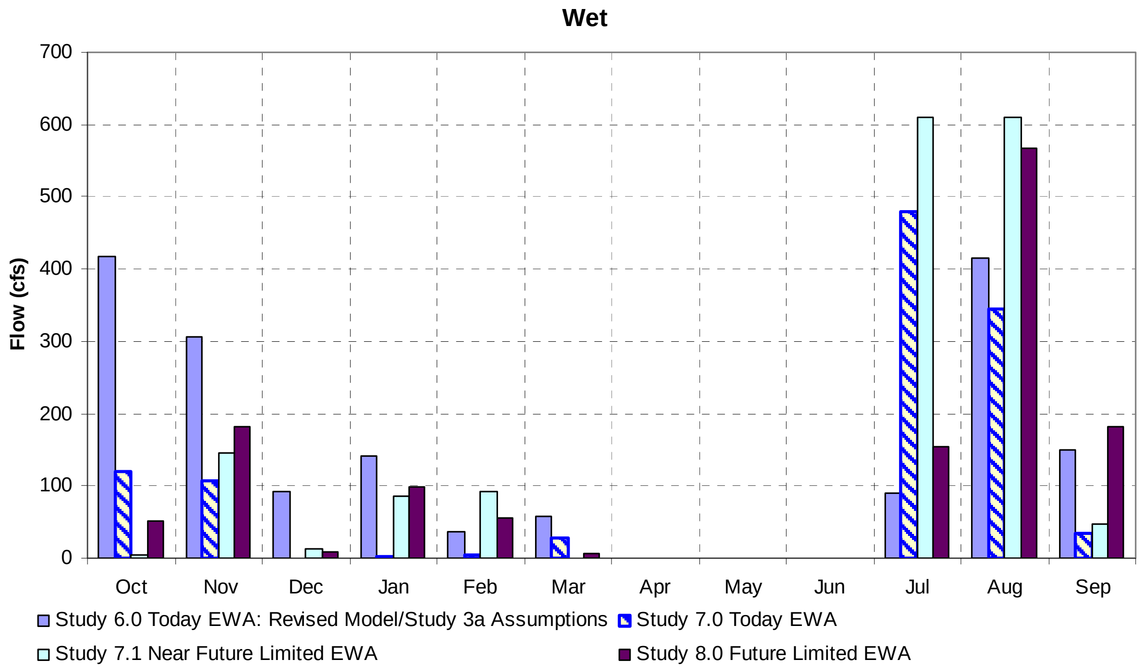

Figure 12-35 Average wet year (40-30-30 Classification) monthly Federal Banks Pumping

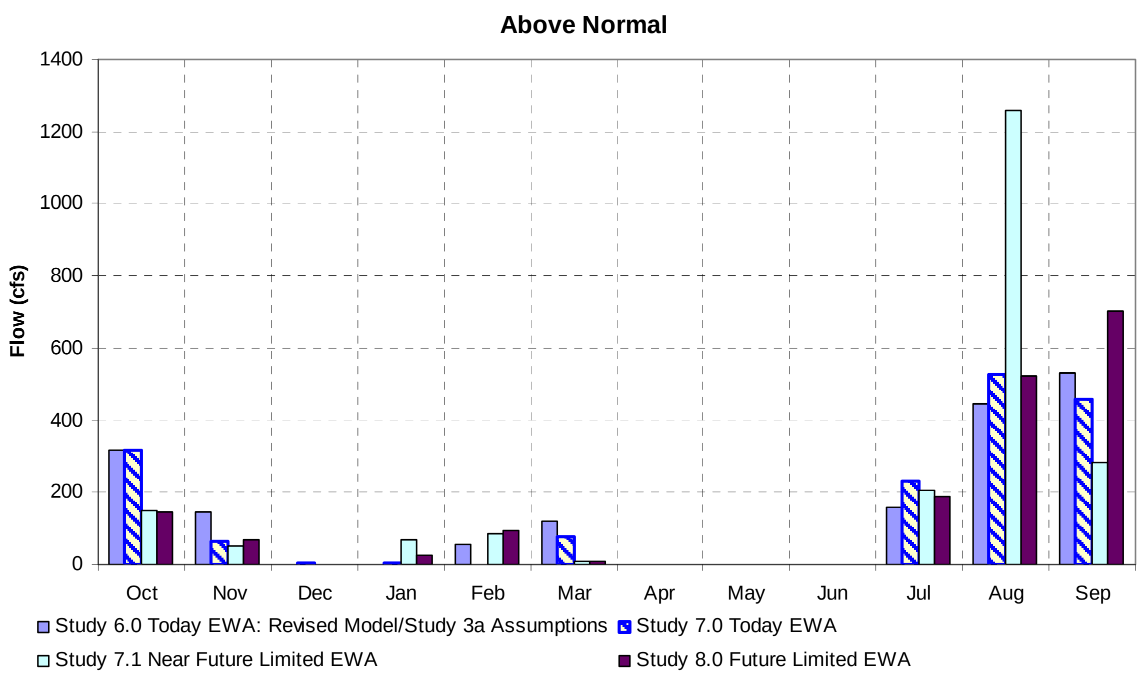

Figure 12-36 Average above normal year (40-30-30 Classification) monthly Federal Banks Pumping

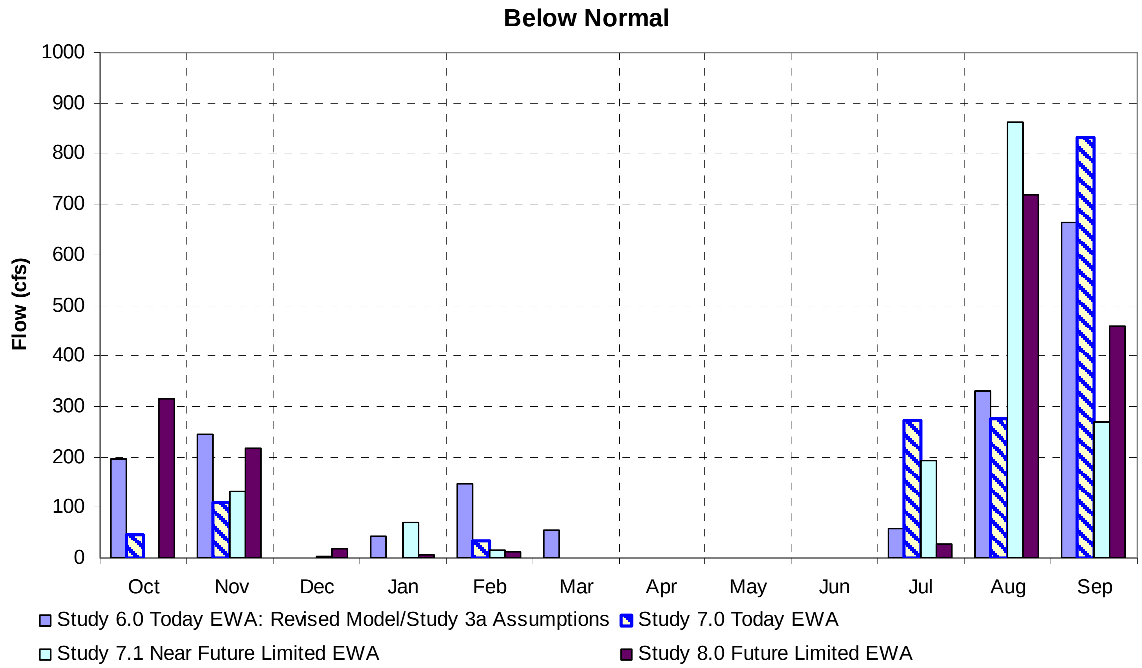

Figure 12-37 Average below normal year (40-30-30 Classification) monthly Federal Banks Pumping

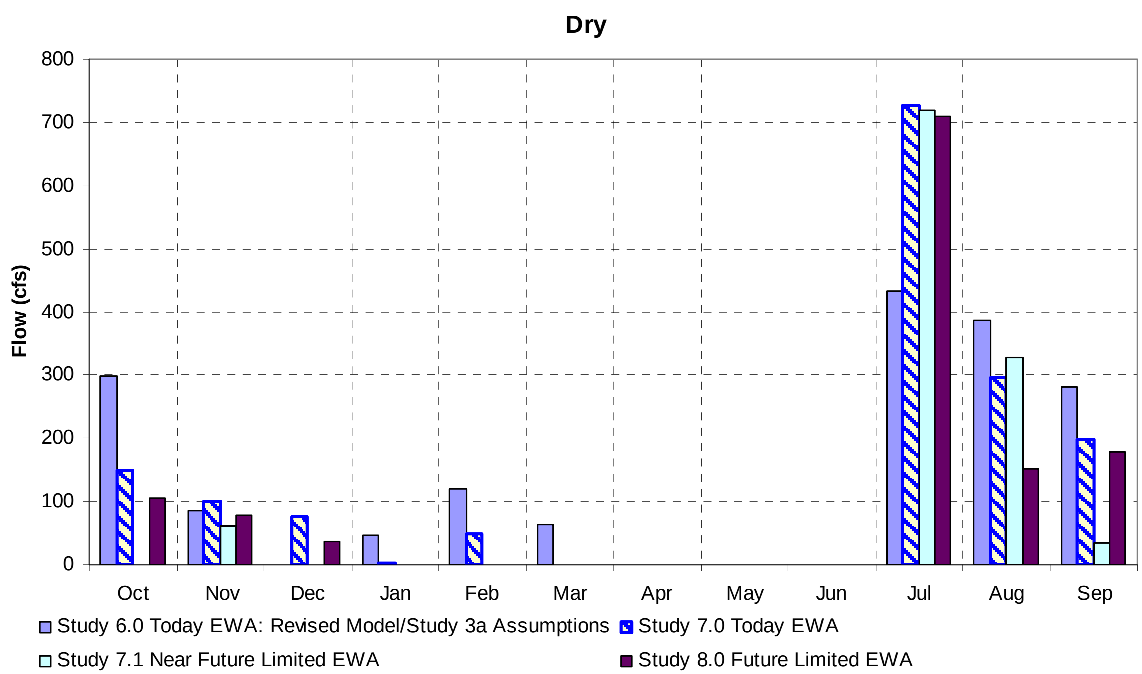

Figure 12-38 Average dry year (40-30-30 Classification) monthly Federal Banks Pumping

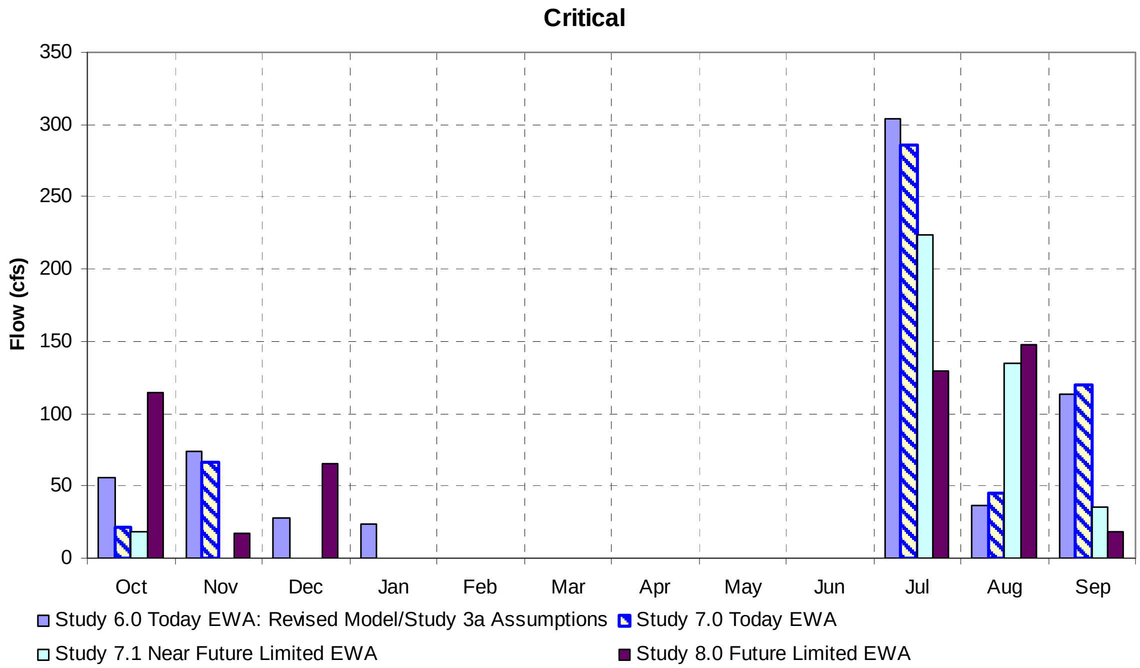

Figure 12-39 Average critical year (40-30-30 Classification) monthly Federal Banks Pumping

North Bay Aqueduct Diversions

Diversions from the NBA had no significant differences between the Existing to the Future Studies (see Table 12-3). Most of the diversions occur during the late summer months and extend into October for the NBA (Figure 12-40).

Table 12-3 Average Annual and Long-term Drought Differences in North Bay Aqueduct

Difference in Thousands of Acre-feet [TAF]	Study 7.0 - Study 6.0	Study 7.1 - Study 7.0	Study 8.0 - Study 7.0	Study 8.0 - Study 7.1
Longterm Annual Average North Bay Aqueduct	43	-3	7	10
29 - 34 Annual Average North Bay Aqueduct	32	0	1	1

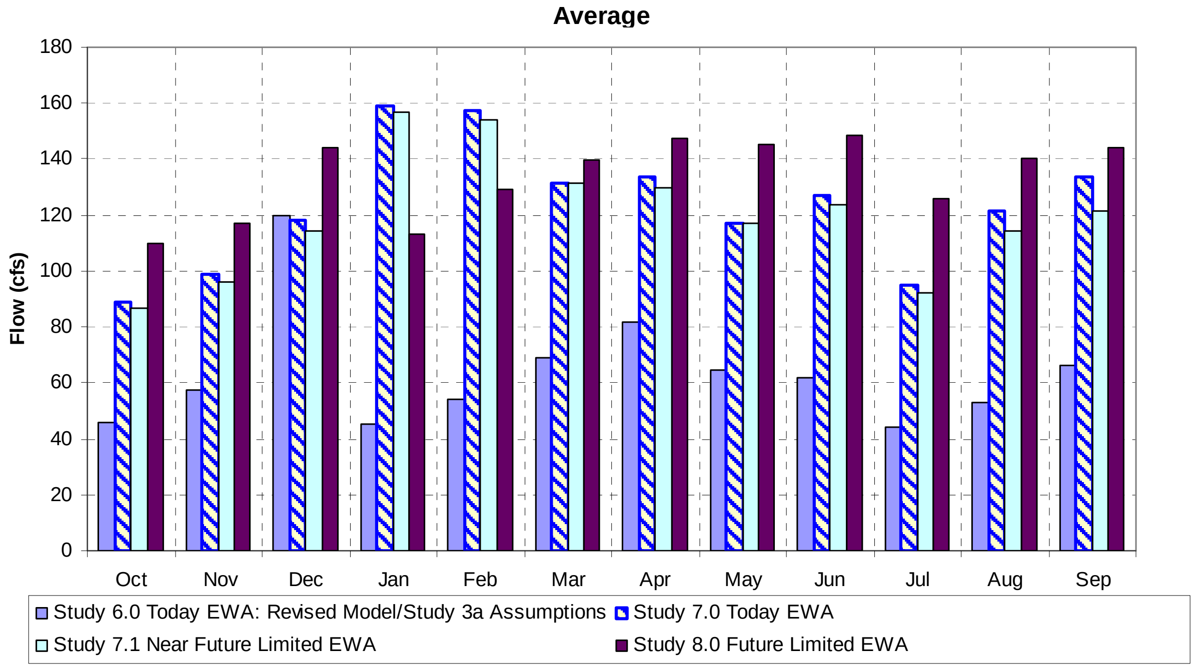

Figure 12-40 Average Monthly North Bay Aqueduct Diversions from the Delta

Export-to-Inflow Ratio

Figure 12-41 to Figure 12-46 show the E/I ratio on a monthly long-term average basis and averaged monthly by 40-30-30 index. From Figure 12-41 to Figure 12-46 during months where EWA actions are taken, the E/I ratio decreases (December, January, February, April, May and June) in Studies 6.0 and 7.0 compared to 7.1 and 8.0. The later summer months show increases in E/I due to increased pumping with the exception of some dry and critical years in the limited EWA runs due to either reduced storage or worsening salinity requirements. While Studies 6.0 and 7.0 shows increased EI Ratios in the summer months relative to the springtime due to wheeling of EWA assets.

Figure 12-47 to Figure 12-58 show the monthly E/I ratios sorted from wettest to driest by 40-30-30 Index. The graphs show generally the same trend as Figure 12-41 to Figure 12-46. Where Studies 6.0 and 7.0 show lower E/I ratios in the months when the full EWA is taking more actions in the winter and springtime relative to the limited EWA runs 7.1 and 8.0 that do not take any winter actions and limit EWA actions in the spring.

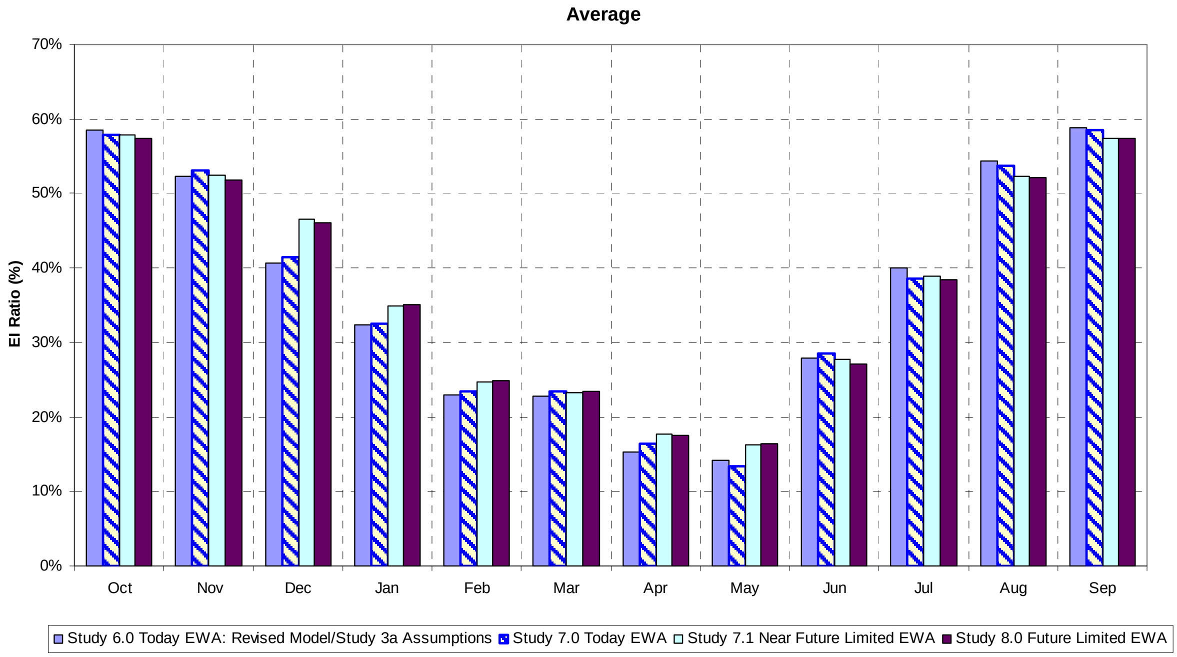

Figure 12-41 Average Monthly export-to-inflow ratio

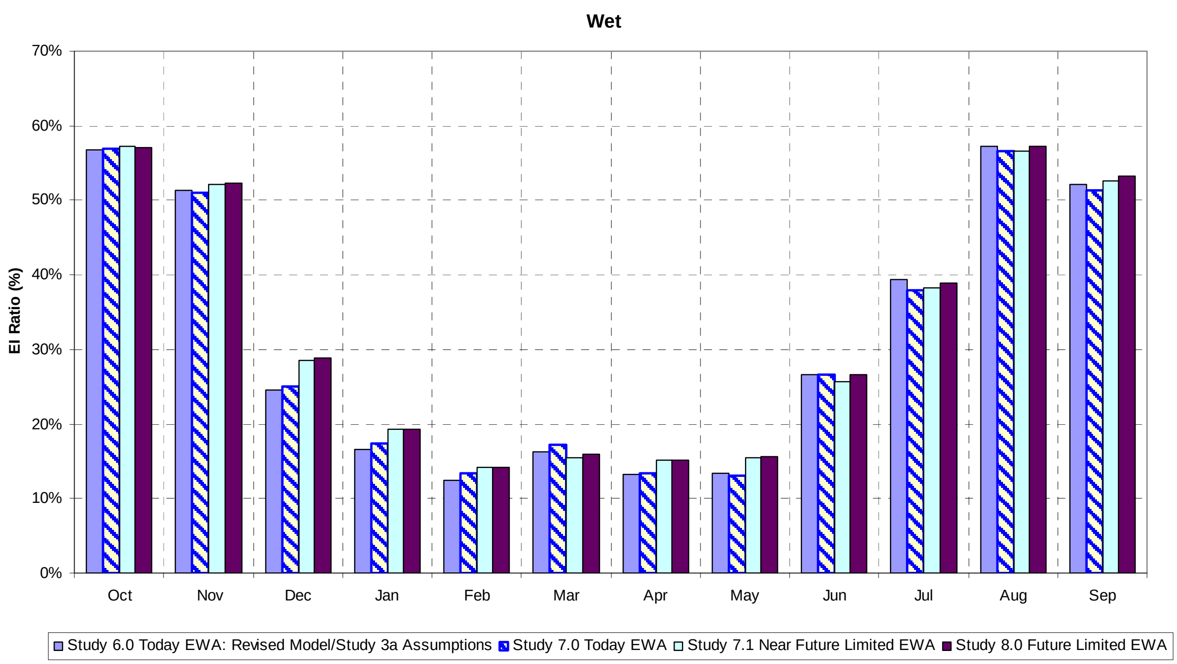

Figure 12-42 Average wet year (40-30-30 Classification) monthly export-to-inflow ratio

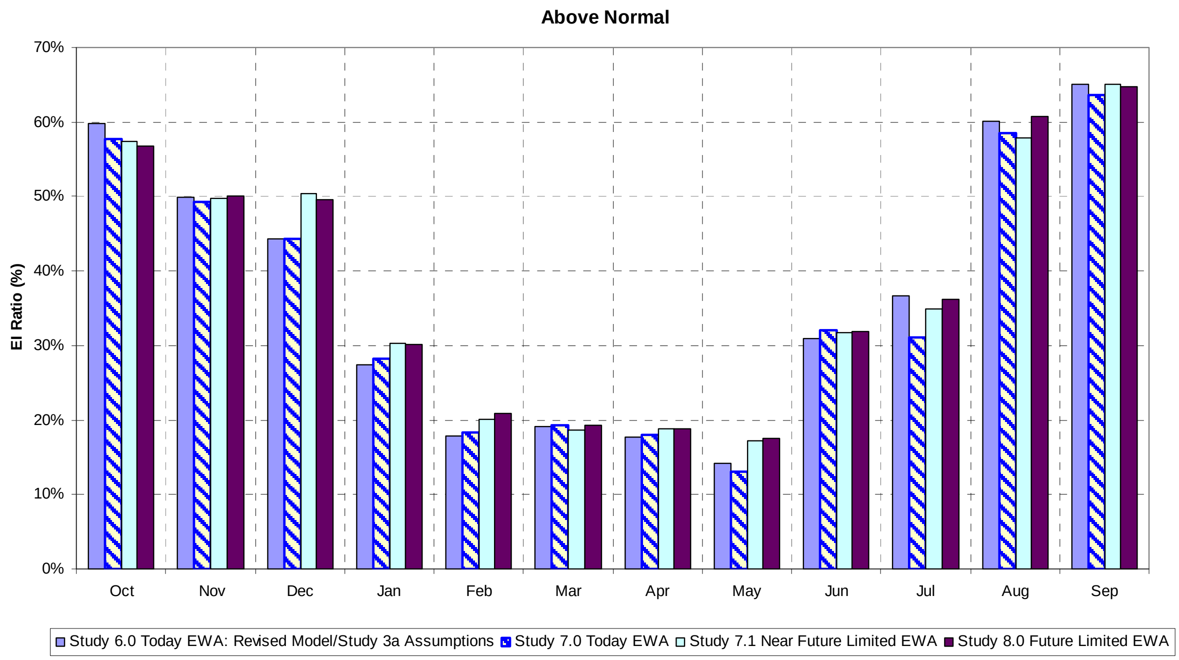

Figure 12-43 Average above normal year (40-30-30 Classification) monthly export-to-inflow ratio

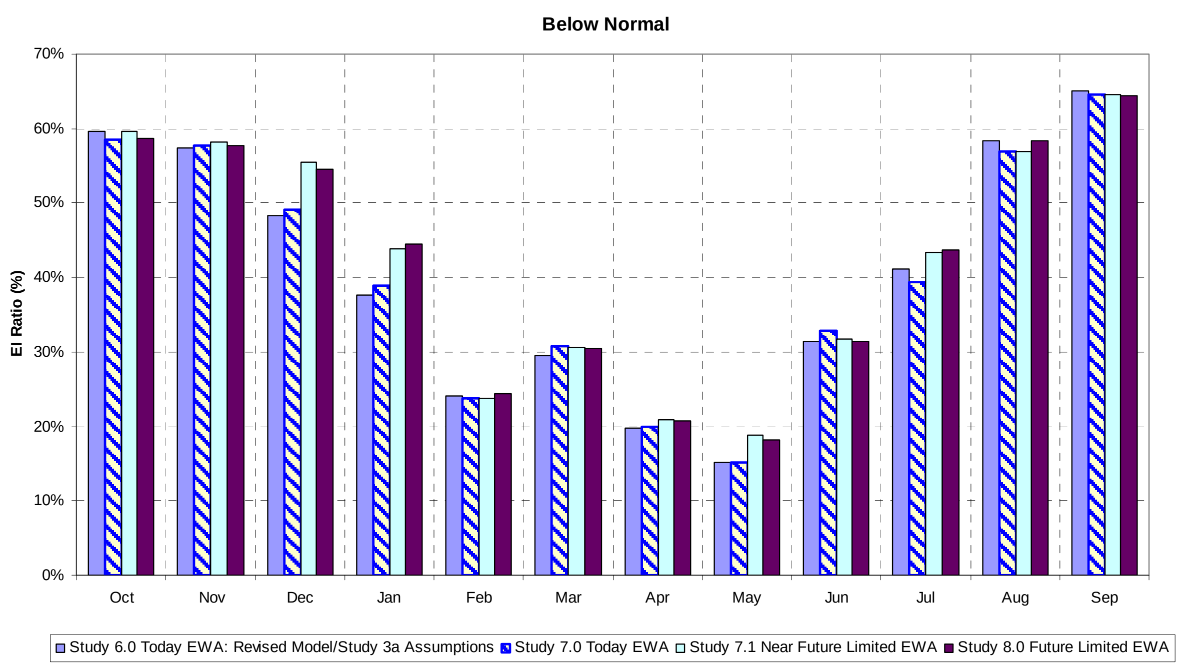

Figure 12-44 Average below normal year (40-30-30 Classification) monthly export-to-inflow ratio

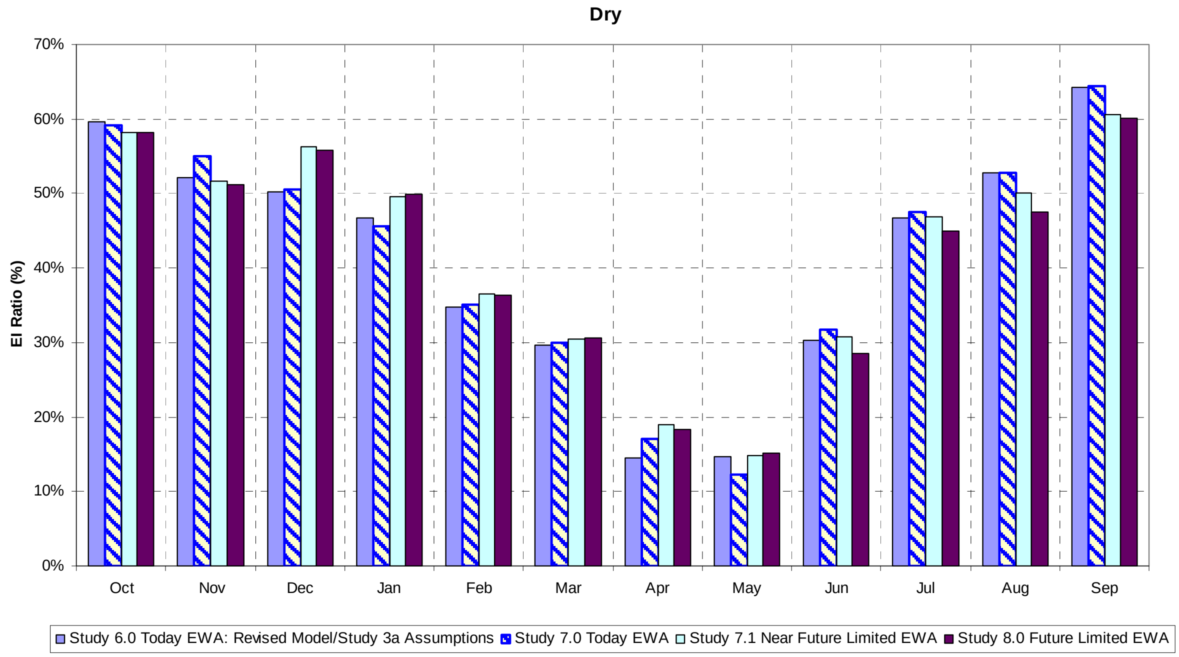

Figure 12-45 Average dry year (40-30-30 Classification) monthly export-to-inflow ratio

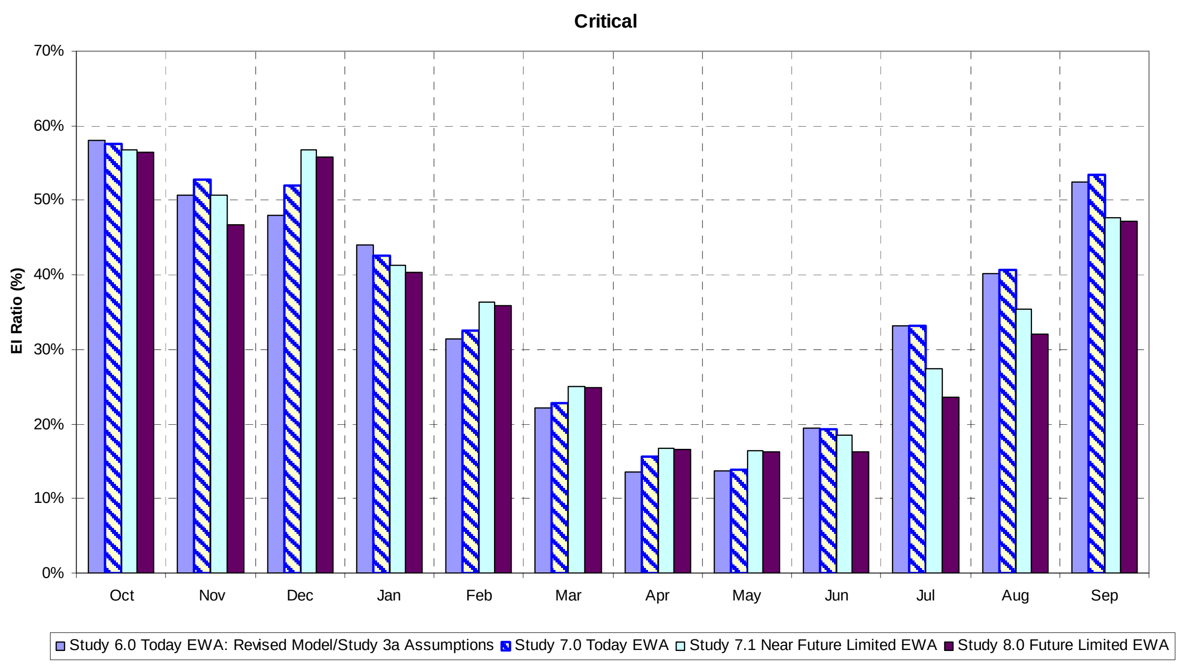

Figure 12-46 Average critical year (40-30-30 Classification) monthly export-to-inflow ratio

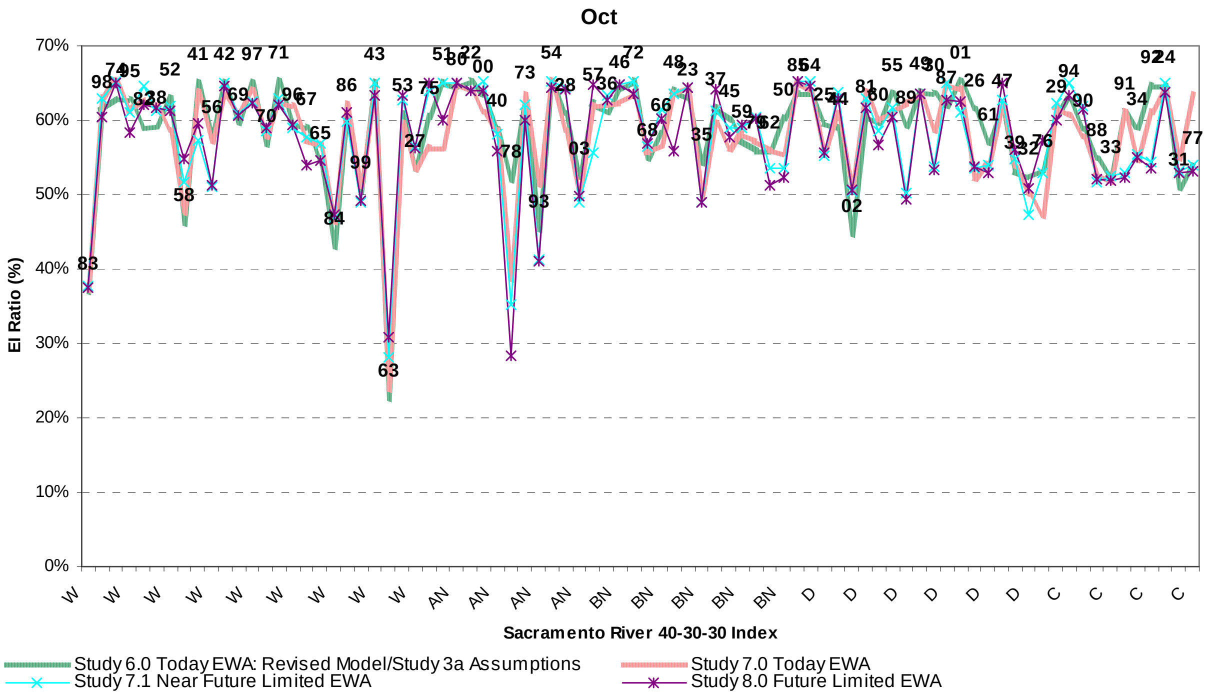

Figure 12-47 October export-to-inflow ratio sorted by 40-30-30 Index

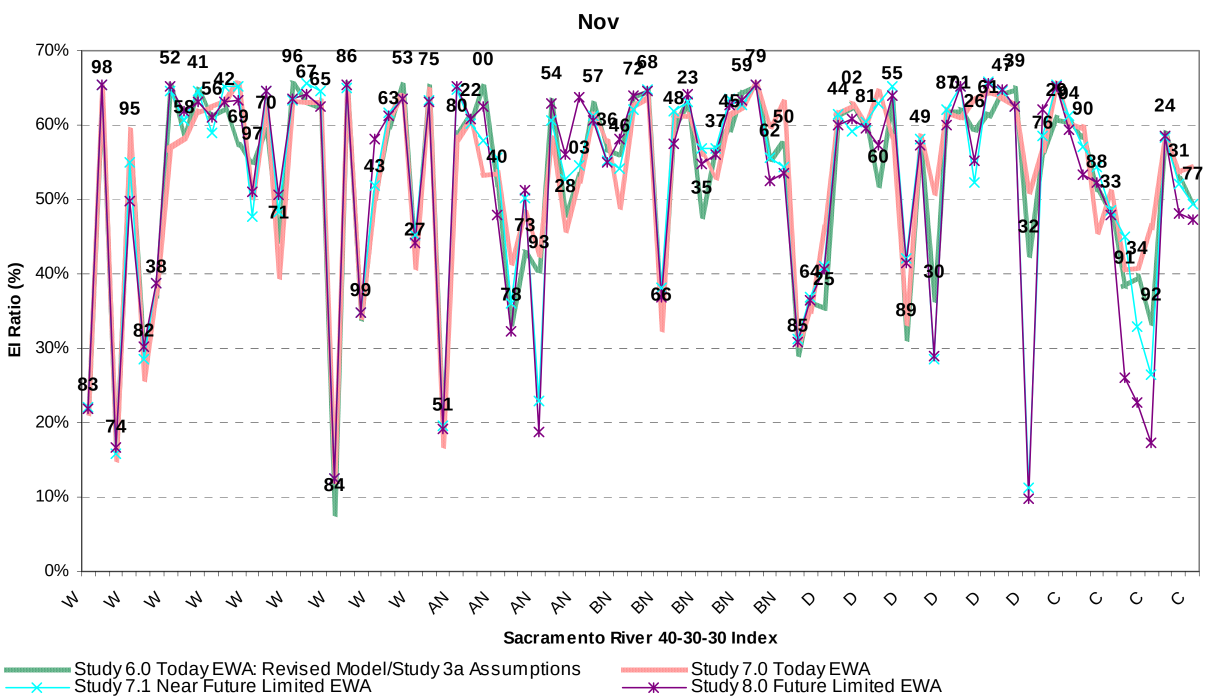

Figure 12-48 November export-to-inflow ratio sorted by 40-30-30 Index

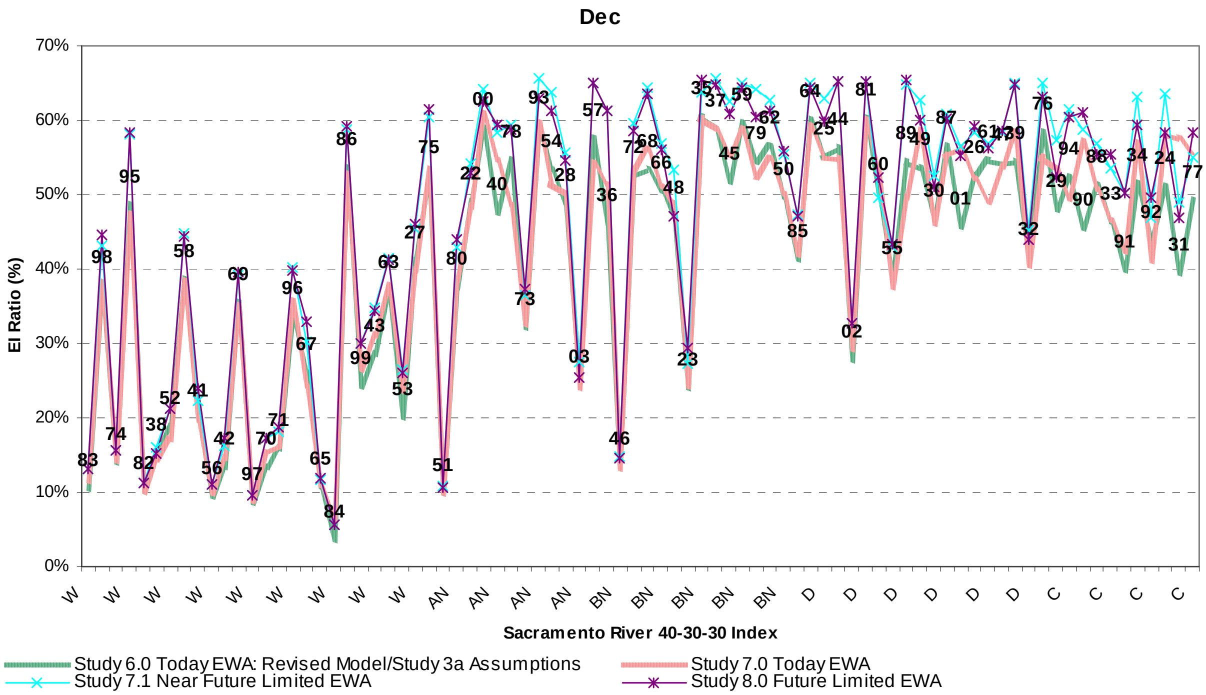

Figure 12-49 December export-to-inflow ratio sorted by 40-30-30 Index

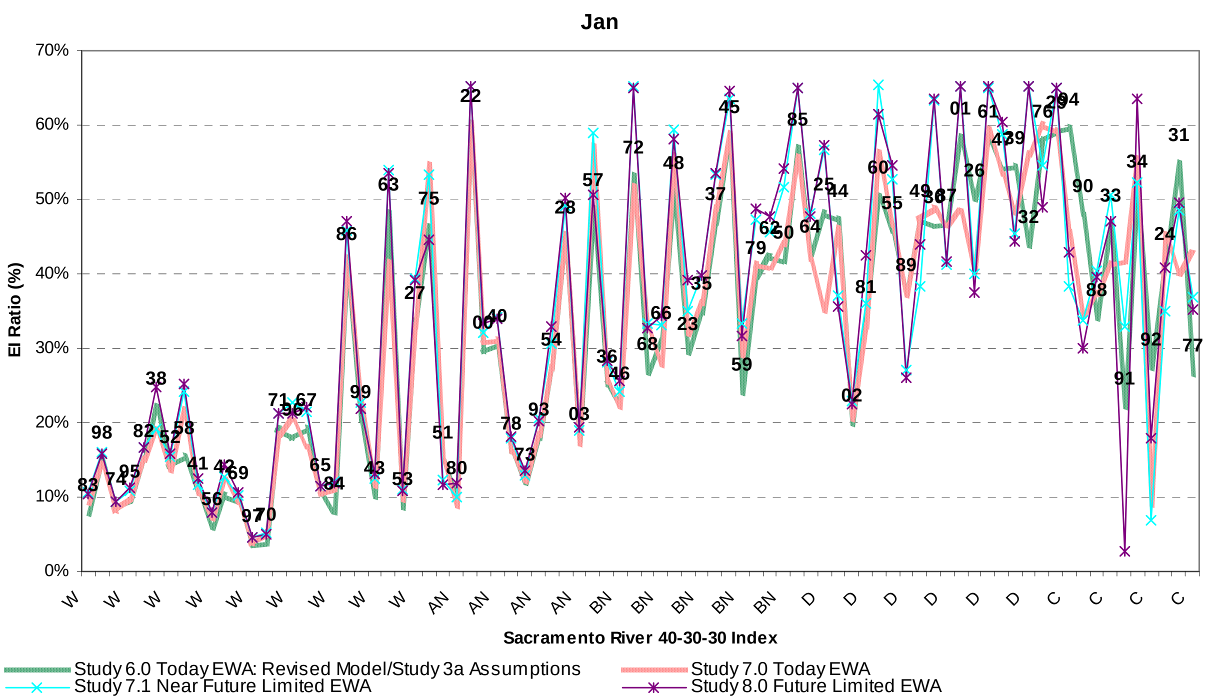

Figure 12-50 January export-to-inflow ratio sorted by 40-30-30 Index

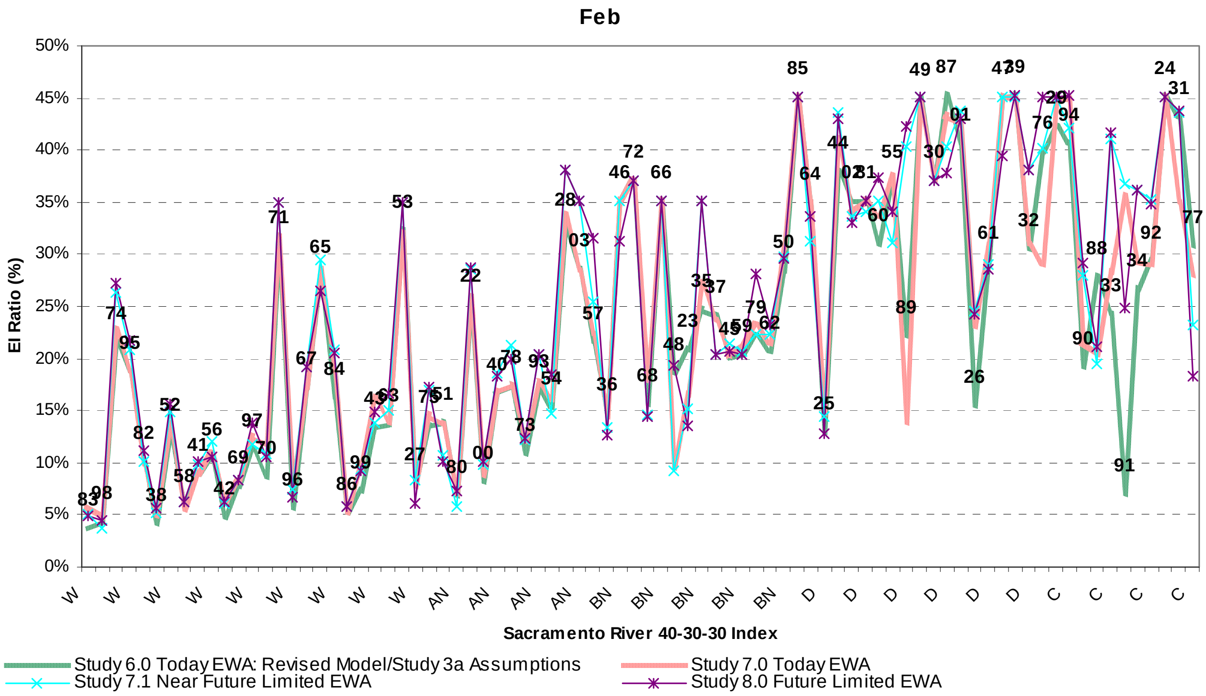

Figure 12-51 February export-to-inflow ratio sorted by 40-30-30 Index

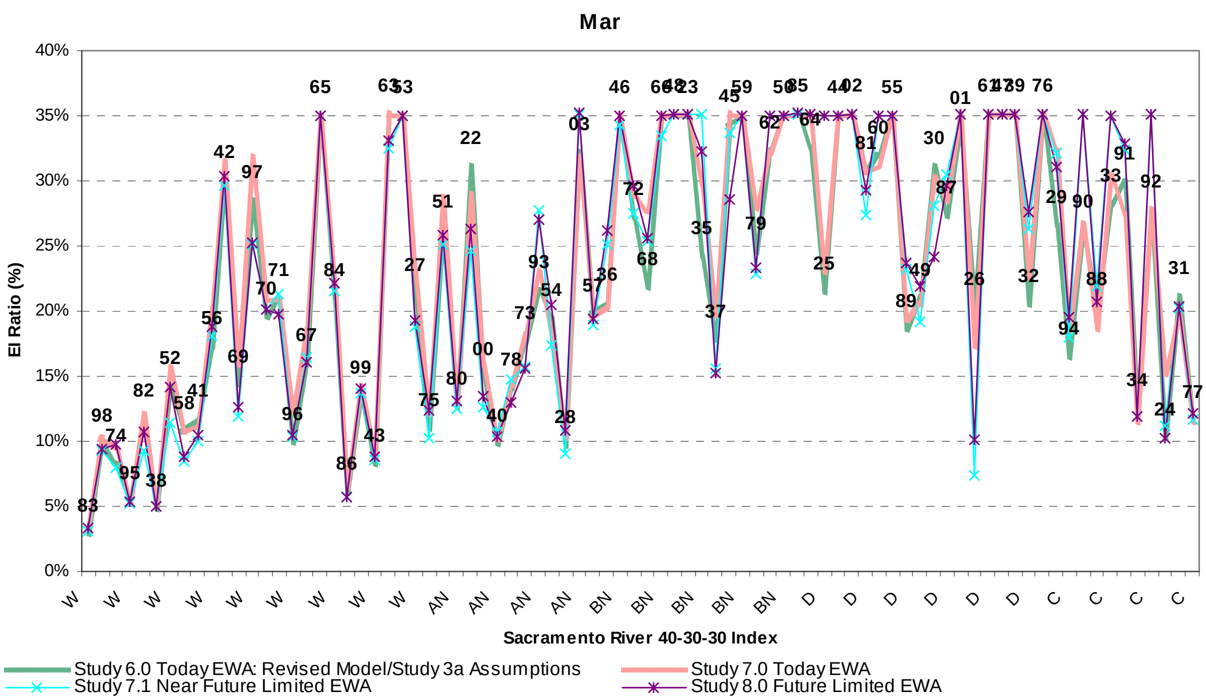

Figure 12-52 March export-to-inflow ratio sorted by 40-30-30 Index

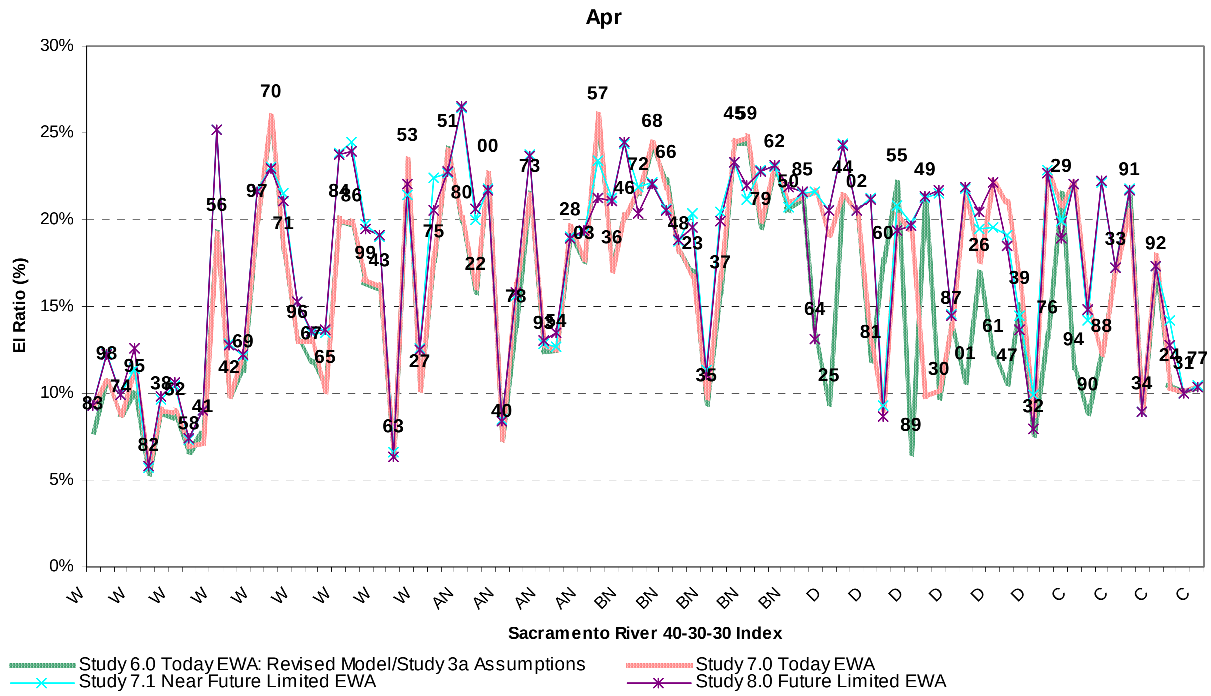

Figure 12-53 April export-to-inflow ratio sorted by 40-30-30 Index

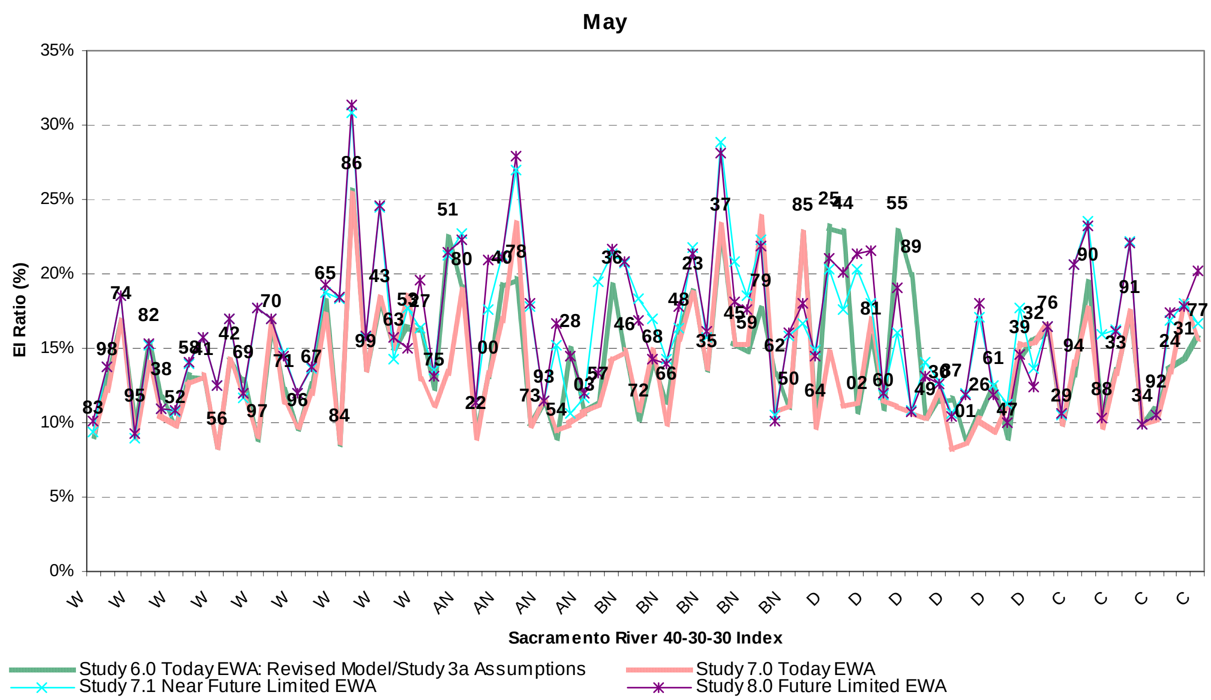

Figure 12-54 May export-to-inflow ratio sorted by 40-30-30 Index

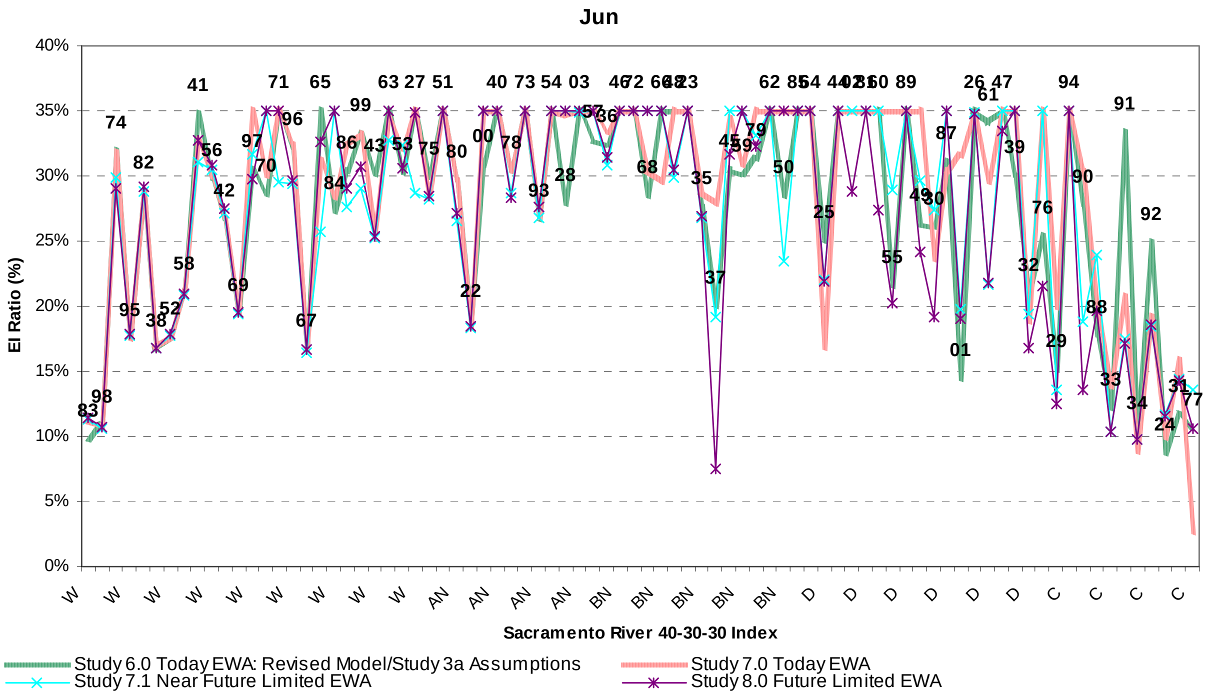

Figure 12-55 June export-to-inflow ratio sorted by 40-30-30 Index

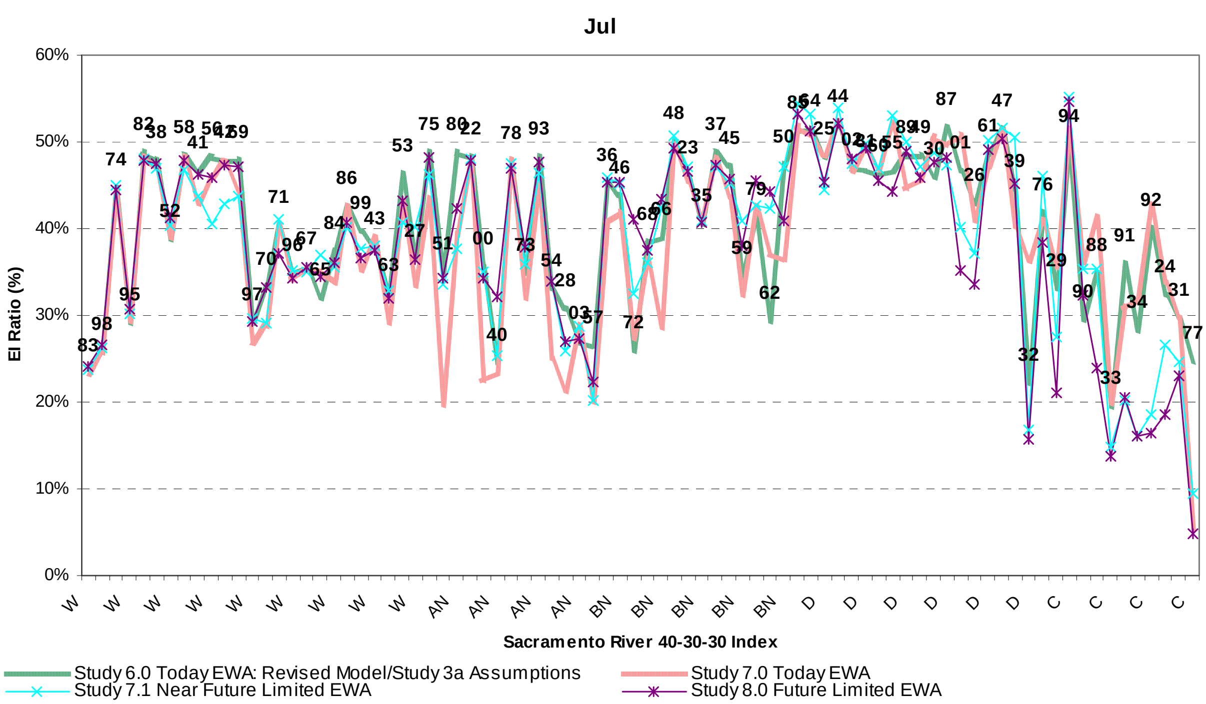

Figure 12-56 July export-to-inflow ratio sorted by 40-30-30 Index

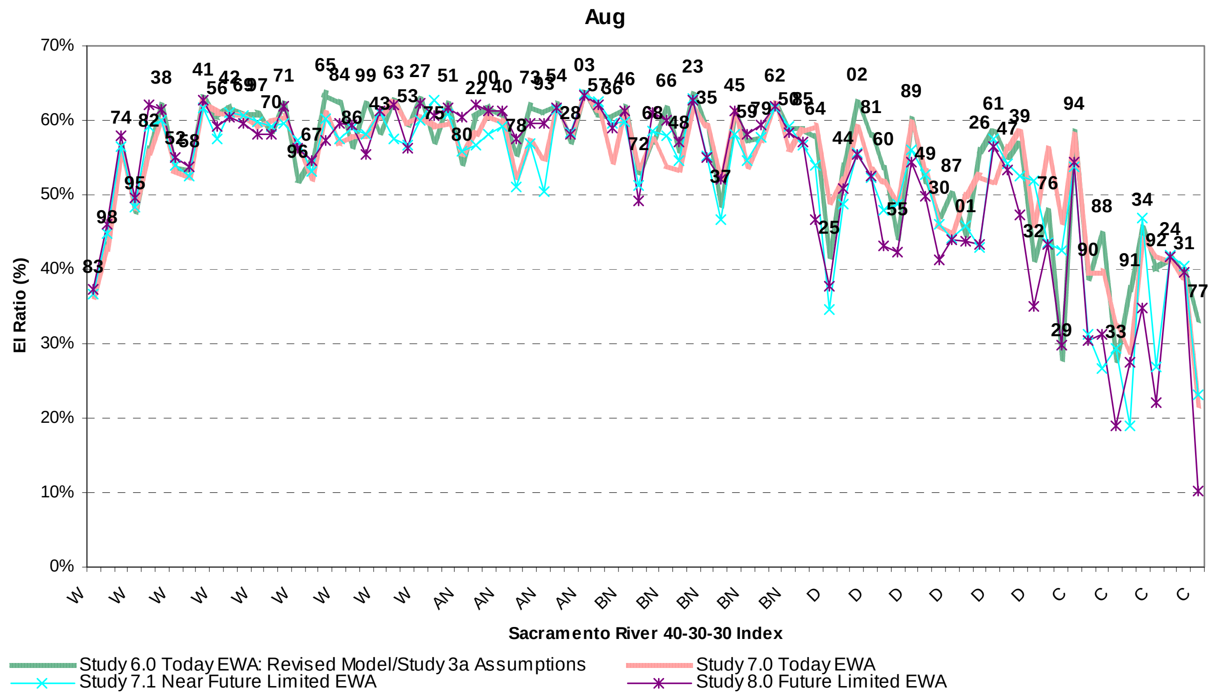

Figure 12-57 August export-to-inflow ratio sorted by 40-30-30 Index

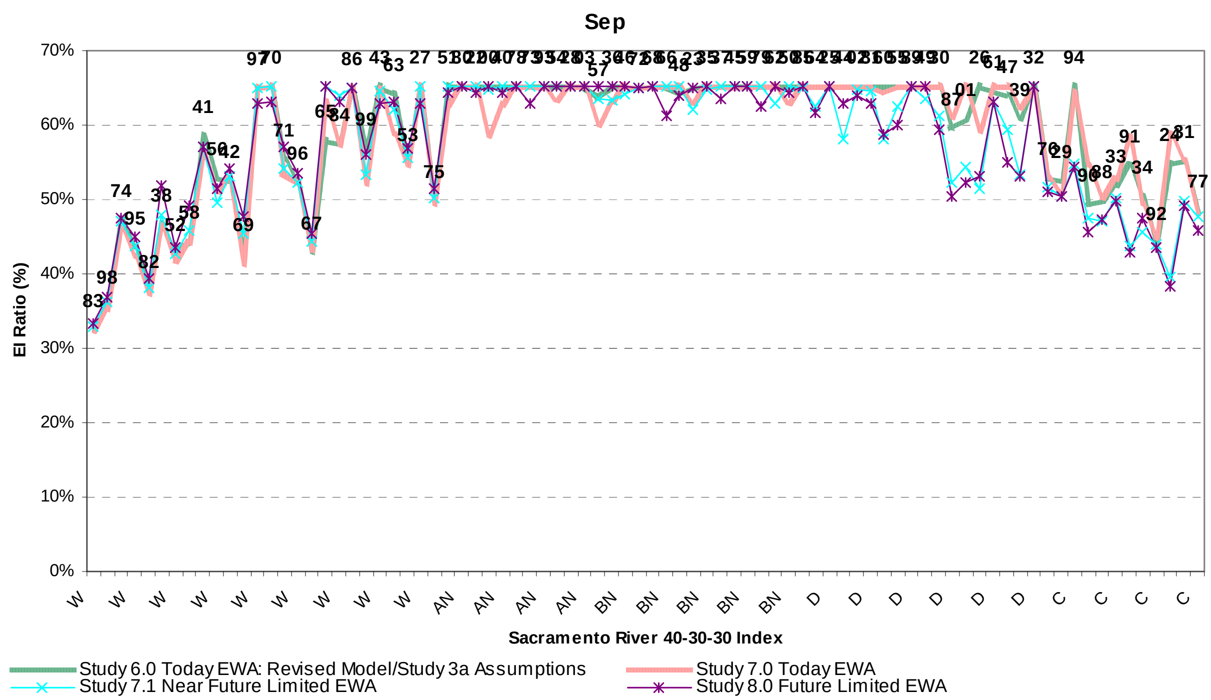

Figure 12-58 September export-to-inflow ratio sorted by 40-30-30 Index

Permanent Operable Gates

In addition to the analyses conducted for this BA, analyses were conducted for Stage 1 of the SDIP and the results presented in the SDIP EIR/EIS, Section 5.2. The tidal levels and flows at specific locations in the Delta are summarized on pages 5.2-46 through 5.2-50. Stage 1 for Alternatives 2A, 2B, and 2C is the proposed 4-gate configuration and operation included in this BA. The variable between these alternatives is the proposed method of increasing the SWP export limit to 8,500 cfs. Increasing the export limit is deferred to Stage 2 of the implementation of the proposed SDIP project and is not included in this BA.

Appendix Z describes the hydrodynamic effects of the Temporary Barriers Project and the South Delta Improvements Program Stage 1.

SWP Demand Assumptions

Since its conception, the SWP's water supply has been highly dependent on unregulated flow into the Delta. The delivery of water within the SWP in any given year is a function of operational requirements, Project storage conditions, demands (and the pattern of those demands), and the availability of unregulated flow into the Delta. To the extent that unregulated water has been available in the Delta beyond that necessary to meet scheduled Project purposes and obligations, said water has been made available to any contractor who can make use of it. The original water supply contracts for SWP contractors included various labels for this Project water depending on the intended use—including the prominently used label of "interruptible."

In 1994, the contracts were amended in what is commonly referred to as the Monterey Amendment. The basic objective of the amendment was to improve the management of SWP supplies—it did not affect the Project operations in the Delta or on the Feather River. Article 21 of the amendment stipulates that any SWP contractor is entitled to water available to the SWP when excess water to the Delta exceeds the Project's need to fulfill scheduled deliveries, meet operational requirements, or meet storage goals for the current or following years. This includes the water that was before known as "interruptible," as well as some other lesser-known labels of water diverted under the same conditions. Article 21 water is and has always been an important source of water for various contractors during the wet winter months and is used to fill groundwater storage and off-stream reservoirs in the SWP service areas. It is also used to pre-irrigate croplands, thereby preserving groundwater and local surface water supplies for later use during dry periods.

The assumptions in CalSim-II for SWP demands has been significantly refined since the 2004 OCAP to better reflect current delivery classification practices. The three significant changes in the delivery modeling are: 1) the incorporation of a three-pattern demand, 2) explicit modeling of the previous year's Table A supplies that are delivered in the current year ("Carryover" or Article 56 deliveries), and 3) increased assumption for monthly Article 21 demands from a maximum of 134 taf per month in the 2004 OCAP BA to a maximum of up to 314 per month in the current analysis.

The three-pattern demand allows for demand adjustments associated with various levels of Table A allocation. Based on the amount of Table A allocation one of the three demand patterns is selected to more accurately model the monthly delivery pattern.

In model used for the 2004 assessment a single demand pattern was used with the current year's Article 56 water inappropriately delivered at the beginning of the current year rather than being carried over for delivery in the following year. This artificially increased the Table A demand at the beginning of each year, and potentially reduced Article 21 deliveries during the early part of the year. The new delivery methodology allows for the storage, delivery, and "spilling" of the previous year's Article 56 carryover at the beginning of the current year. Delivery of the previous year's Article 56 is typically within the first three months of the current year. As the State share of San Luis Reservoir fills, there is a chance that Article 56 will "spill" which is another way of saying that it is converted to the current year's Table A supply.

The new model also incorporates an Article 21 demand increase that more accurately represents actual Article 21 demand. However, with the incorporation of the three-pattern Table A demand, Article 56, and increased Article 21 demand the total delivery remains largely the same. The previous version of the model tended to overestimate the delivery of Table A and underestimate the delivery of Article 21 by a like amount.

Figure 12-59 shows the annual exceedence chart for the OCAP runs 6.0, 7.1 and 8.0. The 50^{th} percentile of Article 21 deliveries for the Studies 7.0 and 7.1 have a 50^{th} percentile of 350 TAF.

Study 6.0 which reflects the 2004 OCAP assumption for maximum monthly Article 21 demands shows much less delivery of Article 21. In addition, Study 8.0 has a suprisingly lower delivery of Article 21 versus Studies 7.0 and 7.1. This is due to higher delivery amounts of Table A and other higher priority deliveries through Banks.

So to truly understand the interaction between all SWP delivery types one must compare model output for all SWP deliveries. Figure 12-60 and Figure 12-61 show the exceedence charts for Table A and total SWP deliveries, respectively.

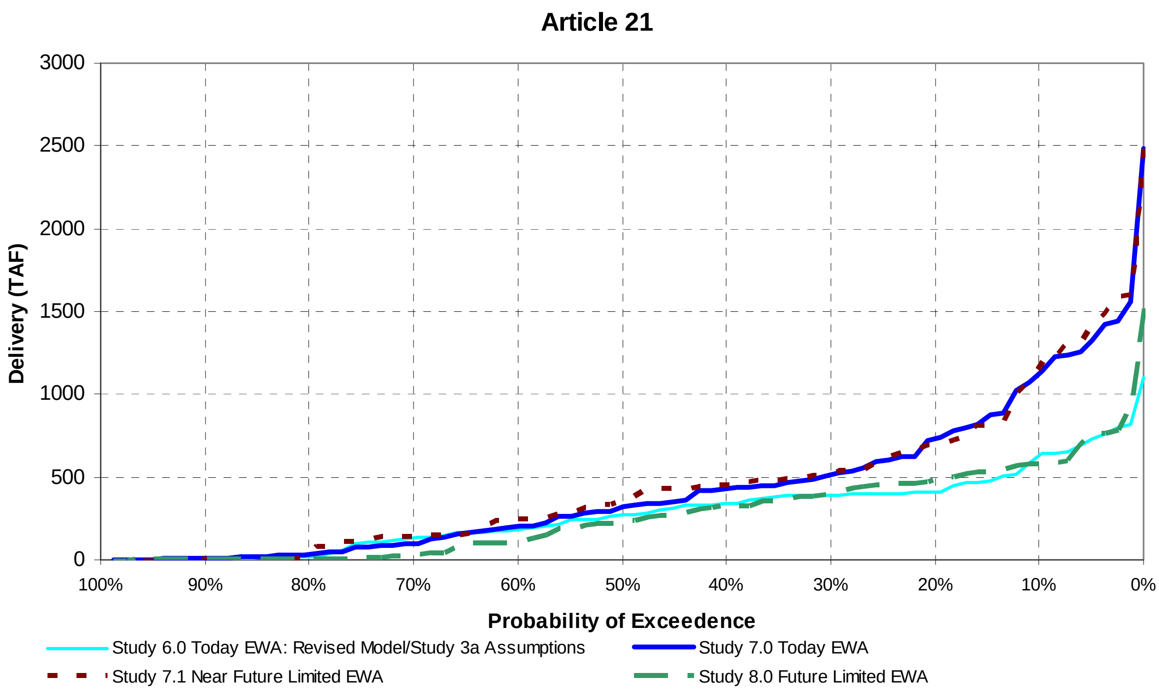

Figure 12-59 Exceedance Probability of Annual SWP Article 21 Delivery

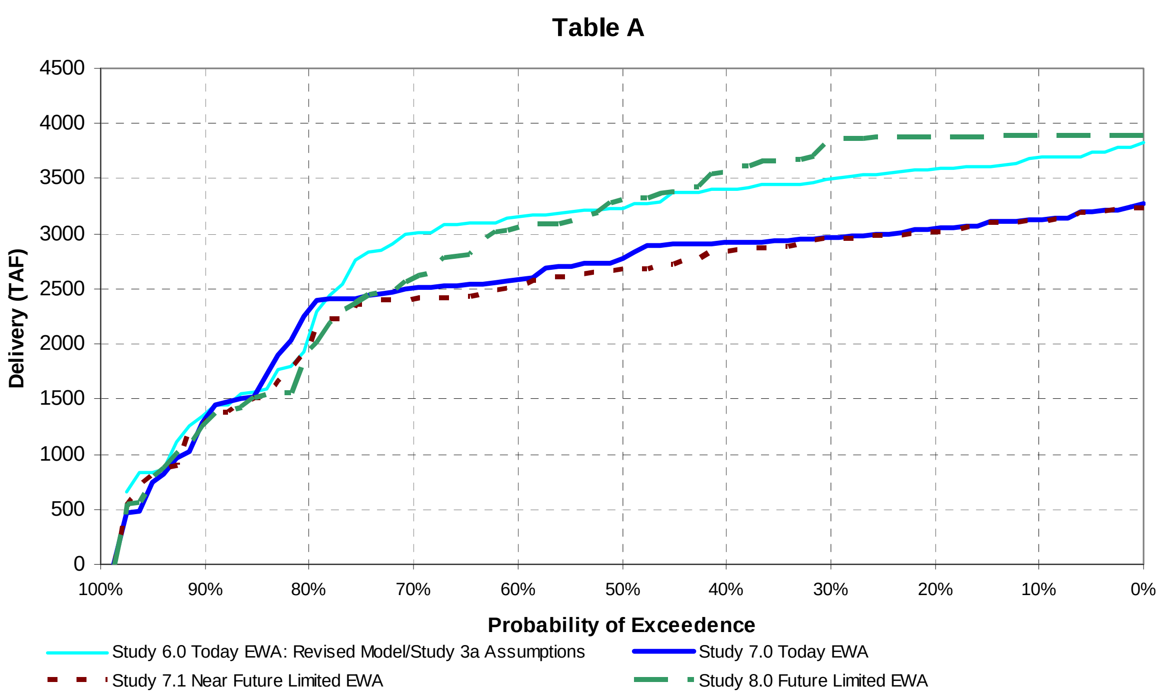

Figure 12-60 Exceedance Probability of Annual SWP Table A Delivery

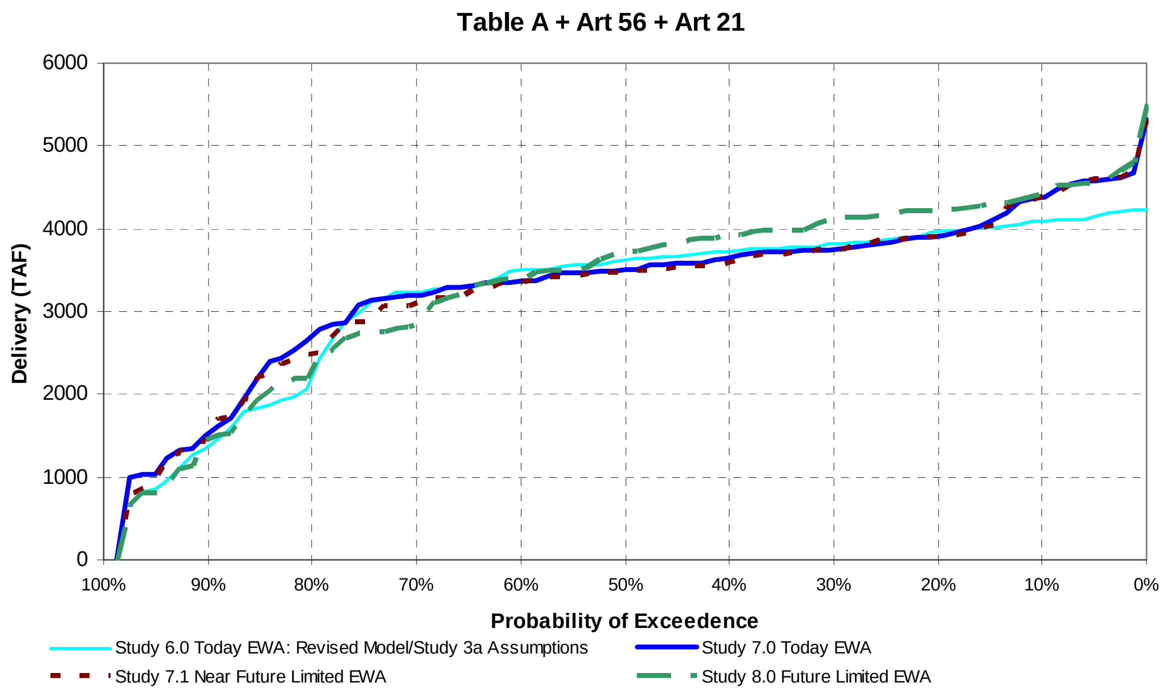

Figure 12-61 Exceedance Probability of Annual SWP Total Delivery

Water Transfers

Water transfers would increase Delta exports from about 0 to 500,000 acre-feet (af) in the wettest 80 percent of years and potentially more in the driest 20 percent years, and up to 1,000,000 af in the most adverse Critical year water supply conditions. Most transfers will occur at Banks (SWP) because reliable capacity is not likely to be available at Jones (CVP) except in the driest 20 percent of years. Most of the transfers would occur during July through September. Juvenile salmonids are rarely present in the Delta in these months, so no increase in salvage due to water transfers during these months is anticipated. Water transfers could be beneficial if they shift the time of year that water is pumped from the Delta from the winter and spring period to the summer, avoiding periods of higher salmonid abundance in the vicinity of the pumps. Some adult salmon and steelhead are immigrating upstream through the Delta during July through September. Increased pumping is not likely to affect immigrating adults because they are moving in a general upstream direction against the current. For transfers that occur outside of the July through September period, all current water quality and pumping restrictions would still be in place to limit effects that could occur.

Post-processing of Model Data for Transfers

This section shows results from post-processed available pumping capacity at Banks and Tracy for the Study 8.0 (Future Conditions - 2030). These results are used for illustration purposes. Results from the Existing Conditions CVP-OCAP study alternatives do not differ greatly from those of Study 8.0, and produce similar characteristics and tendencies regarding the opportunities for transfers over the range of study years. The assumptions for the calculations are:

- Capacities are for the Late-Summer period July through September total.
- The pumping capacity calculated is up to the allowable E/I ratio and is limited by either the total physical or permitted capacity, and does not include restrictions due to ANN salinity requirements with consideration of carriage water costs.
- The quantities displayed on the graph do not include the additional 500 cfs of pumping capacity at Banks (up to 7,180 cfs) that is permitted to offset reductions previously taken for fish protection. This may provide up to about 90 taf of additional capacity for the July-September period, although 60 taf is a better estimate of the practical maximum available from that 500 cfs of capacity, allowing for some operations contingencies. Under some water supply conditions, DWR has proposed to use the additional 500 cfs to divert SWP water, if permit conditions are met. Under those conditions, no capacity would be available for transfers.
- Figure 12-62 and Figure 12-63 show the available export capacity from Study 8.0 (Future Conditions-2030) at Banks and Jones, respectively, with the 40-30-30 water year type on the x-axis and the water year labeled on the bars. The SWP allocation or the CVP south of Delta Agriculture allocation is the allocation from CalSim-II output from the water year.

From Figure 12-62, the most capacity at Banks will be available in Critical and some Dry years (driest 20 percent of study years) which generally have the lowest water supply allocations, and reflect years when transfers may be higher to augment water supply to export contractors. For the other 80 percent of study years (generally the wettest 80 percent) the available capacity at Banks for transfer ranges from about 0 up to 500 taf (if the additional 60 taf accruing from the proposed permitted increase of 500 cfs at Banks is included). Transfers at Jones (Figure 12-63) are probably most likely to occur in the driest 20 percent of years (Critical years and some Dry years) when there is available capacity and low allocations.

Limitations

The analysis of transfer capacity available derived from the CalSim-II study results shows the capacity at the export pumps and does not reflect the amount of water available from willing sellers or the ability to move through the Delta. The available capacity for transfer at Banks and Jones is a calculated quantity that should be viewed as an indicator, rather than a precise estimate. It is calculated by subtracting the respective project pumping each month from that project's maximum pumping capacity. That quantity may be further reduced to ensure compliance with the Export/Inflow ratio required. In actual operations, other contingencies may further reduce or limit available capacity for transfers: for example, maintenance outages, changing Delta outflow requirements, limitations on upstream operations, water level protection criteria in the south Delta, and fishery protection criteria. For this reason, the available capacity should be treated as an indicator of the maximum available for use in transfers under the assumed study conditions.

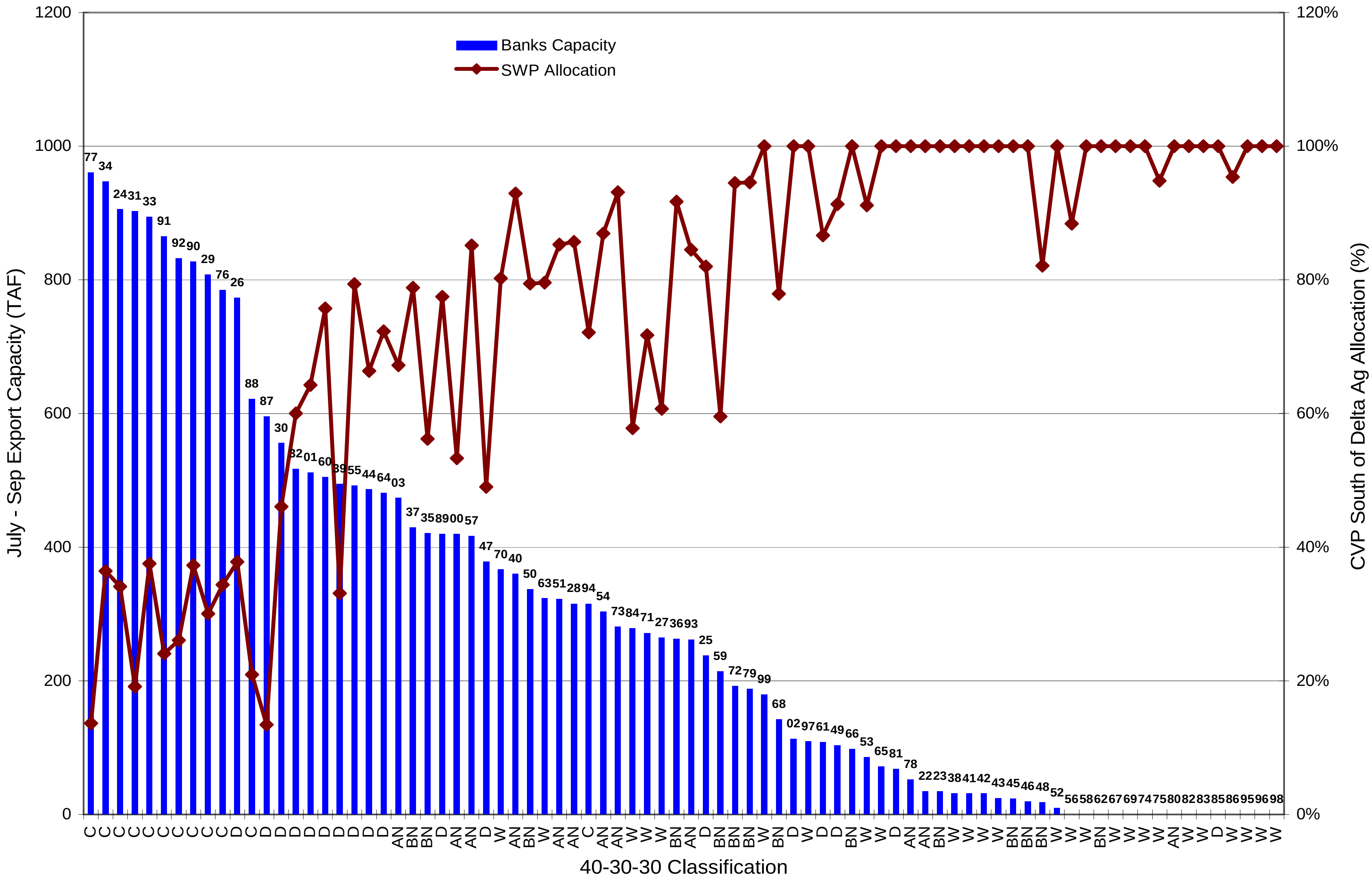

Figure 12-62 July to September Banks Export Capacity from Study 8.0

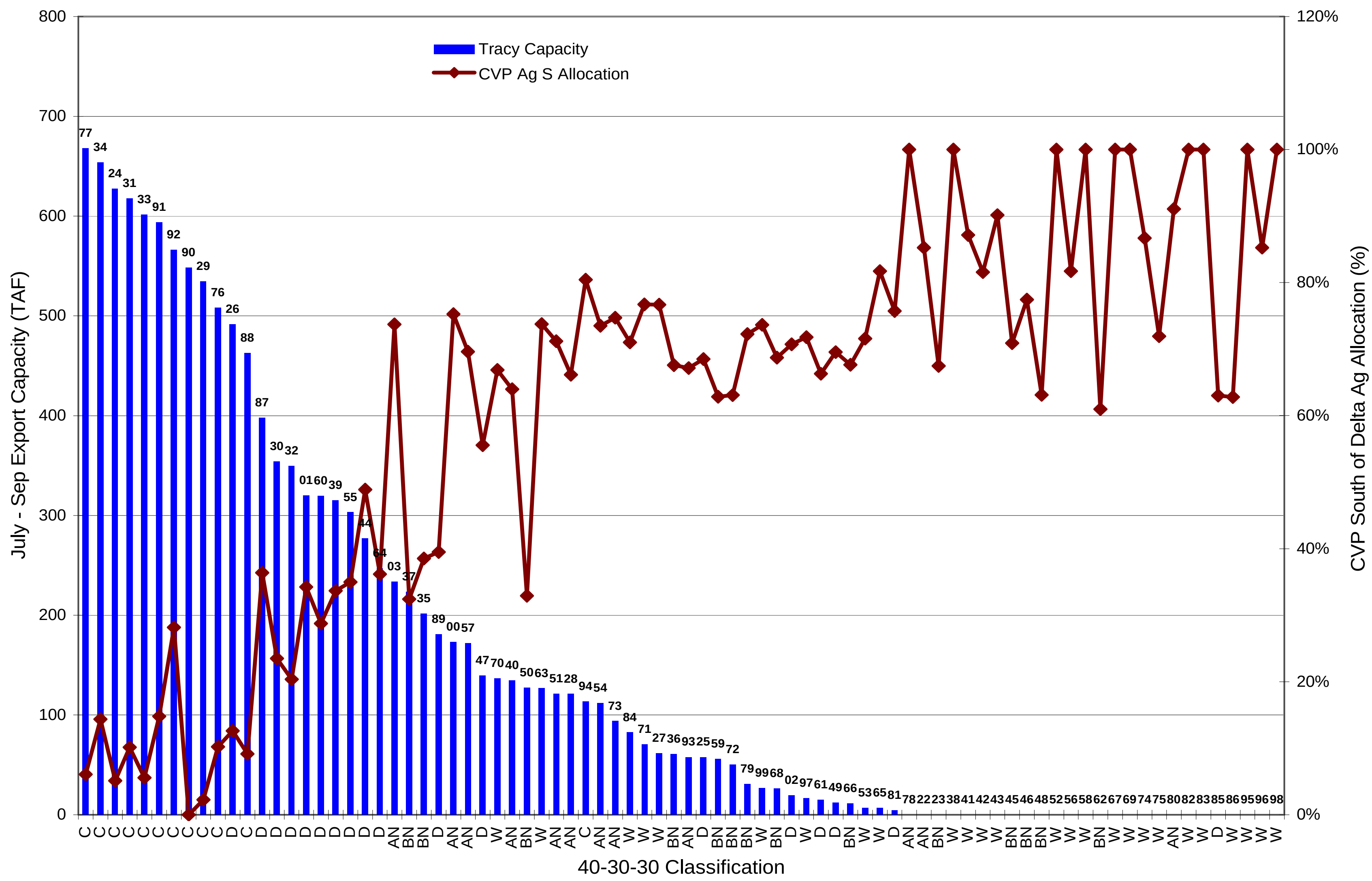

Figure 12-63 July to September Jones Export Capacity from Study 8.0