Evaluation of California Water Fix Part 2 Modeling

Exhibit SVWU - 403



Overview

- Modeling issues identified in Part 1 that persist in DWR/USBR CWF H3+ modeling
- March Delta outflow criteria in DWR/USBR CWF H3+ modeling
- Spring Delta outflow criteria in Incidental Take Permit for CWF
- Effects of SWRCB 2010 Delta Flow Criteria Report

California Water Fix MBK Modeling Review of DWR/USBR CWF H3+

<u>Key Findings</u>

- 1. Like the Part 1 DWR/USBR BA Model, the DWR/USBR CWF H3+ model does not consider the additional capacity that would be made available by the NDD when modeling allocations to south of Delta CVP and SWP contractors.
- 2. Like the Part 1 DWR/USBR BA Model, the DWR/USBR CWF H3+ model includes artificial limits on the modeled use of Joint Point of Diversion.
- 3. Like the Part 1 DWR/USBR BA Model, the DWR/USBR CWF H3+ model changes NOD/SOD reservoir balancing criteria so that less stored water is modeled as being conveyed from NOD reservoirs to San Luis Reservoir during summer months.
- 4. CalSim II does not address effects on many types of water users.

March Delta outflow criteria in DWR/USBR CWF H3+ model

 Simulated March Delta Outflow Target, Delta Outflow, Combined Exports, and Delta Outflow Deficit in DWR/USBR CWF H3+ model

Water Year	Outflow	Delta Outflow	Total Exports	Outflow
	Target (cfs)	(cfs)	(cfs)	Deficit (TAF)
1994	8770	8668	3331	6
2002	18638	18532	3196	6
1962	26867	26478	1500	24
1931	7805	7334	1500	29
1988	7912	7321	1500	36
1990	11649	10820	1500	51
1957	43743	42863	1500	54
1934	12580	11400	1500	73
1950	23579	21693	1500	116
1947	22161	19567	1500	159
1932	26182	14576	1500	714
1972	38206	25453	1500	784
1960	37691	19560	1500	1115

Exports can not be reduced enough to meet outflow target

If required to be provided through additional operational mechanisms beyond Delta export reductions, could have significant effects on CVP and SWP operations, including increased releases from NOD reservoirs and decreased storage in those reservoirs

Spring Delta outflow criteria in Incidental Take Permit for CWF

- Delta outflow criteria in the ITP are different than those in the ITP application and analyzed in DWR/USBR CWF H3+
- CWF proponents have not analyzed Delta outflow criteria in the ITP
- DWR witnesses have testified that ITP Delta outflow criteria and ITP application criteria result in substantially the same Delta outflow.

Spring Delta outflow criteria in Incidental Take Permit for CWF

- Performed a simplified analysis to estimate how often the ITP outflow target is met in the DWR/USBR CWF H3+ modeling
 - Calculated outflow target based on Sub Table B of the ITP (ITP Outflow Target) and the Eight River Index from DWR/USBR CWF H3+ modeling.
 - Postprocessed outputs from DWR/USBR CWF H3+ modeling and compared against ITP Delta outflow target
- The <u>ITP</u> Delta outflow target is met less frequently than the outflow target from the <u>ITP application</u> in March and the Delta outflow deficit is greater with the <u>ITP</u>
- April and May show even greater deficits than March

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California Water Fix

Effects of SWRCB 2010 Delta Flow Criteria Report

July 10, 2018



Modeled and Unimpaired Delta Outflow

(Existing Conditions CalSim II output, model period:1922-2003)



January Through June Outflow – Percentage of Unimpaired Flow

For Bay-Delta scoping comments, Sac. Valley Water Users modeled impacts of average allyear and dry-year percentages of unimpaired flow – 50% and 40% -- if they were adopted as new minimum January-June Delta flow requirements

Average Annual Impacts Of Requiring 50% of Unimpaired January-June Flows

- Delta outflow increases 1,060,000 AF (acre-feet),
- Sac. Basin groundwater pumping increases 250,000 AF
- Imports from Trinity basin increases 90,000 AF
- Exports to San Joaquin Valley and So. California decrease 700,000 AF





Effects of SWRCB 2010 Delta Flow Criteria Report

- Effects to CVP and SWP operations would be severe and would result in the inability to maintain viable operations
- Reductions in average, combined CVP and SWP carryover storage in Trinity, Shasta, Oroville, and Folsom would be about:
 - 2,200,000 acre-feet for a 50 percent of unimpaired flow requirement; and
 - 1,000,000 acre-feet for a 40 percent of unimpaired flow requirement
- Regular and multiple violations of existing SWRCB standards and biological opinion requirements would occur
- Severe water supply impacts