

## California WaterFix “Sensitivity Analysis” Operations Data

September 17, 2015

### DWR Cautionary Note

*Sensitivity analyses are not full model runs! Minor changes have been made to the full model runs performed for the BDCP Public Draft to assess the effects of the specific change. CALSIM II sensitivity model runs were not re-balanced to address any new or modified effects (as would be done for a full model run) that may be a result of the minor changes. The sensitivity analyses are only valid to assess the impacts of the minor changes. CALSIM II and DSM2 results from the sensitivity runs should only be used to answer the specific questions for which the runs were performed.*

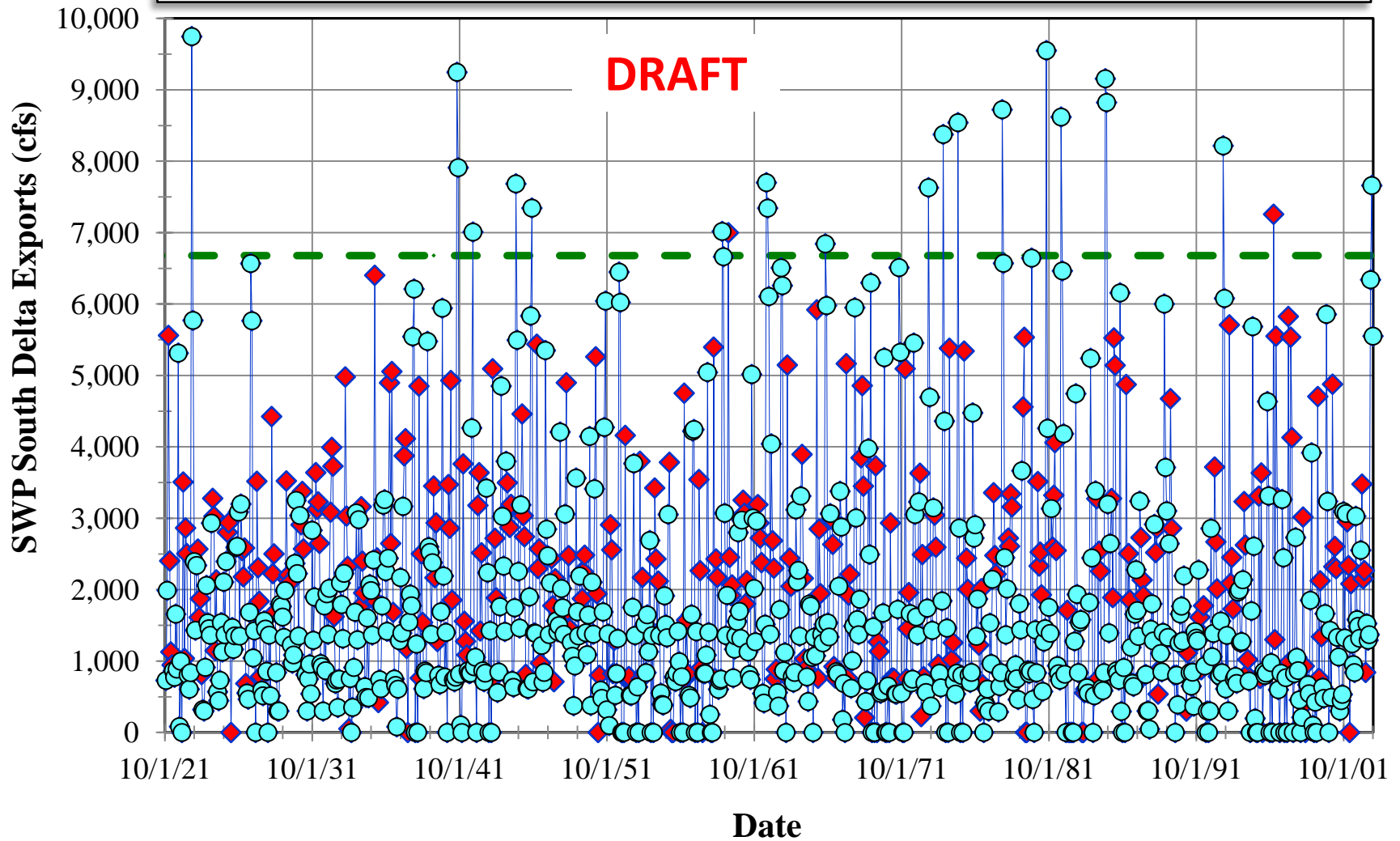
The data plotted are from a CALSIM II Sensitivity Run for Cal. WaterFix Alternative 4A, Scenario H3, at Early Long Term, and were provided by the California Department of Water Resources (DWR). The data are monthly data for the full CALSIM modeling period October 1921 through September 2003.

### Graphs

1. SWP South Delta export diversions at the Clifton Court Forebay intake from October 1921 through September 2003. The export data for April through November represent months when the Army Corps limit on inflows to Clifton Court is 6,680 cfs. There are 19 months when that limit is exceeded. For the period December 15 through March 15, the Army Corps allows additional exports based on San Joaquin inflow at Vernalis.
2. Total Delta exports (isolated facility and through-Delta) as a function of Delta outflow for outflows up to 30,000 cfs . The data are also categorized as (a) wet years, (b) above and below normal years, and (c) dry and critical water years. The Cal. WaterFix alternative 4A (9,000 cfs north Delta intakes and through Delta) would allow exports up to 15,000 cfs. The existing limit on total exports is typically 11,280 cfs. In drier periods (months) when Delta outflows are very low and the Delta ecosystem is stressed, the Cal. WaterFix alternative 4A would increase rather than reduce exports (not consistent with the **Little Sip** concept). These dry period increases occur in all water year types. Even in wet years there are months that can be considered dry, and vice versa.

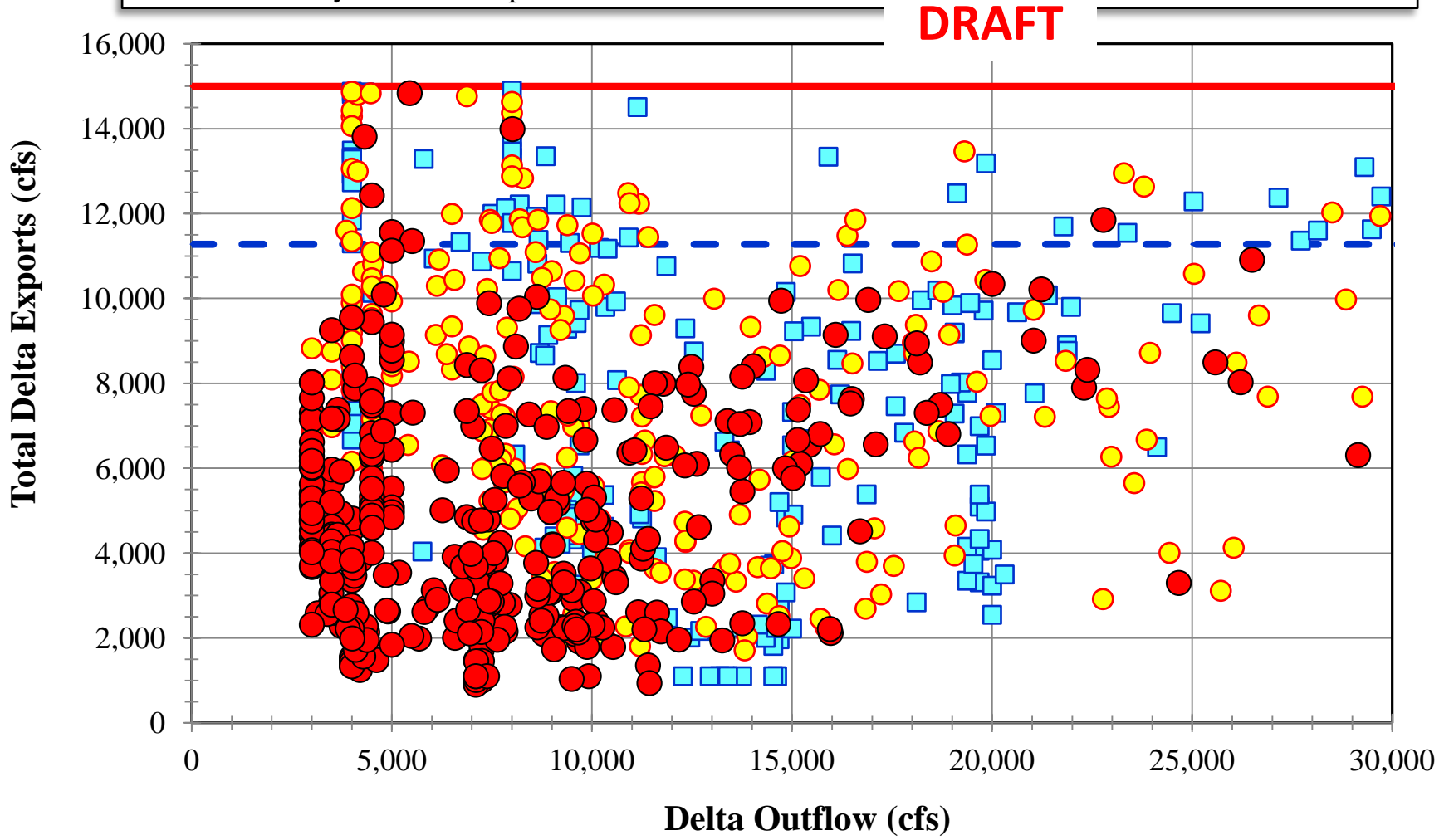
3. Total exports as a function of Delta outflow for the full range of Delta outflows. There are many months during wetter periods (months) when Delta outflows are very high yet the total exports are much less than the available maximum capacity of 15,000 cfs. This alternative is not capturing enough surplus flow during these very wet periods (inconsistent with the **Big Gulp** concept).
4. Total monthly exports versus Delta outflow for outflow up to 30,000 cfs. To ensure that the proposed project complied with the **Little Sip** concept, it would be necessary to limit total exports to, say, 1.5 times the Delta outflow.
5. Total exports versus Delta outflow for outflows up to 30,000 cfs for dry and critical years only. Exports actually increase rather than decrease in some months in these dry and critical years.
6. Old and Middle River (OMR) monthly flows for Cal. WaterFix Alternative 4A, Scenario H3, compared to monthly OMR data from the BDCP Existing Basecase. A stated benefit of the Cal. WaterFix project is to minimize reverse flows in the south Delta. With the Cal. WaterFix, reverse flows will remain in many months and in some cases get even worse. Even though there are specific months of the year when minimizing OMR is more crucial, there are resident fish in the Delta year round. Unless reverse flows are minimized in all months, the impacts of reverse flows will be redirected to other periods of the year and other Delta fish.
7. The BDCP proponents have decided to reinterpret the SWRCB’s D-1641 export/inflow limit for BDCP Alternative 4 and Cal. WaterFix Alternative 4A. The Cal. WaterFix modeling total export / total Delta inflow data plotted as a function of time (October 1981 through September 2003) show significant exceedences of the D-1641 limits. In some months more than 90% of the inflow to the Delta would be exported.
8. The final graph shows a “*scatter plot*” of the Cal. WaterFix Alternative 4A, Scenario H3, total exports / total Delta inflow ratio versus the SWRCB’s D-1641 limits. There are significant exceedences of the SWRCB limits.

# SWP South Delta Exports for Cal. WaterFix 4A H3

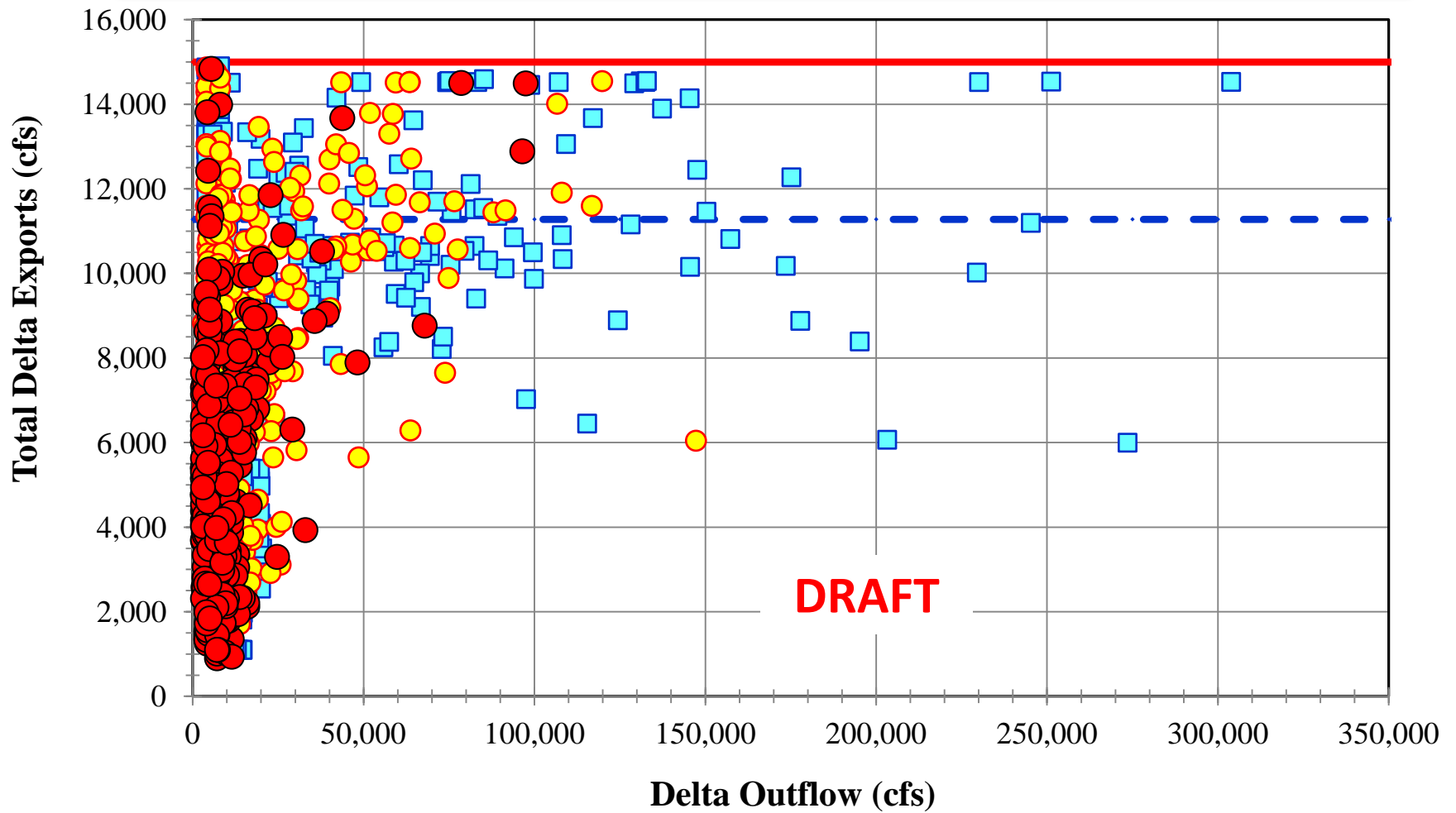
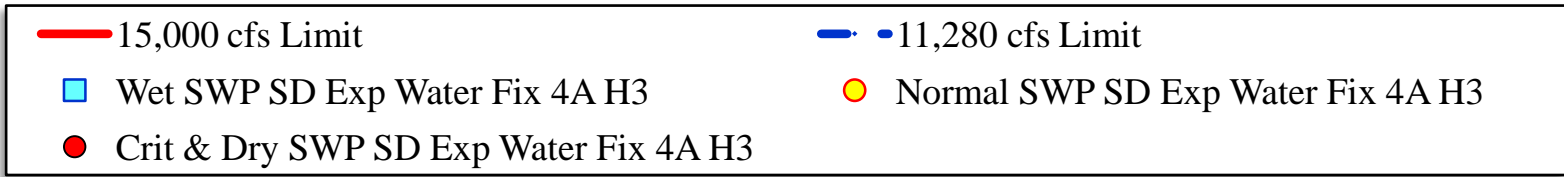


# Total Delta Exports for Cal. WaterFix 4A H3

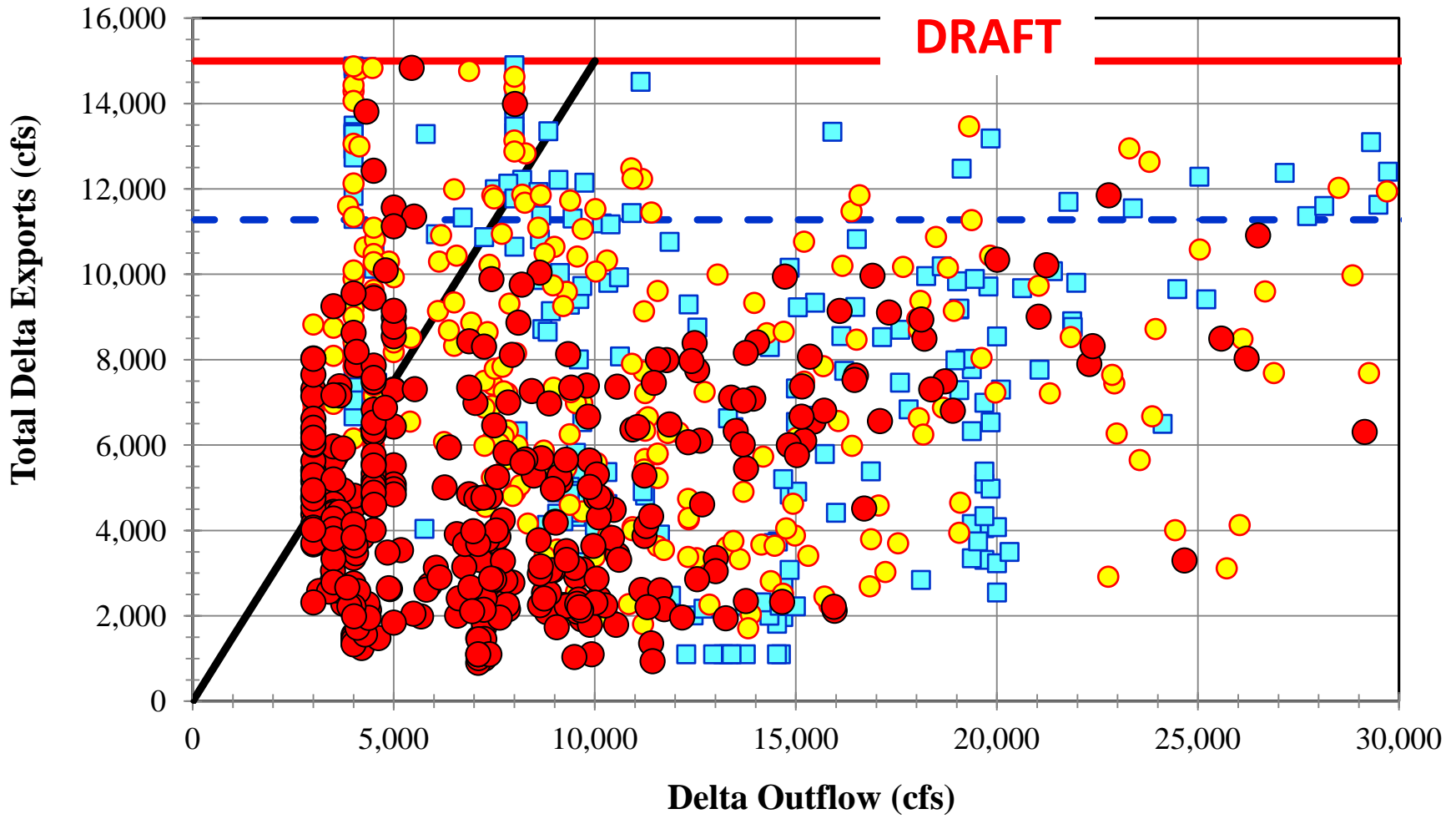
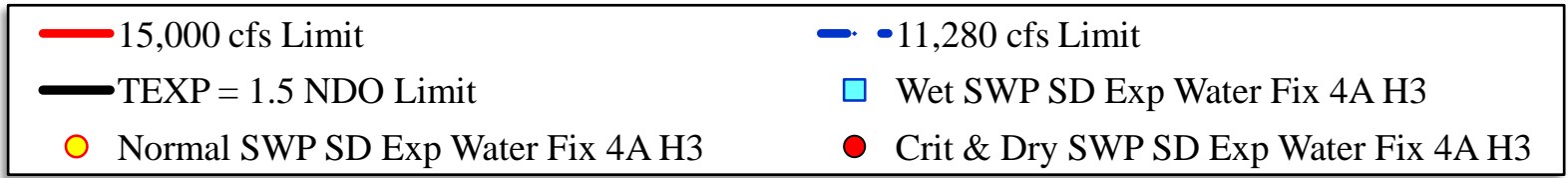
- 15,000 cfs Limit
- 11,280 cfs Limit
- Wet SWP SD Exp Water Fix 4A H3
- Normal SWP SD Exp Water Fix 4A H3
- Crit & Dry SWP SD Exp Water Fix 4A H3



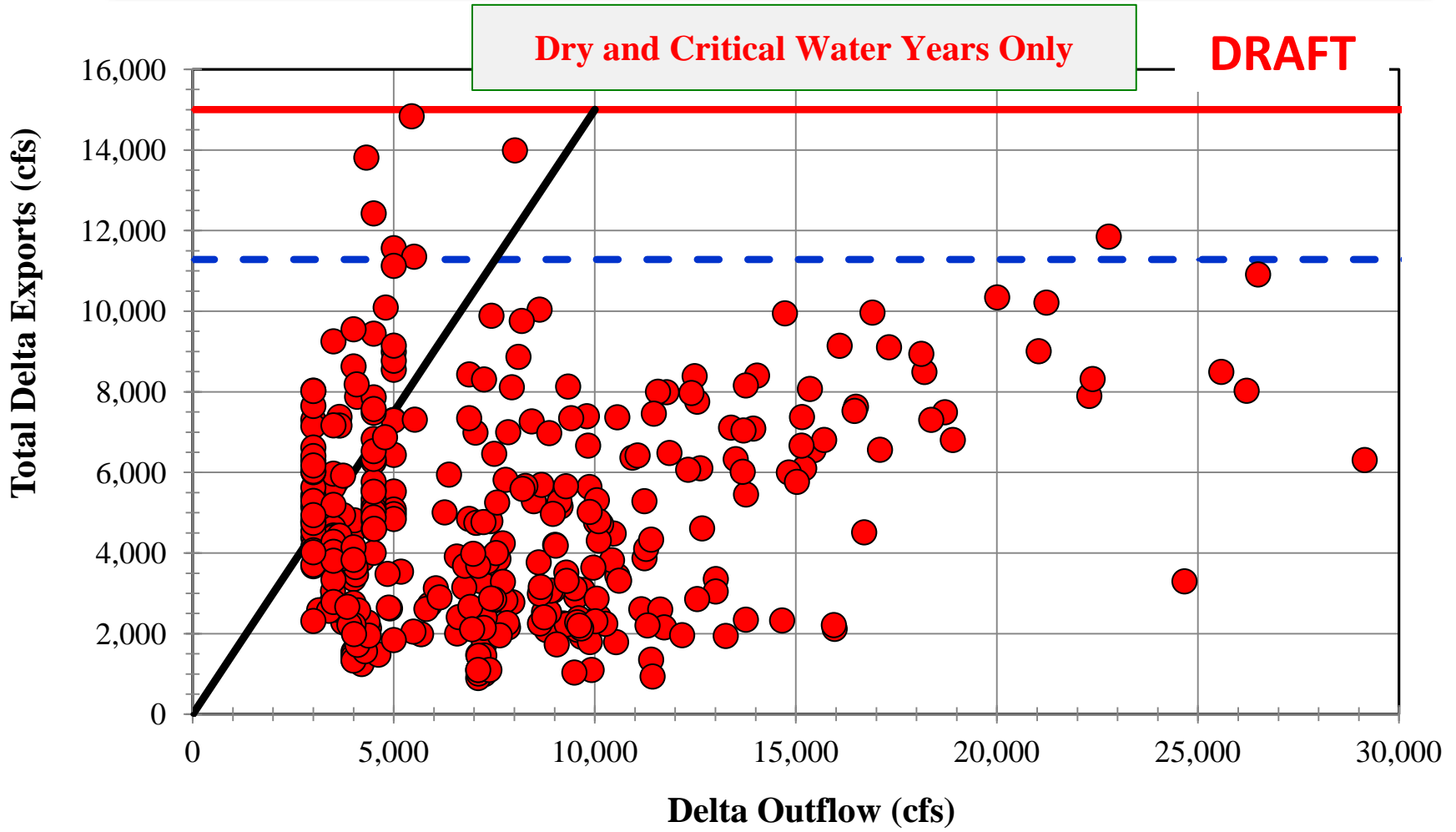
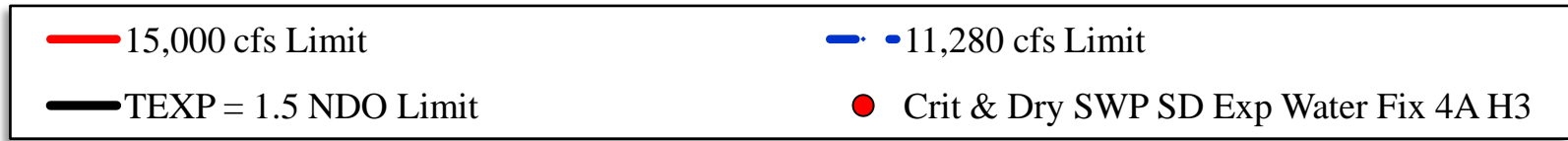
# Total Delta Exports for Cal. WaterFix 4A H3



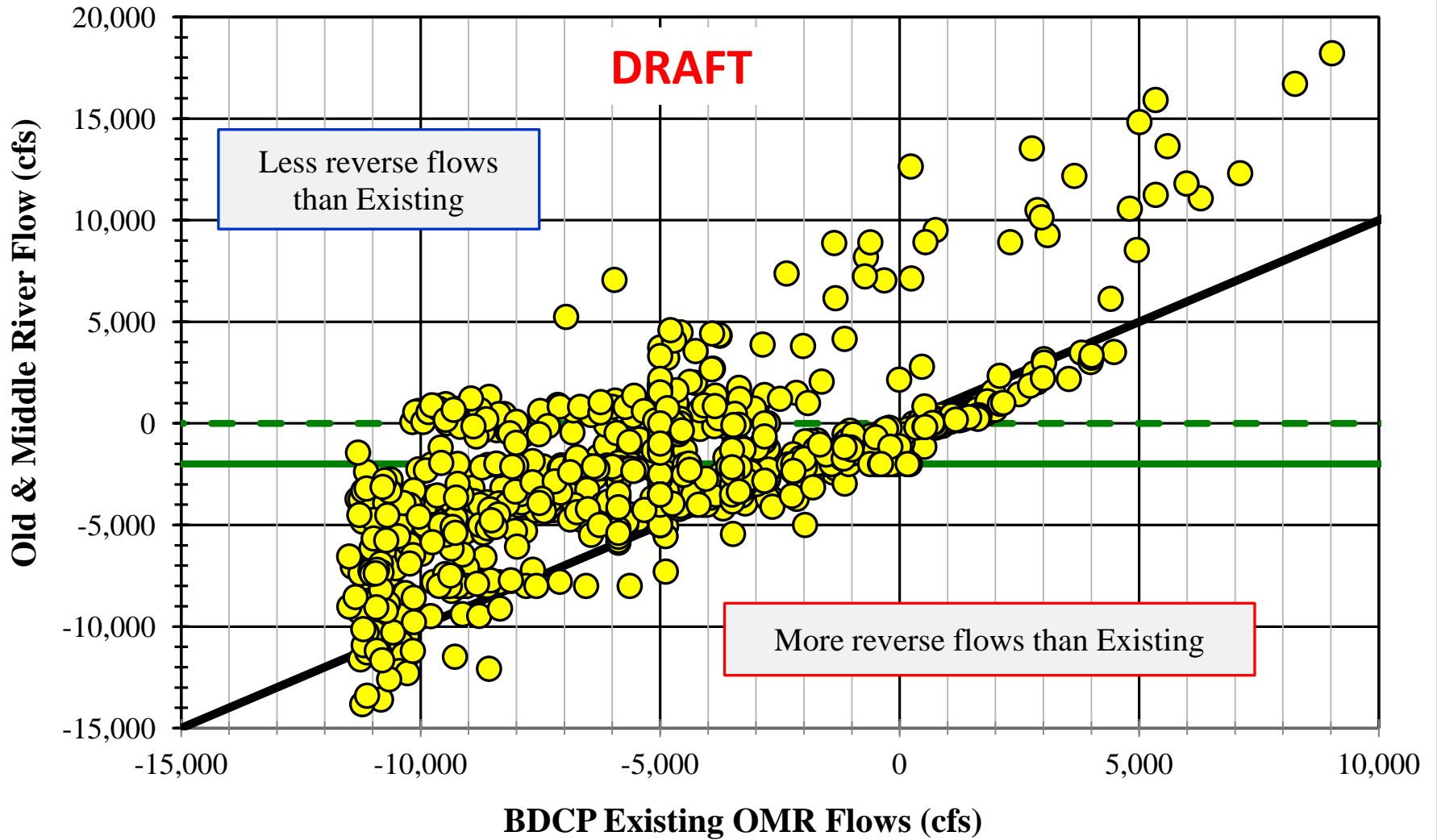
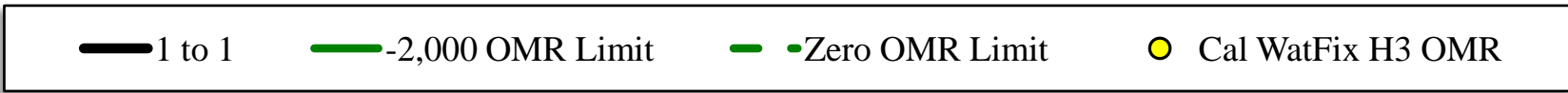
# Total Delta Exports for Cal. WaterFix 4A H3



# Total Delta Exports for Cal. WaterFix 4A H3



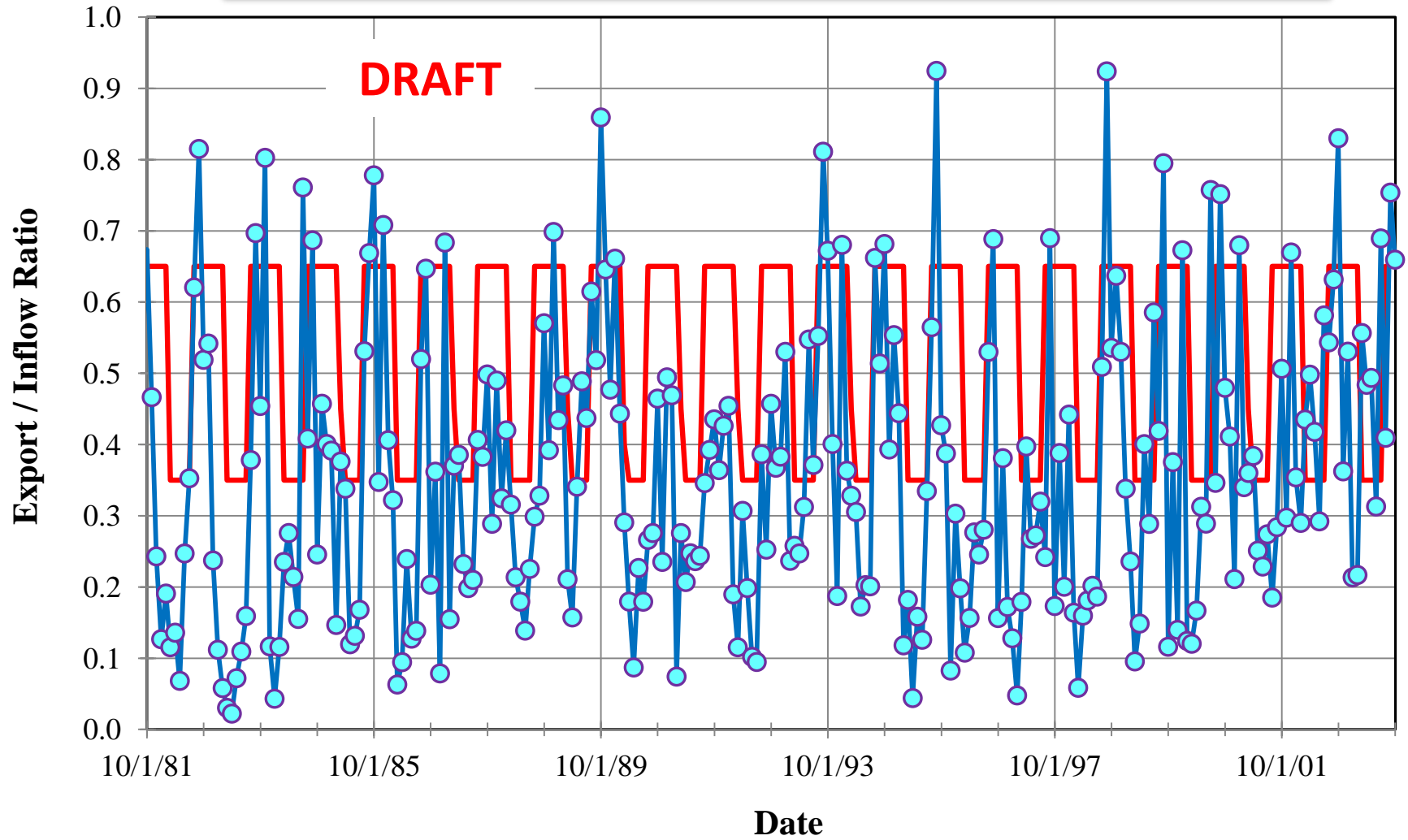
# Cal. WaterFix Old & Middle River Flow





# Export / Inflow Ratio for Cal. WaterFix 4A H3

— E/I Required Water Fix 4A H3      ● Export / Inflow ratio Water Fix 4A H3



# Export / Inflow Ratio for Cal. WaterFix 4A H3

