Attachment 5A-1

Evaluation of Alternative 2D and 5A DSM2 Modeling Updates

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Introduction

As noted in the Appendix 5F of the Final EIR/EIS (FEIRS), new CalSim II and DSM2 modeling was conducted for the No Action Alternative and the three RDEIR/SDEIS sub-alternatives (Alternatives 2D, 4A and 5A) at ELT with modeling assumptions matching the description of the alternatives, to confirm the reported RDEIR/SDEIS CEQA/NEPA determinations. Following this the DSM2 modeling included in the final EIR/EIS for the Alternatives 2D and 5A was updated with minor changes in the inputs to better reflect the descriptions of these alternatives. For both Alternatives 2D and 5A, the DSM2 inputs for tidal stage and electrical conductivity (EC) were updated to ensure only the assumed sea level rise effects at Early Long-term (ELT) were reflected. In addition, for Alternative 2D, the assumed locations of the intakes 4 and 5 in DSM2 were moved upstream of the Sutter Slough to match the alternative description included in the Chapter 3. The updates considered in here are limited to DSM2 modeling, and do not affect the CalSim II modeling.

Together these updates are expected to only cause minor changes in the DSM2 hydrodynamics and water quality results, and no changes to the impact conclusions for Alternative 2D and 5A presented in various resource chapters in the FEIRS. The changes are expected to be limited to the salinity in the western Delta channels, and water levels and flows in the vicinity of the intakes 4 and 5.

Purpose of this attachment is to disclose hydrodynamics and salinity results from the updated DSM2 modeling of the Alternatives 2D and 5A, and to confirm the impact findings disclosed in various resource chapters of the FEIRS are not changed.

Delta Water Quality Results

Discussion of Updated DSM2 Modeling Results Relative to Chapter 8, *Water Quality*, Impact Analyses

The applicability of the water quality assessment and conclusions presented in Chapter 8, *Water Quality*, for Alternatives 2D and 5A relative to the updated DSM2 modeling for these alternatives was reviewed for each constituent assessment that relied on DSM2 output. The primary effect of the DSM2 modeling updates is greater portions of San Francisco Bay water at certain Delta assessment locations, particularly the Sacramento River at Mallard Island and San Joaquin River at Antioch, where long-term monthly average source water volumes are shown to be about 1 percent higher than the modeled volumes provided in Appendix 8D, *Source Water Fingerprinting Results* (see Figures 1 and 2 at the end of this section). Bay water electrical conductivity (EC) levels, and bromide and chloride concentrations are orders of magnitude higher than in other Delta sources (see Chapter 8, Table 8-43 for bromide, Table 8-45 for chloride, and Section 8.1.3.7 for EC). Thus, while the changes in Bay and other source water volumes at Delta locations is relatively small, on a percentage basis, the shift in source water volumes has the potential to result in somewhat different levels of

these constituents than presented in Chapter 8 and its supporting appendices. The effects of the DSM2 modeling updates relative to the conclusions presented in Chapter 8, Section 8.3.4.3 for Alternative 2D and Section 8.3.4.4 for Alternative 5A for bromide, chloride, and EC are addressed separately below.

Bromide: The updated modeling results for Alternatives 2D and 5A show higher long-term average bromide concentrations at the Delta assessment locations than shown in Table 23 of Appendix 8E, *Bromide* due to the increased fraction of Bay water (updated modeling results are provided in Table 1 below). Long-term average bromide concentrations are still shown to be lower than Existing Conditions at all Delta assessment locations, except in the S. Fork Mokelumne River at Staten Island (Alternative 2D) and the Sacramento River at Emmaton (Alternative 5A). In the S. Fork Mokelumne River, long-term average concentrations are still shown to be well below the 100 µg/L threshold for protecting against the formation of disinfection byproducts in treated drinking water and the frequency of exceedance of the 100 µg/L threshold is consistent with modeling results presented in Appendix 8E. At Emmaton, the frequency of exceeding the 100 µg/L threshold would be higher than shown in Appendix 8E; there would be a small increase from 71% under the No Action Alternative (ELT) to 72% under Alternatives 2D and 5A. Further, there is no municipal and industrial water supply intake at this location. The frequency of exceedance of the 100 µg/L threshold would be unchanged for the Sacramento River at Mallard Island relative to the frequency shown in Appendix 8E for both alternatives. For the San Joaquin River at Antioch, the frequency of exceedance of the 100 µg/L threshold would be 1% higher than shown in Appendix 8E for Alternative 2D; the frequency at Alternative 5A would be unchanged. Based on the above described results from the updated DSM2 modeling, the CEQA and NEPA conclusions presented in Impact WQ-5 for bromide for Alternatives 2D and 5A remain applicable with the modeling updates.

Chloride: The updated modeling results for Alternatives 2D and 5A show increases in long-term average chloride concentrations from 5 to 11% greater than shown in Appendix 8G, *Chloride* for Franks Tract, Old River at Rock Slough, Sacramento River at Emmaton, San Joaquin River at Antioch, Sacramento River at Mallard Island, and Contra Costa Pumping Plant #1 (Tables 2 and 3 below). The greatest changes would be at the western Delta locations: Emmaton, Antioch and Mallard Island. Long-term average concentrations at these locations would still be lower than the No Action Alternative (ELT) under Alternative 2D (Tables 4, 5, and 6 below), which is the comparison that isolates the effect of the alternative from the effects due to climate change and sea level rise. For Alternative 5A, the updated modeling shows increases in long-term average chloride concentrations relative to the No Action Alternative (ELT) at the western Delta locations Emmaton, Antioch, and Mallard Island due to higher portions of Bay water. The increased chloride concentrations and use of assimilative capacity relative to the drinking water threshold of 250 mg/L at Antioch and Mallard Island, two municipal and industrial compliance locations in the Delta, was a component of the impact assessments for Alternatives 2D and 5A. At Contra Costa Pumping Plant #1, a municipal and industrial water supply compliance location, long-term average concentrations would decrease in most months, though there would be some months with slight increases in chloride, similar to the pattern in the modeling results presented in Appendix 8G. The above described changes would show greater use of assimilative capacity at Antioch and Mallard Island, but because increases in the long-term average concentrations would be remain relatively small (3% or less long-term), the CEQA and NEPA conclusions presented in Impact WQ-7 for chloride for Alternatives 2D and 5A remain applicable with the modeling updates.

EC: The updated modeling results for Alternatives 2D and 5A show greater increases in EC for the Sacramento River at Emmaton, and the San Joaquin River at Jersey Point, Prisoners Point, and San Andreas Landing than shown in Appendix 8H, *Electrical Conductivity* for these alternatives (see Tables 7 and 8 below comparing updated DSM2 modeling results to modeling results in Appendix 8H). Significant impacts due to EC degradation at Emmaton and exceedance of fish and wildlife objectives at Prisoners Point were identified for Alternatives 2D and 5A in Chapter 8, Impact WQ-11.

Based on the updated modeling results showing long-term average EC levels at Emmaton at least as high as shown in Appendix 8H for Alternatives 2D and 5A, the significant impact conclusion for EC degradation remains applicable for Alternatives 2D and 5A. However, for Alternative 2D, the degradation would be greater and occur in July through September on a long-term average basis in addition to drought periods (Table 9 below). For Alternative 5A, the degradation at Emmaton would occur in October in addition to July through September and November, and both on a long-term average basis in addition to drought periods (Table 10 below). Mitigation Measure 11e, Adaptively Manage Diversions at the North and South Delta Intakes to Reduce or Eliminate Water Quality Degradation in the Western Delta, would still apply; however, the period over which the mitigation must address the impacts is expanded from July through September to July through November for Alternative 5A, and to include all water year types, not just below normal, dry, and critical water year types for both alternatives.

Based on the updated modeling results showing long-term average EC levels at Prisoners Point at least as high as shown in Appendix 8H for Alternatives 2D and 5A (Tables 8 and 9 below), the significant impact conclusion for EC regarding exceedance of fish and wildlife objectives remains applicable for Alternatives 2D and 5A. Mitigation Measure WQ-11f, Adaptively Manage Head of Old River Barrier and Diversions at the North and South Delta Intakes to Reduce or Eliminate Exceedances of the Bay-Delta WQCP Objective at Prisoners Point, also remains applicable.

No new impacts at San Andreas Landing or Jersey Point are identified based on the updated modeling results. Under Alternative 2D, at Jersey Point and San Andreas Landing there would still be appreciable long-term average decreases in EC in July through February and small increases in EC in March through June (Table 9 below). Under Alternative 5A, the updated modeling shows more months with long-term average EC increases at San Andreas Landing and Jersey Point, the but the increases would be relatively small compared to the No Action Alternative (ELT), with the maximum long-term average increase being 41 µmhos/cm (4% increase) and no change in the annual average EC (Table 10 below).

Based on the above described results from the updated DSM2 modeling, the CEQA and NEPA conclusions presented in Impact WQ-11 for EC for Alternatives 2D and 5A remain applicable with the modeling updates.

Table 1. Period Average Bromide Concentration and 50 µg/L and 100 µg/L Frequency of Exceedance for Existing Conditions, No Action Alternative ELT, Alternative 4A, 2D, and 5A ELT using the EC to Chloride and Chloride to Bromide Relationship Modeling Approach.

Bromide 4A/2D/5A			Period Average Concentration (µg/L)					Lowest Applicable Human Health Criterion/Objective (50 µg/L) b (%)					Lowest Applicable Aquatic Life Criterion/Objective (100 µg/L) c Frequency of Criterion/Objective Exceedance (%)				
	Location	Period [a]	Ex. Cond.	No Act. ELT	4A ELT	2D ELT	5A ELT	Ex. Cond.	No Act. ELT	Alt 4A ELT	Alt 2D ELT	Alt 5A ELT	Ex. Cond.	No Act. ELT	Alt 4A ELT	Alt 2D ELT	Alt 5A ELT
Delta Interior	Moke. R. (SF) at Staten Island	ALL	65	65	66	67	65	97	98	98	98	98	3	2	3	3	2
		DROUGHT	68	67	68	69	68	100	100	100	100	100	3	2	3	3	2
	SJR at Buckley Cove	ALL	405	353	362	361	356	100	99	99	99	99	89	87	87	86	87
		DROUGHT	542	456	474	475	465	100	100	100	100	100	100	100	100	100	100
	Franks Tract	ALL	420	386	300	314	376	100	100	100	100	100	76	71	77	78	73
		DROUGHT	535	538	448	441	516	100	100	100	100	100	93	87	93	93	88
	Old R. at Rock Slough	ALL	378	350	284	301	345	100	100	100	100	100	86	81	87	86	84
		DROUGHT	476	477	408	399	459	100	100	100	100	100	98	97	98	98	98
Western Delta	Sac. R. at Emmaton	ALL	903	907	898	886	999	100	100	100	100	100	69	71	69	72	72
		DROUGHT	1273	1413	1396	1405	1544	100	100	100	100	100	90	92	90	90	93
	SJR at Antioch	ALL	2648	2465	2269	2252	2547	100	100	100	100	100	82	83	86	89	85
		DROUGHT	3507	3559	3380	3402	3679	100	100	100	100	100	98	98	98	100	98
	Sac. R. at Mallard Island	ALL	6182	5898	5741	5738	6098	100	100	100	100	100	87	88	88	89	88
		DROUGHT	8211	8187	8022	8128	8409	100	100	100	100	100	100	100	100	100	100
Major Diversions (Pumping Stations)	NBA at Barker Slough PP	ALL	66	65	65	66	65	100	100	100	100	100	1	1	1	1	1
		DROUGHT	65	65	66	66	66	100	100	100	100	100	0	0	0	0	0
	Contra Costa PP #1	ALL	422	392	327	349	382	100	100	100	100	100	95	91	97	97	95
		DROUGHT	500	499	422	420	474	100	100	100	100	100	98	97	100	98	98
	Banks PP	ALL	356	332	225	222	273	100	99	99	99	99	91	89	66	66	75
		DROUGHT	469	455	342	317	384	100	100	100	100	100	100	100	90	85	95
	Jones PP	ALL	381	358	245	242	306	100	99	98	98	100	92	89	72	70	81
		DROUGHT	507	487	347	340	409	100	100	100	100	100	100	100	93	95	97

[a] ALL: Water years 1975-1991 represent the 16-year period modeled using DSM2. DROUGHT: Represents a 5 consecutive year (water years 1987-1991) drought period consisting of dry and critical water year types (as defined by the Sacramento Valley 40-30-30 water year hydrologic classification index).

[b] CALFED Drinking Water Program goal for bromide of 50 µg/L as a long-term average as applied to municipal drinking water intakes drawing water from the Delta.

[c] Minimum bromide concentration believed to be sufficient to meet currently established drinking water criteria for disinfection byproducts.

Table 2. Chloride: Revised Alternative 2D modeling results vs results in Appendix 8G.

	Chloride			OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Avg. Chang
	Alt 2D ELT	Location	Period [a]	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD	Alt 2D ELT OLD
MokeR	Delta Interior	Moke. R. (SF) at Staten Island	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-1%)	(-1%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
SJBuck		SJR at Buckley Cove	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(-0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(-0%)	(0%)
Franks		Franks Tract	ALL	12	11	13	8	2	1	1	1	3	9	13	16	7
				(10%)	(11%)	(10%)	(8%)	(3%)	(2%)	(2%)	(4%)	(8%)	(11%)	(11%)	(11%)	(9%)
			DROUGHT	18	18	21	13	4	2	1	3	6	16	18	26	12
				(11%)	(12%)	(11%)	(9%)	(7%)	(5%)	(2%)	(7%)	(12%)	(13%)	(12%)	(12%)	(11%)
OldRockSl		Old R. at Rock Slough	ALL	10	8	11	7	2	1	1	1	2	7	10	13	6
				(9%)	(9%)	(9%)	(7%)	(3%)	(2%)	(1%)	(2%)	(5%)	(10%)	(10%)	(10%)	(8%)
			DROUGHT	15	13	17	12	4	2	1	2	4	11	14	20	10
				(10%)	(11%)	(10%)	(8%)	(6%)	(3%)	(2%)	(4%)	(9%)	(12%)	(11%)	(12%)	(9%)
SREmma	Western Delta	Sac. R. at Emmaton	ALL	41	40	30	11	7	5	5	12	22	33	49	55	26
				(10%)	(11%)	(11%)	(13%)	(14%)	(13%)	(13%)	(13%)	(13%)	(12%)	(12%)	(10%)	(11%)
			DROUGHT	57	57	48	18	15	8	7	22	36	57	63	82	39
				(10%)	(10%)	(10%)	(13%)	(16%)	(16%)	(17%)	(15%)	(13%)	(12%)	(11%)	(9%)	(11%)
SJRAnt		SJR at Antioch	ALL	62	65	60	31	22	15	15	27	43	66	83	76	47
				(7%)	(7%)	(7%)	(9%)	(12%)	(12%)	(12%)	(11%)	(10%)	(8%)	(8%)	(6%)	(8%)
			DROUGHT	81	87	85	49	42	25	23	48	68	94	97	109	67
				(6%)	(6%)	(7%)	(9%)	(13%)	(13%)	(14%)	(11%)	(10%)	(7%)	(7%)	(6%)	(7%)
SRMall		Sac. R. at Mallard Island	ALL	112	106	100	73	59	43	51	72	95	116	131	116	90
				(5%)	(5%)	(5%)	(7%)	(9%)	(9%)	(9%)	(8%)	(7%)	(6%)	(5%)	(4%)	(6%)
			DROUGHT	121	125	128	110	108	67	74	107	126	137	138	135	115
				(4%)	(4%)	(5%)	(7%)	(8%)	(9%)	(9%)	(7%)	(6%)	(5%)	(4%)	(4%)	(5%)
Barker	Major Diversions (Pumping Stations)	NBA at Barker Slough PP	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)
CCPP1		Contra Costa PP #1	ALL	11	8	9	9	5	2	1	1	2	6	9	10	6
				(9%)	(8%)	(9%)	(7%)	(4%)	(2%)	(1%)	(1%)	(4%)	(9%)	(9%)	(9%)	(6%)
			DROUGHT	16	12	14	15	6	3	1	1	4	9	13	15	9
				(10%)	(8%)	(11%)	(9%)	(6%)	(4%)	(2%)	(2%)	(7%)	(11%)	(10%)	(11%)	(8%)
Banks		Banks PP	ALL	5	4	5	4	2	0	0	0	0	2	5	5	3
				(8%)	(6%)	(7%)	(7%)	(3%)	(1%)	(0%)	(0%)	(1%)	(5%)	(8%)	(9%)	(5%)
			DROUGHT	8	7	10	8	5	0	0	0	1	2	8	10	5
				(10%)	(8%)	(8%)	(7%)	(4%)	(1%)	(0%)	(0%)	(1%)	(6%)	(9%)	(10%)	(6%)
Jones		Jones PP	ALL	4	3	4	3	1	0	0	0	0	4	5	5	2
				(5%)	(5%)	(4%)	(3%)	(1%)	(0%)	(0%)	(0%)	(1%)	(6%)	(6%)	(7%)	(4%)
			DROUGHT	6	6	7	4	2	1	0	0	1	5	7	9	4
				(6%)	(6%)	(5%)	(4%)	(2%)	(1%)	(0%)	(0%)	(2%)	(8%)	(8%)	(8%)	(4%)

Table 3. Chloride: Revised Alternative 5A modeling results vs results in Appendix 8G.

	Chloride			OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Avg. Chang
	Alt 5A ELT	Location	Period [a]	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD	Alt 5A ELT OLD
MokeR	Delta Interior	Moke. R. (SF) at Staten Island	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(0%)	(-0%)	(0%)	(-0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
SJBuck		SJR at Buckley Cove	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(-0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(-0%)	(0%)
Franks		Franks Tract	ALL	17	19	15	10	4	2	1	1	4	10	13	17	9
				(11%)	(10%)	(9%)	(8%)	(6%)	(4%)	(3%)	(4%)	(9%)	(11%)	(11%)	(12%)	(9%)
			DROUGHT	25	26	23	14	6	3	1	3	6	17	19	27	14
				(11%)	(10%)	(10%)	(9%)	(8%)	(7%)	(3%)	(8%)	(13%)	(13%)	(12%)	(13%)	(11%)
OldRockSl		Old R. at Rock Slough	ALL	13	15	12	10	4	2	1	1	2	8	10	13	8
				(11%)	(9%)	(8%)	(8%)	(6%)	(4%)	(2%)	(2%)	(6%)	(10%)	(10%)	(11%)	(8%)
			DROUGHT	20	21	19	14	6	3	1	1	4	12	15	21	11
				(11%)	(10%)	(9%)	(8%)	(7%)	(5%)	(3%)	(4%)	(9%)	(12%)	(11%)	(13%)	(10%)
SREmma	Western Delta	Sac. R. at Emmaton	ALL	49	45	30	15	9	5	5	12	23	33	45	52	27
				(9%)	(9%)	(10%)	(13%)	(14%)	(13%)	(13%)	(14%)	(13%)	(12%)	(12%)	(10%)	(10%)
			DROUGHT	66	63	49	22	16	9	7	21	35	53	61	80	40
				(8%)	(8%)	(10%)	(12%)	(15%)	(16%)	(17%)	(15%)	(14%)	(11%)	(10%)	(9%)	(10%)
SJRAnt		SJR at Antioch	ALL	71	66	61	39	26	16	15	28	48	69	82	77	50
				(6%)	(5%)	(7%)	(8%)	(11%)	(11%)	(12%)	(12%)	(10%)	(8%)	(8%)	(6%)	(7%)
			DROUGHT	89	86	84	53	45	26	23	48	68	93	95	109	68
				(5%)	(5%)	(6%)	(8%)	(11%)	(13%)	(14%)	(12%)	(10%)	(7%)	(7%)	(6%)	(7%)
SRMall		Sac. R. at Mallard Island	ALL	110	100	99	77	62	44	51	73	100	117	130	116	90
				(4%)	(4%)	(5%)	(6%)	(8%)	(8%)	(9%)	(8%)	(7%)	(6%)	(5%)	(4%)	(5%)
			DROUGHT	118	116	125	108	109	66	73	107	126	136	138	135	113
				(4%)	(3%)	(4%)	(6%)	(8%)	(9%)	(9%)	(7%)	(6%)	(5%)	(4%)	(4%)	(5%)
Barker	Major Diversions (Pumping Stations)	NBA at Barker Slough PP	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(1%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(0%)
CCPP1		Contra Costa PP #1	ALL	12	13	13	10	5	2	1	1	2	7	9	11	7
				(10%)	(9%)	(8%)	(6%)	(5%)	(3%)	(2%)	(1%)	(4%)	(9%)	(9%)	(10%)	(7%)
			DROUGHT	17	19	20	17	8	4	2	1	3	10	14	15	11
				(11%)	(10%)	(10%)	(8%)	(7%)	(5%)	(3%)	(2%)	(7%)	(11%)	(10%)	(11%)	(9%)
Banks		Banks PP	ALL	7	8	8	7	3	1	0	0	0	3	5	6	4
				(9%)	(8%)	(7%)	(7%)	(4%)	(2%)	(1%)	(1%)	(1%)	(6%)	(8%)	(9%)	(6%)
			DROUGHT	10	13	11	11	6	2	1	0	1	4	9	11	6
				(10%)	(9%)	(8%)	(7%)	(5%)	(2%)	(1%)	(0%)	(1%)	(7%)	(9%)	(11%)	(6%)
Jones		Jones PP	ALL	6	7	6	4	1	0	0	0	1	4	5	5	3
				(7%)	(7%)	(4%)	(3%)	(1%)	(1%)	(0%)	(0%)	(1%)	(6%)	(7%)	(7%)	(4%)
			DROUGHT	10	9	9	4	2	1	0	0	1	6	8	9	5
				(8%)	(8%)	(5%)	(3%)	(1%)	(1%)	(0%)	(0%)	(2%)	(9%)	(8%)	(9%)	(4%)

Table 4. Period average chloride concentrations and frequency of exceedance of objectives for existing conditions, No Action ELT, and Alternatives 4A, 2D, and 5A ELT. Calculation of chloride concentrations was based on EC-chloride relationship.

Chloride Alt 4A/2D/5A	Location	Period [a]	Period Average Concentration (mg/L)					Lowest Applicable Human Health Criterion/Objective (250 mg/L) [b] Frequency of Criterion/Objective Exceedance (%)				
			Ex. Cond.	No Act. ELT	Alt 4A ELT	Alt 2D ELT	Alt 5A ELT	Ex. Cond.	No Act. ELT	Alt 4A ELT	Alt 2D ELT	Alt 5A ELT
Delta Interior	Moke. R. (SF) at Staten Island	ALL	18.5	18.5	18.9	19.0	18.6	0	0	0	0	0
		DROUGHT	19.3	19.2	19.5	19.6	19.4	0	0	0	0	0
	SJR at Buckley Cove	ALL	115.7	100.9	103.3	103.2	101.6	0	0	0	0	0
		DROUGHT	154.9	130.4	135.4	135.6	132.9	0	0	0	0	0
	Franks Tract	ALL	119.9	110.2	86.1	89.6	107.5	14	16	6	6	14
		DROUGHT	152.8	153.8	128.0	125.9	147.4	22	28	15	13	25
	Old R. at Rock Slough	ALL	107.9	100.0	81.7	85.9	98.5	4	8	3	2	6
		DROUGHT	135.9	136.3	116.4	113.9	131.0	7	17	8	3	10
Western Delta	Sac. R. at Emmaton	ALL	258.0	259.2	256.2	253.2	285.3	36	32	33	32	34
		DROUGHT	363.7	403.8	398.7	401.5	441.2	50	53	50	52	53
	SJR at Antioch	ALL	756.6	704.2	647.8	643.4	727.8	61	63	59	59	63
		DROUGHT	1001.9	1016.8	965.5	971.9	1051.2	80	78	77	78	82
	Sac. R. at Mallard Island	ALL	1766.4	1685.1	1639.8	1639.4	1742.2	77	80	80	83	82
		DROUGHT	2345.9	2339.2	2291.9	2322.4	2402.5	98	98	98	98	98
Major Diversions (Pumping Stations)	NBA at Barker Slough PP	ALL	18.8	18.6	18.7	18.8	18.6	0	0	0	0	0
		DROUGHT	18.7	18.7	18.8	18.7	18.7	0	0	0	0	0
	Contra Costa PP #1	ALL	120.4	112.0	94.1	99.6	109.1	5	8	2	4	6
		DROUGHT	142.8	142.6	120.6	119.9	135.5	8	17	7	5	12
	Banks PP	ALL	101.6	94.8	65.7	63.6	78.1	1	2	1	0	1
		DROUGHT	134.0	130.1	98.2	90.7	109.7	2	2	2	0	2
	Jones PP	ALL	108.8	102.3	69.6	69.2	87.4	0	0	0	0	1
		DROUGHT	144.7	139.3	99.4	97.1	116.8	0	0	0	0	0

[a] ALL: Water years 1975-1991 represent the 16-year period modeled using DSM2. DROUGHT: Represents a 5 consecutive year (water years 1987-1991) drought period consisting of dry and critical water year types (as defined by the Sacramento Valley 40-30-30 water year hydrologic classification index).

[b] State secondary maximum contaminant level (MCL) incorporated by reference in the Region 2 and 5 Basin Plans.

Table 5. Period average change in chloride concentrations (mg/L) for Alternative 2D ELT relative to existing conditions and the No Action Alternative ELT. Calculation of chloride concentrations was based on EC-chloride relationship.

Chloride			OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		Annual Avg. Change	
Alt 2D ELT	Location	Period [a]	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT
Delta Interior	Moke. R. (SF) at Staten Island	ALL	1	1	1	1	0	0	2	1	1	1	1	1	1	1	0	0	0	0	0	0	0	0	0	0	1	1
			(4%)	(3%)	(3%)	(3%)	(1%)	(1%)	(6%)	(6%)	(4%)	(4%)	(5%)	(4%)	(3%)	(3%)	(0%)	(0%)	(1%)	(1%)	(2%)	(2%)	(3%)	(2%)	(2%)	(1%)	(3%)	(3%)
		DROUGHT	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
			(2%)	(2%)	(1%)	(1%)	(-0%)	(1%)	(4%)	(4%)	(1%)	(3%)	(2%)	(3%)	(-0%)	(1%)	(0%)	(1%)	(1%)	(1%)	(5%)	(4%)	(3%)	(0%)	(1%)	(1%)	(2%)	(2%)
	SJR at Buckley Cove	ALL	-8	0	-12	-1	-21	4	-21	4	-13	6	-10	5	-18	-6	-9	1	-6	4	-9	5	-11	6	-12	0	-13	2
			(-8%)	(0%)	(-11%)	(-1%)	(-15%)	(4%)	(-13%)	(3%)	(-9%)	(4%)	(-7%)	(4%)	(-18%)	(-7%)	(-12%)	(2%)	(-6%)	(5%)	(-9%)	(5%)	(-10%)	(6%)	(-11%)	(-0%)	(-11%)	(2%)
		DROUGHT	-14	0	-18	-1	-32	3	-32	6	-14	12	-12	9	-32	-12	-14	3	-22	8	-11	15	-13	19	-16	0	-19	5
			(-11%)	(-0%)	(-13%)	(-1%)	(-19%)	(2%)	(-15%)	(4%)	(-7%)	(6%)	(-6%)	(5%)	(-19%)	(-8%)	(-12%)	(3%)	(-17%)	(8%)	(-10%)	(17%)	(-11%)	(21%)	(-12%)	(0%)	(-12%)	(4%)
	Franks Tract	ALL	-61	-42	-124	-96	-66	-43	-27	-26	-5	-1	2	3	4	5	2	3	4	4	-32	-15	-28	-16	-32	-23	-30	-21
			(-32%)	(-25%)	(-54%)	(-47%)	(-32%)	(-23%)	(-20%)	(-19%)	(-8%)	(-2%)	(5%)	(8%)	(14%)	(15%)	(6%)	(10%)	(10%)	(8%)	(-25%)	(-13%)	(-18%)	(-11%)	(-17%)	(-13%)	(-25%)	(-19%)
		DROUGHT	-46	-60	-102	-116	-46	-45	-25	-39	-10	-14	3	1	5	5	9	6	16	7	-76	-49	-56	-25	7	-6	-27	-28
			(-20%)	(-24%)	(-38%)	(-41%)	(-17%)	(-17%)	(-14%)	(-20%)	(-13%)	(-18%)	(7%)	(2%)	(15%)	(17%)	(28%)	(19%)	(38%)	(14%)	(-36%)	(-27%)	(-25%)	(-13%)	(3%)	(-2%)	(-18%)	(-18%)
	Old R. at Rock Slough	ALL	-33	-20	-95	-75	-58	-38	-14	-15	-2	3	2	5	0	2	-3	0	6	6	-23	-10	-23	-12	-20	-15	-22	-14
			(-22%)	(-14%)	(-50%)	(-44%)	(-32%)	(-24%)	(-11%)	(-11%)	(-3%)	(4%)	(4%)	(10%)	(0%)	(5%)	(-6%)	(-0%)	(14%)	(15%)	(-23%)	(-12%)	(-18%)	(-11%)	(-13%)	(-10%)	(-20%)	(-14%)
		DROUGHT	-22	-32	-78	-95	-41	-38	-19	-37	-12	-12	2	4	0	3	4	4	14	9	-60	-40	-52	-27	-1	-8	-22	-22
			(-12%)	(-16%)	(-36%)	(-41%)	(-18%)	(-17%)	(-11%)	(-19%)	(-13%)	(-14%)	(3%)	(7%)	(-0%)	(5%)	(11%)	(10%)	(37%)	(20%)	(-37%)	(-28%)	(-27%)	(-16%)	(-1%)	(-4%)	(-16%)	(-16%)
Western Delta	Sac. R. at Emmaton	ALL	-142	-122	-141	-97	-13	-16	-32	-30	-12	-11	7	0	8	3	8	7	8	-3	76	55	126	71	48	72	-5	-6
			(-25%)	(-22%)	(-26%)	(-19%)	(-4%)	(-5%)	(-25%)	(-24%)	(-17%)	(-16%)	(21%)	(-1%)	(23%)	(7%)	(8%)	(7%)	(5%)	(-2%)	(34%)	(22%)	(38%)	(18%)	(9%)	(13%)	(-2%)	(-2%)
		DROUGHT	-146	-156	-144	-137	15	-32	-42	-66	-1	-14	17	1	15	7	50	21	63	21	219	179	215	88	192	61	38	-2
			(-19%)	(-20%)	(-19%)	(-18%)	(3%)	(-6%)	(-22%)	(-30%)	(-1%)	(-11%)	(39%)	(2%)	(42%)	(17%)	(42%)	(14%)	(26%)	(7%)	(66%)	(49%)	(48%)	(15%)	(24%)	(7%)	(10%)	(-1%)
	SJR at Antioch	ALL	-541	-315	-517	-285	-142	-58	-131	-108	-52	-49	23	-4	25	6	17	12	0	-33	16	19	103	75	-158	8	-113	-61
			(-36%)	(-25%)	(-35%)	(-23%)	(-14%)	(-6%)	(-26%)	(-23%)	(-20%)	(-19%)	(19%)	(-3%)	(22%)	(5%)	(7%)	(5%)	(-0%)	(-6%)	(2%)	(2%)	(10%)	(7%)	(-11%)	(1%)	(-15%)	(-9%)
		DROUGHT	-477	-383	-449	-273	-104	-81	-136	-163	-26	-69	53	0	50	24	91	37	85	8	117	109	234	180	201	70	-30	-45
			(-26%)	(-22%)	(-23%)	(-16%)	(-7%)	(-6%)	(-19%)	(-22%)	(-7%)	(-16%)	(33%)	(0%)	(35%)	(14%)	(24%)	(9%)	(12%)	(1%)	(9%)	(9%)	(18%)	(13%)	(11%)	(4%)	(-3%)	(-4%)
	Sac. R. at Mallard Island	ALL	-698	-275	-662	-269	-229	-68	-201	-159	-71	-78	85	9	99	40	67	32	22	-81	74	54	227	158	-236	88	-127	-46
			(-23%)	(-10%)	(-23%)	(-11%)	(-10%)	(-3%)	(-16%)	(-13%)	(-9%)	(-10%)	(19%)	(2%)	(19%)	(7%)	(7%)	(3%)	(2%)	(-5%)	(4%)	(3%)	(9%)	(6%)	(-8%)	(3%)	(-7%)	(-3%)
		DROUGHT	-626	-296	-653	-257	-218	-100	-248	-252	-11	-107	156	38	167	90	157	65	119	12	244	227	380	268	251	111	-23	-17
			(-17%)	(-9%)	(-17%)	(-8%)	(-7%)	(-3%)	(-13%)	(-13%)	(-1%)	(-7%)	(24%)	(5%)	(23%)	(11%)	(11%)	(4%)	(6%)	(1%)	(9%)	(8%)	(13%)	(9%)	(7%)	(3%)	(-1%)	(-1%)
Major Diversions (Pumping Stations)	NBA at Barker Slough PP	ALL	-1	0	0	0	0	0	0	0	1	0	0	0	-1	0	0	0	-1	0	-1	0	0	0	0	0	0	0
			(-4%)	(1%)	(-0%)	(2%)	(1%)	(1%)	(1%)	(0%)	(6%)	(2%)	(1%)	(2%)	(-3%)	(1%)	(-1%)	(0%)	(-3%)	(0%)	(-3%)	(1%)	(-1%)	(1%)	(-1%)	(1%)	(0%)	(1%)
		DROUGHT	-1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	-1	0	0	0	0	0	0	0	0	0
			(-5%)	(0%)	(-2%)	(-1%)	(2%)	(1%)	(0%)	(-1%)	(2%)	(1%)	(4%)	(1%)	(4%)	(1%)	(2%)	(-0%)	(-4%)	(-1%)	(-1%)	(1%)	(1%)	(1%)	(-1%)	(-1%)	(0%)	(0%)
	Contra Costa PP #1	ALL	-23	0	-53	-38	-76	-56	-34	-17	16	-5	-7	3	-1	7	-12	-11	3	6	-11	-6	-32	-12	-21	-20	-21	-12
			(-14%)	(0%)	(-33%)	(-26%)	(-42%)	(-35%)	(-19%)	(-10%)	(14%)	(-4%)	(-8%)	(4%)	(-1%)	(11%)	(-18%)	(-16%)	(7%)	(14%)	(-12%)	(-8%)	(-23%)	(-10%)	(-15%)	(-14%)	(-17%)	(-11%)
		DROUGHT	-15	2	-35	-54	-77	-82	-17	-29	0	-23	-3	-11	-1	4	-1	-5	11	8	-35	-28	-81	-41	-21	-13	-23	-23
			(-8%)	(1%)	(-19%)	(-26%)	(-34%)	(-35%)	(-8%)	(-13%)	(0%)	(-18%)	(-3%)	(-12%)	(-2%)	(5%)	(-2%)	(-9%)	(24%)	(16%)	(-27%)	(-23%)	(-36%)	(-22%)	(-12%)	(-8%)	(-16%)	(-16%)
	Banks PP	ALL	-44	-35	-62	-50	-63	-47	-70	-65	-38	-36	-38	-33	-28	-23	-9	-4	-8	-6	-25	-19	-30	-19	-41	-38	-38	-31
			(-39%)	(-34%)	(-47%)	(-42%)	(-44%)	(-37%)	(-50%)	(-49%)	(-37%)	(-36%)	(-43%)	(-40%)	(-34%)	(-30%)	(-13%)	(-6%)	(-13%)	(-10%)	(-34%)	(-28%)	(-30%)	(-21%)	(-38%)	(-36%)	(-37%)	(-33%)
		DROUGHT	-39	-38	-55	-67	-56	-46	-50	-62	-23	-29	-70	-60	-49	-39	-26	-20	2	3	-63	-53	-62	-37	-27	-24	-43	-39
			(-29%)	(-28%)	(-36%)	(-41%)	(-31%)	(-27%)	(-29%)	(-34%)	(-17%)	(-20%)	(-53%)	(-49%)	(-38%)	(-33%)	(-25%)	(-20%)	(2%)	(5%)	(-62%)	(-58%)	(-40%)	(-28%)	(-20%)	(-19%)	(-32%)	(-30%)
	Jones PP	ALL	-34	-28	-59	-51	-42	-26	-63	-51	-54	-43	-64	-58	-30	-25	-33	-29	-26	-30	-15	-11	-19	-10	-36	-33	-40	-33
			(-31%)	(-27%)	(-46%)	(-42%)	(-28%)	(-20%)	(-41%)	(-37%)	(-42%)	(-37%)	(-54%)	(-51%)	(-34%)	(-30%)	(-43%)	(-39%)	(-41%)	(-44%)	(-18%)	(-15%)	(-19%)	(-11%)	(-34%)	(-32%)	(-36%)	(-32%)
		DROUGHT	-25	-29	-47	-60	-42	-33	-69	-60	-74	-56	-103	-93	-38	-33	-54	-50	-16	-17	-35	-27	-49	-30	-20	-19	-48	-42
			(-19%)	(-21%)	(-31%)	(-37%)	(-23%)	(-19%)	(-36%)	(-33%)	(-39%)	(-33%)	(-53%)	(-51%)	(-28%)	(-25%)	(-47%)	(-45%)	(-26%)	(-27%)	(-33%)	(-27%)	(-33%)	(-23%)	(-15%)	(-14%)	(-33%)	(-30%)

[a] ALL: Water years 1976-1991 represent the 16-year period modeled using DSM2. DROUGHT: Represents a 5 consecutive year (water years 1987-1991) drought period consisting of dry and critical water year types (as defined by the Sacramento Valley 40-30-30 water year hydrologic classification index).

Table 6. Period average change in chloride concentrations (mg/L) for Alternative 5A ELT relative to existing conditions and the No Action Alternative ELT. Calculation of chloride concentrations was based on EC-chloride relationship.

Chloride			OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		Annual Avg. Change	
Alt 5A ELT	Location	Period [a]	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT
Delta Interior	Moke. R. (SF) at Staten Island	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
			(2%)	(1%)	(2%)	(1%)	(-0%)	(0%)	(1%)	(1%)	(-0%)	(0%)	(2%)	(1%)	(1%)	(1%)	(-0%)	(0%)	(0%)	(0%)	(1%)	(1%)	(3%)	(1%)	(2%)	(1%)	(1%)	(1%)
		DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	0	0	0	0	0
			(1%)	(1%)	(1%)	(1%)	(-1%)	(0%)	(2%)	(1%)	(-1%)	(0%)	(-0%)	(1%)	(-1%)	(0%)	(-0%)	(0%)	(0%)	(1%)	(4%)	(4%)	(4%)	(1%)	(1%)	(1%)	(1%)	(1%)
	SJR at Buckley Cove	ALL	-8	0	-11	0	-25	0	-26	-1	-19	0	-15	0	-12	0	-10	0	-10	1	-11	3	-12	5	-11	1	-14	1
			(-8%)	(0%)	(-10%)	(0%)	(-18%)	(0%)	(-16%)	(-0%)	(-13%)	(-0%)	(-11%)	(-0%)	(-12%)	(-0%)	(-13%)	(0%)	(-10%)	(1%)	(-10%)	(3%)	(-11%)	(5%)	(-10%)	(1%)	(-12%)	(1%)
		DROUGHT	-14	0	-18	0	-34	1	-38	0	-27	-1	-21	0	-20	0	-17	0	-28	2	-16	10	-16	16	-15	2	-22	3
			(-11%)	(0%)	(-13%)	(0%)	(-20%)	(1%)	(-18%)	(0%)	(-12%)	(-0%)	(-10%)	(0%)	(-12%)	(0%)	(-14%)	(0%)	(-21%)	(2%)	(-14%)	(11%)	(-14%)	(18%)	(-11%)	(1%)	(-14%)	(2%)
	Franks Tract	ALL	-22	-3	-21	7	-22	1	2	3	0	3	1	2	1	1	0	1	1	0	-26	-10	-25	-14	-35	-26	-12	-3
			(-12%)	(-2%)	(-9%)	(3%)	(-11%)	(1%)	(1%)	(3%)	(-1%)	(6%)	(2%)	(5%)	(4%)	(5%)	(-1%)	(2%)	(2%)	(1%)	(-21%)	(-9%)	(-17%)	(-10%)	(-18%)	(-14%)	(-10%)	(-2%)
		DROUGHT	12	-2	6	-8	-4	-3	3	-11	5	0	3	1	0	1	3	1	10	1	-59	-32	-46	-16	3	-10	-5	-6
			(5%)	(-1%)	(2%)	(-3%)	(-1%)	(-1%)	(2%)	(-5%)	(7%)	(0%)	(7%)	(2%)	(1%)	(2%)	(11%)	(4%)	(24%)	(2%)	(-28%)	(-17%)	(-21%)	(-8%)	(1%)	(-4%)	(-3%)	(-4%)
	Old R. at Rock Slough	ALL	-17	-3	-10	10	-19	1	4	3	-3	2	1	3	-2	1	-2	0	0	1	-20	-7	-21	-10	-24	-19	-9	-2
			(-11%)	(-2%)	(-5%)	(6%)	(-11%)	(1%)	(3%)	(2%)	(-4%)	(3%)	(1%)	(7%)	(-3%)	(2%)	(-5%)	(1%)	(1%)	(1%)	(-20%)	(-8%)	(-16%)	(-9%)	(-16%)	(-13%)	(-9%)	(-2%)
		DROUGHT	10	0	12	-5	-4	-2	14	-3	-1	-2	-2	0	-6	-3	1	1	7	2	-46	-26	-41	-15	-3	-11	-5	-5
			(6%)	(-0%)	(6%)	(-2%)	(-2%)	(-1%)	(8%)	(-2%)	(-2%)	(-2%)	(-3%)	(0%)	(-11%)	(-6%)	(2%)	(1%)	(20%)	(4%)	(-28%)	(-18%)	(-21%)	(-9%)	(-2%)	(-5%)	(-4%)	(-4%)
Western Delta	Sac. R. at Emmaton	ALL	31	50	20	63	16	13	5	7	5	6	11	3	8	3	5	4	17	5	74	53	103	49	33	56	27	26
			(5%)	(9%)	(4%)	(13%)	(5%)	(4%)	(4%)	(5%)	(7%)	(9%)	(32%)	(8%)	(23%)	(7%)	(6%)	(5%)	(9%)	(2%)	(33%)	(21%)	(31%)	(13%)	(6%)	(11%)	(11%)	(10%)
		DROUGHT	71	61	61	68	58	11	20	-4	14	1	19	3	14	6	38	10	49	7	196	157	207	79	180	49	77	37
			(9%)	(8%)	(8%)	(9%)	(12%)	(2%)	(10%)	(-2%)	(13%)	(1%)	(44%)	(5%)	(38%)	(14%)	(32%)	(7%)	(20%)	(3%)	(59%)	(42%)	(47%)	(14%)	(23%)	(5%)	(21%)	(9%)
	SJR at Antioch	ALL	-182	44	-175	57	-50	34	1	24	15	19	39	12	28	10	16	11	37	4	36	40	61	33	-173	-7	-29	24
			(-12%)	(4%)	(-12%)	(5%)	(-5%)	(4%)	(0%)	(5%)	(6%)	(7%)	(32%)	(8%)	(25%)	(7%)	(6%)	(4%)	(8%)	(1%)	(4%)	(5%)	(6%)	(3%)	(-12%)	(-1%)	(-4%)	(3%)
		DROUGHT	-45	49	-100	76	-4	18	-6	-33	52	9	67	14	47	21	73	19	73	-4	89	82	170	116	175	44	49	34
			(-2%)	(3%)	(-5%)	(4%)	(-0%)	(1%)	(-1%)	(-4%)	(13%)	(2%)	(41%)	(7%)	(33%)	(13%)	(19%)	(4%)	(11%)	(-1%)	(7%)	(7%)	(13%)	(9%)	(10%)	(2%)	(5%)	(3%)
	Sac. R. at Mallard Island	ALL	-358	66	-301	92	-93	69	-5	36	45	38	113	37	100	40	76	41	132	29	111	91	158	90	-269	56	-24	57
			(-12%)	(2%)	(-10%)	(4%)	(-4%)	(3%)	(-0%)	(3%)	(6%)	(5%)	(25%)	(7%)	(20%)	(7%)	(8%)	(4%)	(9%)	(2%)	(5%)	(4%)	(6%)	(4%)	(-9%)	(2%)	(-1%)	(3%)
		DROUGHT	-249	81	-278	119	-73	44	-77	-81	98	1	157	38	148	71	134	42	105	-2	195	178	300	188	221	80	57	63
			(-7%)	(2%)	(-7%)	(4%)	(-2%)	(1%)	(-4%)	(-4%)	(7%)	(0%)	(24%)	(5%)	(20%)	(9%)	(9%)	(3%)	(5%)	(-0%)	(7%)	(6%)	(10%)	(6%)	(6%)	(2%)	(2%)	(3%)
Major Diversions (Pumping Stations)	NBA at Barker Slough PP	ALL	-1	0	0	0	0	0	0	0	1	0	0	0	-1	0	0	0	-1	0	-1	0	0	0	0	0	0	0
			(-3%)	(1%)	(-1%)	(1%)	(1%)	(1%)	(1%)	(0%)	(3%)	(-0%)	(0%)	(0%)	(-4%)	(0%)	(-2%)	(-1%)	(-4%)	(-0%)	(-4%)	(-0%)	(-1%)	(1%)	(-1%)	(1%)	(-1%)	(0%)
		DROUGHT	-1	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	-1	0	0	0	0	0	0	0	0	0
			(-5%)	(1%)	(-1%)	(0%)	(2%)	(1%)	(1%)	(0%)	(2%)	(1%)	(2%)	(-1%)	(4%)	(1%)	(2%)	(0%)	(-4%)	(-2%)	(-3%)	(-1%)	(2%)	(2%)	(-0%)	(0%)	(0%)	(0%)
	Contra Costa PP #1	ALL	-32	-10	-10	5	-14	6	-16	1	15	-6	-13	-3	-4	4	-2	0	-2	1	-9	-4	-29	-10	-20	-19	-11	-3
			(-20%)	(-7%)	(-6%)	(3%)	(-8%)	(4%)	(-9%)	(1%)	(14%)	(-4%)	(-14%)	(-3%)	(-5%)	(6%)	(-3%)	(-1%)	(-5%)	(1%)	(-10%)	(-5%)	(-21%)	(-8%)	(-14%)	(-13%)	(-9%)	(-3%)
		DROUGHT	-17	0	20	2	-1	-5	9	-3	9	-15	-2	-10	-5	0	3	-2	5	2	-23	-17	-64	-24	-21	-12	-7	-7
			(-9%)	(0%)	(11%)	(1%)	(-0%)	(-2%)	(4%)	(-1%)	(8%)	(-11%)	(-3%)	(-12%)	(-7%)	(-0%)	(4%)	(-3%)	(11%)	(3%)	(-18%)	(-14%)	(-29%)	(-13%)	(-12%)	(-8%)	(-5%)	(-5%)
	Banks PP	ALL	-28	-19	-27	-16	-28	-12	-24	-19	-14	-12	-19	-14	-29	-24	-12	-7	-12	-10	-22	-16	-32	-20	-36	-33	-24	-17
			(-25%)	(-18%)	(-21%)	(-13%)	(-20%)	(-9%)	(-17%)	(-14%)	(-14%)	(-12%)	(-22%)	(-17%)	(-35%)	(-30%)	(-15%)	(-9%)	(-19%)	(-17%)	(-30%)	(-23%)	(-32%)	(-23%)	(-33%)	(-31%)	(-23%)	(-18%)
		DROUGHT	-20	-19	-3	-15	-32	-22	-16	-28	-5	-11	-38	-28	-44	-34	-16	-10	-7	-5	-38	-29	-52	-28	-20	-17	-24	-20
			(-15%)	(-14%)	(-2%)	(-9%)	(-17%)	(-13%)	(-9%)	(-15%)	(-4%)	(-7%)	(-29%)	(-23%)	(-34%)	(-28%)	(-15%)	(-10%)	(-10%)	(-8%)	(-38%)	(-32%)	(-34%)	(-21%)	(-15%)	(-13%)	(-18%)	(-16%)
	Jones PP	ALL	-11	-6	-27	-18	-18	-2	-33	-21	-19	-9	-37	-31	-18	-14	-22	-18	-10	-14	-11	-8	-20	-11	-30	-27	-21	-15
			(-10%)	(-5%)	(-21%)	(-15%)	(-12%)	(-2%)	(-22%)	(-15%)	(-15%)	(-7%)	(-31%)	(-27%)	(-21%)	(-17%)	(-29%)	(-24%)	(-16%)	(-21%)	(-14%)	(-10%)	(-20%)	(-13%)	(-28%)	(-26%)	(-20%)	(-15%)
		DROUGHT	2	-2	-27	-40	-14	-5	-45	-35	-26	-9	-72	-62	-23	-18	-35	-31	-6	-7	-31	-23	-39	-19	-19	-18	-28	-23
			(2%)	(-2%)	(-18%)	(-25%)	(-8%)	(-3%)	(-23%)	(-19%)	(-14%)	(-5%)	(-37%)	(-34%)	(-17%)	(-14%)	(-31%)	(-29%)	(-10%)	(-11%)	(-29%)	(-23%)	(-26%)	(-15%)	(-14%)	(-13%)	(-19%)	(-16%)

[a] ALL: Water years 1976-1991 represent the 16-year period modeled using DSM2. DROUGHT: Represents a 5 consecutive year (water years 1987-1991) drought period consisting of dry and critical water year types (as defined by the Sacramento Valley 40-30-30 water year hydrologic classification index).

Table 7. Electrical Conductivity (EC): Revised Alternative 2D modeling results vs results in Appendix 8H.

	Electrical Conductivity			OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Avg. Chang
	Alt 2D ELT	Location	Period [a]	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old	Alt 2D ELT old
SREmma	Western Delta	Sac. R. at Emmaton	ALL	143	139	105	40	26	18	18	42	78	117	171	192	91
				(9%)	(10%)	(9%)	(9%)	(8%)	(6%)	(6%)	(9%)	(10%)	(11%)	(11%)	(9%)	(9%)
			DROUGHT	199	201	167	63	53	31	27	77	126	199	220	288	138
				(9%)	(9%)	(9%)	(10%)	(11%)	(9%)	(8%)	(11%)	(11%)	(10%)	(10%)	(9%)	(10%)
SJRJP		SJR at Jersey Point	ALL	81	90	89	38	16	10	8	21	42	88	110	122	60
				(9%)	(8%)	(7%)	(6%)	(4%)	(3%)	(3%)	(6%)	(8%)	(8%)	(9%)	(8%)	(8%)
			DROUGHT	123	139	137	61	33	19	13	42	74	137	146	197	93
				(9%)	(8%)	(8%)	(7%)	(7%)	(6%)	(4%)	(9%)	(10%)	(9%)	(9%)	(8%)	(8%)
MokeR	Interior Delta	S. Fork Moke. R. Term.	ALL	0	0	0	-1	-1	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
SJRSAL		SJR at San And. Landing	ALL	23	24	29	14	4	2	1	3	8	18	24	34	15
				(6%)	(6%)	(6%)	(4%)	(1%)	(1%)	(1%)	(1%)	(3%)	(5%)	(6%)	(7%)	(5%)
			DROUGHT	37	40	48	25	9	4	2	7	14	31	37	59	26
				(8%)	(8%)	(8%)	(5%)	(3%)	(1%)	(1%)	(3%)	(5%)	(8%)	(8%)	(9%)	(6%)
SJRVern	Southern Delta	SJR at Vernalis	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(-0%)	(0%)	(-0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
SJRBB		SJR at Brandt Bridge	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(-0%)	(-0%)	(-0%)	(0%)	(-0%)
OldMidR		Old River at Middle River	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(-0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
OldTracy		Old River at Tracy Bridge	ALL	6	4	0	0	0	0	0	0	1	3	8	4	2
				(1%)	(1%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(1%)	(1%)	(1%)	(0%)
			DROUGHT	9	7	0	0	0	0	0	0	1	7	17	9	4
				(2%)	(1%)	(-0%)	(0%)	(0%)	(0%)	(-0%)	(-0%)	(0%)	(1%)	(3%)	(1%)	(1%)
SJRPP	SJR	SJR at Prisoners Point	ALL	17	16	25	14	3	0	-1	0	4	16	21	27	12
				(4%)	(4%)	(6%)	(3%)	(1%)	(0%)	(-0%)	(0%)	(1%)	(5%)	(5%)	(6%)	(3%)
			DROUGHT	29	29	42	26	8	0	-1	2	9	26	32	46	21
				(6%)	(6%)	(7%)	(5%)	(2%)	(-0%)	(-0%)	(0%)	(3%)	(7%)	(7%)	(8%)	(5%)
Banks	Export Area	Banks PP	ALL	18	14	19	15	7	1	0	1	2	8	18	19	10
				(5%)	(4%)	(4%)	(4%)	(2%)	(0%)	(0%)	(0%)	(0%)	(3%)	(5%)	(5%)	(3%)
			DROUGHT	30	25	34	30	17	2	1	0	3	8	27	35	17
				(6%)	(5%)	(6%)	(5%)	(3%)	(0%)	(0%)	(0%)	(1%)	(3%)	(6%)	(7%)	(4%)
Jones		Jones PP	ALL	13	11	14	9	3	1	0	0	1	13	17	16	8
				(3%)	(3%)	(3%)	(2%)	(1%)	(0%)	(0%)	(0%)	(0%)	(3%)	(4%)	(4%)	(2%)
			DROUGHT	23	19	23	15	6	2	0	0	3	19	26	30	14
				(4%)	(4%)	(4%)	(3%)	(1%)	(0%)	(0%)	(0%)	(1%)	(5%)	(5%)	(6%)	(3%)

Table 8. Electrical Conductivity (EC): Revised Alternative 5A modeling results vs results in Appendix 8H.

	Electrical Conductivity			OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	Avg. Chang
	Alt 5A ELT	Location	Period [a]	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old	Alt 5A ELT old
SREmma	Western Delta	Sac. R. at Emmaton	ALL	173	159	107	53	33	20	18	42	83	115	159	183	95
				(8%)	(8%)	(9%)	(9%)	(8%)	(7%)	(6%)	(9%)	(10%)	(10%)	(10%)	(9%)	(9%)
			DROUGHT	233	222	170	80	57	32	26	74	123	187	215	281	142
				(8%)	(8%)	(9%)	(9%)	(10%)	(9%)	(8%)	(11%)	(11%)	(10%)	(10%)	(9%)	(9%)
SJRJP		SJR at Jersey Point	ALL	118	118	96	55	25	14	10	21	46	95	112	127	70
				(8%)	(7%)	(7%)	(7%)	(6%)	(4%)	(3%)	(6%)	(9%)	(8%)	(9%)	(8%)	(7%)
			DROUGHT	166	165	141	74	43	22	14	40	74	143	146	200	102
				(8%)	(7%)	(7%)	(7%)	(8%)	(6%)	(5%)	(9%)	(11%)	(9%)	(9%)	(9%)	(8%)
MokeR	Interior Delta	S. Fork Moke. R. Term.	ALL	0	0	0	0	-1	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(0%)	(-0%)	(0%)	(-0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
SJRSAL		SJR at San And. Landing	ALL	36	41	33	21	8	4	2	4	8	20	25	36	20
				(8%)	(7%)	(6%)	(5%)	(3%)	(2%)	(1%)	(1%)	(3%)	(6%)	(7%)	(8%)	(5%)
			DROUGHT	55	59	52	31	13	5	3	7	13	34	39	60	31
				(9%)	(8%)	(7%)	(6%)	(4%)	(2%)	(1%)	(3%)	(5%)	(8%)	(8%)	(10%)	(7%)
SJRVern	Southern Delta	SJR at Vernalis	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(0%)
SJRBB		SJR at Brandt Bridge	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(0%)	(-0%)	(-0%)	(0%)	(0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(0%)	(0%)	(0%)	(0%)	(0%)	(-0%)	(0%)	(-0%)	(0%)	(-0%)
OldMidR		Old River at Middle River	ALL	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(-0%)	(-0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	0	0	0	0
				(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(0%)	(0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)	(-0%)
OldTracy		Old River at Tracy Bridge	ALL	2	1	0	0	0	0	0	0	0	4	8	6	2
				(0%)	(0%)	(-0%)	(0%)	(-0%)	(0%)	(-0%)	(-0%)	(0%)	(1%)	(1%)	(1%)	(0%)
			DROUGHT	0	0	0	0	0	0	0	0	0	7	19	13	3
				(0%)	(0%)	(-0%)	(-0%)	(0%)	(-0%)	(0%)	(-0%)	(0%)	(1%)	(3%)	(2%)	(0%)
SJRPP	SJR	SJR at Prisoners Point	ALL	27	32	30	22	8	3	1	1	5	18	22	28	16
				(6%)	(6%)	(6%)	(5%)	(2%)	(1%)	(0%)	(0%)	(2%)	(5%)	(6%)	(6%)	(4%)
			DROUGHT	43	45	46	32	14	4	1	2	9	29	33	47	25
				(7%)	(7%)	(7%)	(5%)	(3%)	(1%)	(0%)	(1%)	(3%)	(7%)	(7%)	(9%)	(5%)
Banks	Export Area	Banks PP	ALL	24	28	27	25	12	5	1	1	1	10	18	21	15
				(6%)	(6%)	(5%)	(5%)	(3%)	(1%)	(0%)	(0%)	(0%)	(3%)	(5%)	(5%)	(3%)
			DROUGHT	37	44	40	37	21	6	2	1	2	14	31	38	23
				(7%)	(7%)	(6%)	(5%)	(3%)	(1%)	(1%)	(0%)	(1%)	(4%)	(6%)	(7%)	(4%)
Jones		Jones PP	ALL	21	23	20	12	4	2	0	0	2	14	18	19	11
				(4%)	(5%)	(3%)	(2%)	(1%)	(0%)	(0%)	(0%)	(1%)	(3%)	(4%)	(4%)	(2%)
			DROUGHT	35	31	30	16	8	2	1	0	4	21	29	32	17
				(6%)	(5%)	(4%)	(2%)	(1%)	(0%)	(0%)	(0%)	(1%)	(5%)	(5%)	(6%)	(3%)

Table 9. Period average change in EC levels for Alternative 2D ELT relative to existing conditions and the No Action Alternative ELT.

Electrical Conductivity			OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		Annual Avg. Change	
Alt 2D ELT	Location	Period [a]	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT
Western Delta	Sac. R. at Emmaton	ALL	-495	-427	-494	-340	-45	-55	-111	-105	-42	-40	30	1	33	13	30	26	33	-12	269	194	444	250	171	253	-15	-20
			(-23%)	(-20%)	(-24%)	(-18%)	(-4%)	(-4%)	(-18%)	(-17%)	(-10%)	(-10%)	(11%)	(0%)	(12%)	(5%)	(6%)	(5%)	(4%)	(-1%)	(28%)	(19%)	(33%)	(16%)	(8%)	(12%)	(-1%)	(-2%)
		DROUGHT	-511	-548	-505	-482	54	-114	-147	-234	-1	-51	64	7	56	27	174	73	220	72	767	629	756	307	673	214	133	-8
			(-18%)	(-19%)	(-17%)	(-17%)	(3%)	(-5%)	(-17%)	(-25%)	(-0%)	(-8%)	(20%)	(2%)	(19%)	(8%)	(30%)	(11%)	(21%)	(6%)	(58%)	(43%)	(44%)	(14%)	(23%)	(6%)	(9%)	(-1%)
	SJR at Jersey Point	ALL	-924	-605	-1037	-691	-362	-216	-222	-187	-73	-63	12	-4	21	12	18	19	10	-14	-248	-139	-149	-109	-406	-199	-280	-183
			(-47%)	(-37%)	(-47%)	(-37%)	(-22%)	(-14%)	(-26%)	(-23%)	(-16%)	(-14%)	(4%)	(-1%)	(8%)	(4%)	(5%)	(5%)	(2%)	(-2%)	(-17%)	(-11%)	(-10%)	(-7%)	(-20%)	(-11%)	(-25%)	(-18%)
		DROUGHT	-811	-868	-790	-654	-260	-252	-179	-235	-58	-94	31	-7	35	23	98	48	110	9	-504	-335	-140	32	166	8	-192	-194
			(-35%)	(-37%)	(-31%)	(-27%)	(-12%)	(-11%)	(-16%)	(-20%)	(-11%)	(-16%)	(10%)	(-2%)	(13%)	(8%)	(24%)	(11%)	(17%)	(1%)	(-23%)	(-17%)	(-7%)	(2%)	(7%)	(0%)	(-14%)	(-14%)
Interior Delta	S. Fork Moke. R. Term.	ALL	4	4	4	3	1	2	9	8	5	6	7	5	4	4	0	1	1	1	2	2	3	2	2	1	4	3
			(2%)	(2%)	(2%)	(2%)	(1%)	(1%)	(4%)	(3%)	(2%)	(3%)	(3%)	(2%)	(2%)	(2%)	(0%)	(0%)	(0%)	(1%)	(1%)	(1%)	(2%)	(1%)	(1%)	(1%)	(2%)	(2%)
		DROUGHT	2	2	1	1	0	1	5	5	2	5	2	5	0	1	0	1	1	1	5	5	3	1	1	1	2	2
			(1%)	(1%)	(1%)	(1%)	(-0%)	(1%)	(2%)	(2%)	(1%)	(2%)	(1%)	(2%)	(-0%)	(1%)	(0%)	(0%)	(0%)	(1%)	(3%)	(2%)	(2%)	(0%)	(1%)	(0%)	(1%)	(1%)
	SJR at San And. Landing	ALL	-99	-94	-220	-188	-112	-84	-55	-56	-12	-7	11	9	17	18	9	11	19	15	-27	-5	-20	-22	-21	-21	-43	-35
			(-19%)	(-19%)	(-35%)	(-32%)	(-19%)	(-15%)	(-13%)	(-13%)	(-4%)	(-2%)	(5%)	(4%)	(7%)	(8%)	(4%)	(5%)	(7%)	(6%)	(-7%)	(-1%)	(-5%)	(-5%)	(-4%)	(-4%)	(-11%)	(-9%)
		DROUGHT	-81	-151	-168	-231	-64	-93	-55	-90	-15	-26	14	11	17	19	25	19	40	18	-86	-46	-50	-43	68	2	-30	-51
			(-13%)	(-22%)	(-23%)	(-30%)	(-9%)	(-12%)	(-10%)	(-16%)	(-4%)	(-8%)	(6%)	(5%)	(7%)	(8%)	(10%)	(8%)	(16%)	(7%)	(-16%)	(-9%)	(-9%)	(-8%)	(11%)	(0%)	(-6%)	(-10%)
Southern Delta	SJR at Vernalis	ALL	-12	0	-39	0	-44	0	-67	-1	-26	0	-28	0	-19	0	-19	0	16	1	12	0	-10	0	-20	0	-21	0
			(-2%)	(0%)	(-7%)	(-0%)	(-6%)	(0%)	(-9%)	(-0%)	(-4%)	(0%)	(-4%)	(-0%)	(-4%)	(-0%)	(-4%)	(-0%)	(3%)	(0%)	(2%)	(0%)	(-2%)	(0%)	(-4%)	(0%)	(-4%)	(-0%)
		DROUGHT	-35	0	-46	0	-55	0	-78	0	-9	0	-20	0	-18	0	-16	0	-7	0	-6	0	-9	0	-22	0	-27	0
			(-6%)	(0%)	(-7%)	(-0%)	(-6%)	(-0%)	(-9%)	(-0%)	(-1%)	(-0%)	(-2%)	(0%)	(-3%)	(0%)	(-3%)	(0%)	(-1%)	(0%)	(-1%)	(0%)	(-1%)	(0%)	(-4%)	(0%)	(-4%)	(0%)
	SJR at Brandt Bridge	ALL	-13	0	-37	0	-44	0	-68	-5	-29	0	-28	-1	-21	-3	-19	-1	16	1	8	2	-8	1	-19	0	-22	0
			(-3%)	(0%)	(-6%)	(0%)	(-6%)	(0%)	(-9%)	(-1%)	(-4%)	(0%)	(-4%)	(-0%)	(-5%)	(-1%)	(-4%)	(-0%)	(3%)	(0%)	(1%)	(0%)	(-1%)	(0%)	(-3%)	(0%)	(-4%)	(-0%)
		DROUGHT	-35	0	-46	0	-56	1	-78	-2	-14	2	-20	-2	-20	-7	-16	-1	-7	0	-18	7	-9	5	-20	0	-28	0
			(-6%)	(-0%)	(-7%)	(0%)	(-7%)	(0%)	(-9%)	(-0%)	(-1%)	(0%)	(-2%)	(-0%)	(-3%)	(-1%)	(-3%)	(-0%)	(-1%)	(-0%)	(-3%)	(1%)	(-1%)	(1%)	(-3%)	(0%)	(-4%)	(0%)
	Old River at Middle River	ALL	-9	4	-36	0	-44	0	-61	3	-26	2	-26	1	-15	3	-17	1	15	1	13	0	-8	0	-19	0	-20	1
			(-2%)	(1%)	(-6%)	(0%)	(-6%)	(-0%)	(-8%)	(0%)	(-4%)	(0%)	(-4%)	(0%)	(-3%)	(1%)	(-4%)	(0%)	(3%)	(0%)	(2%)	(0%)	(-1%)	(0%)	(-4%)	(-0%)	(-3%)	(0%)
		DROUGHT	-30	4	-45	0	-55	0	-73	4	-12	1	-17	2	-9	6	-13	2	-7	0	-4	1	-7	0	-21	0	-25	2
			(-5%)	(1%)	(-7%)	(0%)	(-6%)	(-0%)	(-8%)	(0%)	(-1%)	(0%)	(-2%)	(0%)	(-2%)	(1%)	(-2%)	(0%)	(-1%)	(-0%)	(-1%)	(0%)	(-1%)	(0%)	(-3%)	(-0%)	(-3%)	(0%)
	Old River at Tracy Bridge	ALL	-5	15	-28	4	-44	-1	-40	20	-20	12	-19	8	2	21	-12	6	-4	-4	-17	-21	-20	-6	-18	-1	-19	5
			(-1%)	(3%)	(-5%)	(1%)	(-6%)	(-0%)	(-5%)	(3%)	(-3%)	(2%)	(-3%)	(1%)	(0%)	(5%)	(-3%)	(1%)	(-1%)	(-1%)	(-3%)	(-4%)	(-3%)	(-1%)	(-3%)	(-0%)	(-3%)	(1%)
		DROUGHT	-8	24	-37	12	-54	-1	-60	12	-16	2	-7	11	19	35	-8	7	-63	-16	-94	-64	-86	-49	-37	-18	-38	-4
			(-1%)	(4%)	(-6%)	(2%)	(-6%)	(-0%)	(-7%)	(1%)	(-2%)	(0%)	(-1%)	(1%)	(3%)	(5%)	(-1%)	(1%)	(-10%)	(-3%)	(-14%)	(-10%)	(-12%)	(-7%)	(-6%)	(-3%)	(-5%)	(-1%)
SJR	SJR at Prisoners Point	ALL	-69	-47	-188	-155	-139	-90	-46	-37	13	32	25	43	25	42	5	19	27	35	-45	-12	-50	-24	-44	-33	-41	-19
			(-14%)	(-10%)	(-32%)	(-28%)	(-23%)	(-16%)	(-9%)	(-7%)	(3%)	(9%)	(7%)	(14%)	(7%)	(13%)	(1%)	(7%)	(9%)	(12%)	(-11%)	(-3%)	(-11%)	(-6%)	(-9%)	(-7%)	(-9%)	(-5%)
		DROUGHT	-63	-106	-147	-209	-104	-99	-52	-84	3	10	43	75	39	62	30	36	41	29	-136	-85	-121	-58	0	-20	-39	-37
			(-11%)	(-17%)	(-22%)	(-29%)	(-14%)	(-14%)	(-9%)	(-13%)	(1%)	(2%)	(11%)	(21%)	(11%)	(18%)	(10%)	(12%)	(15%)	(10%)	(-25%)	(-17%)	(-20%)	(-11%)	(-0%)	(-3%)	(-8%)	(-7%)
Export Area	Banks PP	ALL	-163	-132	-227	-186	-230	-171	-260	-242	-153	-145	-155	-135	-110	-91	-36	-16	-34	-28	-92	-70	-116	-74	-159	-148	-145	-120
			(-29%)	(-25%)	(-36%)	(-31%)	(-34%)	(-28%)	(-39%)	(-38%)	(-29%)	(-27%)	(-32%)	(-29%)	(-24%)	(-21%)	(-8%)	(-4%)	(-9%)	(-7%)	(-21%)	(-17%)	(-22%)	(-15%)	(-29%)	(-27%)	(-27%)	(-24%)
		DROUGHT	-141	-136	-203	-244	-197	-163	-176	-217	-82	-103	-254	-217	-174	-139	-99	-77	5	10	-227	-195	-218	-130	-94	-86	-155	-141
			(-22%)	(-21%)	(-29%)	(-33%)	(-24%)	(-21%)	(-23%)	(-27%)	(-13%)	(-15%)	(-39%)	(-36%)	(-28%)	(-23%)	(-18%)	(-15%)	(1%)	(2%)	(-43%)	(-39%)	(-30%)	(-21%)	(-15%)	(-13%)	(-24%)	(-22%)
	Jones PP	ALL	-126	-105	-218	-188	-153	-97	-233	-192	-207	-169	-243	-220	-114	-96	-126	-108	-98	-111	-57	-46	-69	-37	-145	-135	-149	-125
			(-23%)	(-20%)	(-35%)	(-32%)	(-22%)	(-15%)	(-33%)	(-29%)	(-33%)	(-29%)	(-41%)	(-39%)	(-24%)	(-21%)	(-29%)	(-26%)	(-25%)	(-27%)	(-12%)	(-10%)	(-13%)	(-8%)	(-26%)	(-25%)	(-27%)	(-24%)
		DROUGHT	-87	-103	-175	-220	-148	-116	-243	-209	-259	-198	-361	-327	-132	-116	-192	-178	-57	-61	-128	-98	-171	-104	-70	-65	-169	-150
			(-14%)	(-16%)	(-25%)	(-30%)	(-18%)	(-15%)	(-29%)	(-26%)	(-31%)	(-25%)	(-42%)	(-40%)	(-20%)	(-18%)	(-33%)	(-32%)	(-14%)	(-15%)	(-23%)	(-19%)	(-25%)	(-17%)	(-11%)	(-10%)	(-25%)	(-23%)

[a] ALL: Water years 1976-1991 represent the 16-year period modeled using DSM2. DROUGHT: Represents a 5 consecutive year (water years 1987-1991) drought period consisting of dry and critical water year types (as defined by the Sacramento Valley 40-30-30 water year hydrologic classification index).

Table 10. Period average change in EC levels for Alternative 5A ELT relative to existing conditions and the No Action Alternative ELT.

Electrical Conductivity			OCT		NOV		DEC		JAN		FEB		MAR		APR		MAY		JUN		JUL		AUG		SEP		Annual Avg. Change	
Alt 5A ELT	Location	Period [a]	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT	Ex. Cond.	No Act. ELT
Western Delta	Sac. R. at Emmaton	ALL	109	177	69	223	58	48	19	25	20	22	42	13	31	11	21	17	63	19	260	185	365	171	116	198	98	92
			(5%)	(8%)	(3%)	(11%)	(5%)	(4%)	(3%)	(4%)	(5%)	(5%)	(16%)	(4%)	(11%)	(4%)	(4%)	(4%)	(8%)	(2%)	(27%)	(18%)	(27%)	(11%)	(5%)	(10%)	(9%)	(9%)
		DROUGHT	251	214	214	237	205	38	73	-14	55	5	70	13	51	22	135	34	174	26	688	550	727	278	632	173	273	131
			(9%)	(7%)	(7%)	(8%)	(11%)	(2%)	(9%)	(-1%)	(10%)	(1%)	(22%)	(3%)	(17%)	(7%)	(23%)	(5%)	(17%)	(2%)	(52%)	(37%)	(42%)	(13%)	(21%)	(5%)	(19%)	(8%)
	SJR at Jersey Point	ALL	-312	6	-313	33	-124	22	6	41	10	20	28	12	17	8	8	8	17	-7	-180	-72	-156	-115	-426	-219	-119	-22
			(-16%)	(0%)	(-14%)	(2%)	(-7%)	(1%)	(1%)	(5%)	(2%)	(4%)	(9%)	(4%)	(6%)	(3%)	(2%)	(2%)	(3%)	(-1%)	(-13%)	(-5%)	(-10%)	(-8%)	(-21%)	(-12%)	(-10%)	(-2%)
		DROUGHT	28	-29	-136	0	-34	-26	2	-54	53	17	53	15	25	13	66	16	88	-13	-422	-253	-195	-22	117	-41	-30	-31
			(1%)	(-1%)	(-5%)	(-0%)	(-2%)	(-1%)	(0%)	(-5%)	(10%)	(3%)	(16%)	(4%)	(9%)	(5%)	(16%)	(4%)	(13%)	(-2%)	(-19%)	(-13%)	(-10%)	(-1%)	(5%)	(-2%)	(-2%)	(-2%)
Interior Delta	S. Fork Moke. R. Term.	ALL	2	1	2	2	0	0	2	1	-1	0	2	1	1	1	0	0	0	0	1	1	3	1	2	1	1	1
			(1%)	(1%)	(1%)	(1%)	(-0%)	(0%)	(1%)	(1%)	(-0%)	(0%)	(1%)	(0%)	(1%)	(0%)	(-0%)	(0%)	(0%)	(0%)	(1%)	(1%)	(1%)	(1%)	(1%)	(1%)	(1%)	(0%)
		DROUGHT	1	1	1	1	-1	0	2	2	-2	0	-1	2	-1	0	-1	0	0	1	5	4	4	1	1	1	1	1
			(1%)	(1%)	(1%)	(1%)	(-1%)	(0%)	(1%)	(1%)	(-1%)	(0%)	(-0%)	(1%)	(-0%)	(0%)	(-0%)	(0%)	(0%)	(0%)	(2%)	(2%)	(2%)	(1%)	(1%)	(0%)	(0%)	(1%)
	SJR at San And. Landing	ALL	-2	3	-9	22	-25	3	8	7	2	7	6	5	2	3	0	2	5	1	-26	-4	-18	-19	-32	-32	-7	0
			(-0%)	(1%)	(-1%)	(4%)	(-4%)	(1%)	(2%)	(2%)	(1%)	(2%)	(3%)	(2%)	(1%)	(1%)	(0%)	(1%)	(2%)	(1%)	(-7%)	(-1%)	(-4%)	(-4%)	(-6%)	(-6%)	(-2%)	(-0%)
		DROUGHT	73	3	52	-11	18	-11	9	-25	12	1	7	4	0	2	9	3	24	3	-52	-12	-32	-25	58	-9	15	-6
			(12%)	(0%)	(7%)	(-1%)	(2%)	(-1%)	(2%)	(-4%)	(4%)	(0%)	(3%)	(2%)	(-0%)	(1%)	(4%)	(1%)	(10%)	(1%)	(-10%)	(-2%)	(-6%)	(-5%)	(9%)	(-1%)	(3%)	(-1%)
Southern Delta	SJR at Vernalis	ALL	-12	0	-38	0	-44	0	-67	-2	-26	0	-29	0	-19	0	-19	0	16	1	12	1	-9	1	-20	0	-21	0
			(-2%)	(0%)	(-7%)	(0%)	(-6%)	(0%)	(-9%)	(-0%)	(-4%)	(-0%)	(-4%)	(-0%)	(-4%)	(0%)	(-4%)	(0%)	(3%)	(0%)	(2%)	(0%)	(-2%)	(0%)	(-4%)	(0%)	(-4%)	(0%)
		DROUGHT	-35	0	-46	0	-55	0	-78	0	-9	0	-20	0	-17	0	-15	0	-7	0	-5	2	-6	2	-22	1	-26	1
			(-6%)	(0%)	(-7%)	(0%)	(-6%)	(0%)	(-9%)	(0%)	(-1%)	(-0%)	(-2%)	(0%)	(-3%)	(0%)	(-3%)	(0%)	(-1%)	(0%)	(-1%)	(0%)	(-1%)	(0%)	(-3%)	(0%)	(-4%)	(0%)
	SJR at Brandt Bridge	ALL	-13	0	-37	0	-45	0	-64	-2	-29	0	-28	0	-18	0	-18	0	16	1	7	1	-8	1	-18	0	-21	0
			(-3%)	(0%)	(-6%)	(0%)	(-6%)	(-0%)	(-9%)	(-0%)	(-4%)	(-0%)	(-4%)	(-0%)	(-4%)	(0%)	(-4%)	(0%)	(3%)	(0%)	(1%)	(0%)	(-1%)	(0%)	(-3%)	(0%)	(-4%)	(0%)
		DROUGHT	-34	0	-46	0	-56	0	-75	0	-16	0	-18	0	-12	1	-14	0	-7	0	-22	3	-9	5	-19	1	-27	1
			(-6%)	(0%)	(-7%)	(0%)	(-7%)	(-0%)	(-8%)	(-0%)	(-2%)	(-0%)	(-2%)	(0%)	(-2%)	(0%)	(-2%)	(0%)	(-1%)	(-0%)	(-3%)	(1%)	(-1%)	(1%)	(-3%)	(0%)	(-4%)	(0%)
	Old River at Middle River	ALL	-13	0	-36	0	-44	0	-65	-2	-28	0	-28	0	-18	0	-18	0	16	1	13	1	-7	1	-18	0	-21	0
			(-3%)	(0%)	(-6%)	(0%)	(-6%)	(0%)	(-9%)	(-0%)	(-4%)	(-0%)	(-4%)	(-0%)	(-4%)	(-0%)	(-4%)	(0%)	(3%)	(0%)	(2%)	(0%)	(-1%)	(0%)	(-3%)	(0%)	(-4%)	(0%)
		DROUGHT	-34	0	-45	0	-55	0	-76	0	-13	0	-19	0	-15	0	-15	0	-7	0	-3	2	-5	2	-20	1	-26	1
			(-6%)	(0%)	(-7%)	(0%)	(-6%)	(-0%)	(-8%)	(0%)	(-1%)	(0%)	(-2%)	(0%)	(-2%)	(0%)	(-2%)	(0%)	(-1%)	(-0%)	(-1%)	(0%)	(-1%)	(0%)	(-3%)	(0%)	(-4%)	(0%)
	Old River at Tracy Bridge	ALL	-19	1	-32	0	-43	0	-62	-1	-32	0	-27	0	-20	0	-18	0	1	1	-11	-15	-16	-2	-15	2	-24	-1
			(-4%)	(0%)	(-6%)	(0%)	(-6%)	(-0%)	(-8%)	(-0%)	(-4%)	(-0%)	(-4%)	(-0%)	(-4%)	(-0%)	(-4%)	(0%)	(0%)	(0%)	(-2%)	(-3%)	(-3%)	(-0%)	(-3%)	(0%)	(-4%)	(-0%)
		DROUGHT	-31	2	-51	-1	-54	0	-72	0	-18	0	-18	0	-16	0	-14	0	-47	0	-80	-50	-63	-25	-24	-5	-40	-7
			(-5%)	(0%)	(-8%)	(-0%)	(-6%)	(-0%)	(-8%)	(0%)	(-2%)	(0%)	(-2%)	(0%)	(-2%)	(-0%)	(-2%)	(0%)	(-7%)	(0%)	(-12%)	(-8%)	(-9%)	(-4%)	(-4%)	(-1%)	(-5%)	(-1%)
SJR	SJR at Prisoners Point	ALL	-20	2	-7	26	-46	3	-2	7	-14	5	-13	5	-15	2	-14	1	-6	2	-48	-14	-48	-22	-54	-43	-24	-2
			(-4%)	(0%)	(-1%)	(5%)	(-8%)	(1%)	(-0%)	(1%)	(-4%)	(1%)	(-4%)	(2%)	(-5%)	(1%)	(-5%)	(0%)	(-2%)	(1%)	(-12%)	(-4%)	(-11%)	(-5%)	(-10%)	(-9%)	(-5%)	(-1%)
		DROUGHT	39	-4	35	-27	-17	-12	6	-25	-10	-4	-29	3	-25	-2	-6	0	17	6	-101	-50	-93	-29	-9	-28	-16	-14
			(7%)	(-1%)	(5%)	(-4%)	(-2%)	(-2%)	(1%)	(-4%)	(-2%)	(-1%)	(-7%)	(1%)	(-7%)	(-1%)	(-2%)	(0%)	(6%)	(2%)	(-18%)	(-10%)	(-15%)	(-5%)	(-1%)	(-4%)	(-3%)	(-3%)
Export Area	Banks PP	ALL	-106	-74	-111	-70	-100	-41	-85	-67	-55	-47	-72	-53	-111	-92	-46	-25	-45	-39	-77	-56	-115	-74	-132	-121	-88	-63
			(-19%)	(-14%)	(-18%)	(-12%)	(-15%)	(-7%)	(-13%)	(-10%)	(-10%)	(-9%)	(-15%)	(-11%)	(-24%)	(-21%)	(-11%)	(-6%)	(-11%)	(-10%)	(-18%)	(-14%)	(-22%)	(-15%)	(-24%)	(-22%)	(-17%)	(-13%)
		DROUGHT	-77	-73	-22	-63	-111	-76	-56	-98	-17	-38	-135	-98	-153	-118	-56	-34	-28	-22	-135	-102	-184	-97	-69	-61	-87	-73
			(-12%)	(-11%)	(-3%)	(-8%)	(-14%)	(-10%)	(-7%)	(-12%)	(-3%)	(-6%)	(-21%)	(-16%)	(-24%)	(-20%)	(-10%)	(-7%)	(-7%)	(-5%)	(-25%)	(-20%)	(-25%)	(-15%)	(-11%)	(-10%)	(-13%)	(-12%)
	Jones PP	ALL	-41	-19	-101	-71	-66	-10	-121	-80	-71	-33	-138	-115	-69	-52	-83	-66	-36	-50	-40	-29	-73	-42	-113	-103	-79	-56
			(-7%)	(-4%)	(-16%)	(-12%)	(-9%)	(-2%)	(-17%)	(-12%)	(-11%)	(-6%)	(-23%)	(-20%)	(-14%)	(-11%)	(-19%)	(-16%)	(-9%)	(-12%)	(-9%)	(-6%)	(-14%)	(-8%)	(-21%)	(-19%)	(-14%)	(-10%)
		DROUGHT	9	-7	-105	-150	-50	-18	-158	-124	-93	-31	-254	-219	-80	-63	-125	-111	-21	-25	-116	-86	-136	-68	-66	-62	-100	-81
			(1%)	(-1%)	(-15%)	(-20%)	(-6%)	(-2%)	(-19%)	(-15%)	(-11%)	(-4%)	(-30%)	(-27%)	(-12%)	(-10%)	(-22%)	(-20%)	(-5%)	(-6%)	(-21%)	(-16%)	(-20%)	(-11%)	(-10%)	(-10%)	(-15%)	(-12%)

Other Alternative 2D and 5A constituent assessments in Chapter 8, *Water Quality,* that relied on DSM2 modeling output include boron, mercury and methylmercury, nitrate, organic carbon, and selenium. The effects of the corrections to the Alternative 2D and 5A modeling relative the conclusions presented for these constituents in Chapter 8, Section 8.3.4.3 for Alternative 2D and Section 8.3.4.4 for Alternative 5A are addressed below.

Boron: As shown in Chapter 8, Section 8.3.1.7, *Constituent-Specific Considerations*, of the primary Delta source waters, the San Francisco Bay has the highest concentration of boron, with the long-term average concentration being 880 µg/L compared to the San Joaquin River average concentration of 349 µg/L and the Sacramento River average concentration of 100 µg/L (Chapter 8, Table 8-42). Estimated mean monthly boron concentrations at Martinez range from 340 to 1,638 µg/L (Appendix 8F, Boron, Table Bo-1). The modeling results for boron for Alternatives 2D and 5A in Appendix 8F, *Boron*, Table Bo-3C show that mean monthly boron concentrations would never exceed the 2,000 µg/L human health advisory objective under Alternatives 2D and 5A. While the updated modeling results show higher source water fractions of Bay water at certain Delta assessment locations, most notably in the western Delta at Antioch and Mallard Island, because mean monthly boron concentrations at Martinez (and all other Delta source water locations) are less than 2,000 µg/L, the increase in Bay water could not cause additional exceedance of this objective. The modeling results for boron in Appendix 8F, Table Bo-3C also show that the 500 µg/L agricultural objective would be exceeded periodically at Antioch and Mallard Island under Alternatives 2D and 5A, though annual average concentrations would be below 500 µg/L and the frequency of exceedance would be similar to or slightly higher than the No Action Alternative (ELT). Higher source water fractions of the Sacramento River or San Joaquin River at Delta assessment locations in the updated modeling would not contribute to showing additional exceedances of the 500 µg/L threshold under Alternatives 2D and 5A, because mean source water concentrations are below the threshold. While the updated modeling shows higher Bay water fractions at certain Delta locations, which may contribute to a higher frequency of exceedance of the 500 µg/L threshold than shown in Appendix 8F, Table Bo-3C, this increased exceedance would not alter the conclusions presented in Impact WQ-3 in Sections 8.3.4.3 and 8.3.4.4 for Alternatives 2D and 5A, respectively. The conclusions regarding boron for these alternatives acknowledge and consider an increased frequency of exceedance of the 500 µg/L relative to potential for adverse effects to agricultural diversions, which occur primarily in the interior Delta, and that long-term average and drought period concentrations would be below 500 µg/L. Based on these considerations, the CEQA and NEPA conclusions presented in Impact WQ-3 for boron for Alternatives 2D and 5A remain applicable with the modeling updates.

Mercury and Methylmercury: Concentrations of mercury in the Delta primary source waters are similar in magnitude, with the Bay water average being 7.8 ng/L, compared to 8.6 ng/L for the Eastside Tributaries, 7.6 ng/L for the San Joaquin River, 4.1 ng/L for the Sacramento River (Chapter 8, Table 8-48). Concentrations of methylmercury in Bay water are similar to or lower than the other Delta source waters (Chapter 8, Table 8-49). Modeling results for mercury for Alternatives 2D and 5A in Appendix 8I, *Mercury*, Tables I-24 and I-25, respectively, show use of assimilative capacity for mercury relative to the 25 ng/L ecological threshold relative to Existing Conditions and the No Action Alternative (ELT) would be very low, approximately 2% or less, as a long-term average, for all Delta assessment locations. While the updated modeling results show higher Bay water fractions at certain Delta assessment locations and higher fractions of other source waters at other locations (see Figures 1 through 9 at the end of this section), the use of assimilative capacity would still be very small because all source water concentrations are well below the 25 ng/L threshold. Also, as

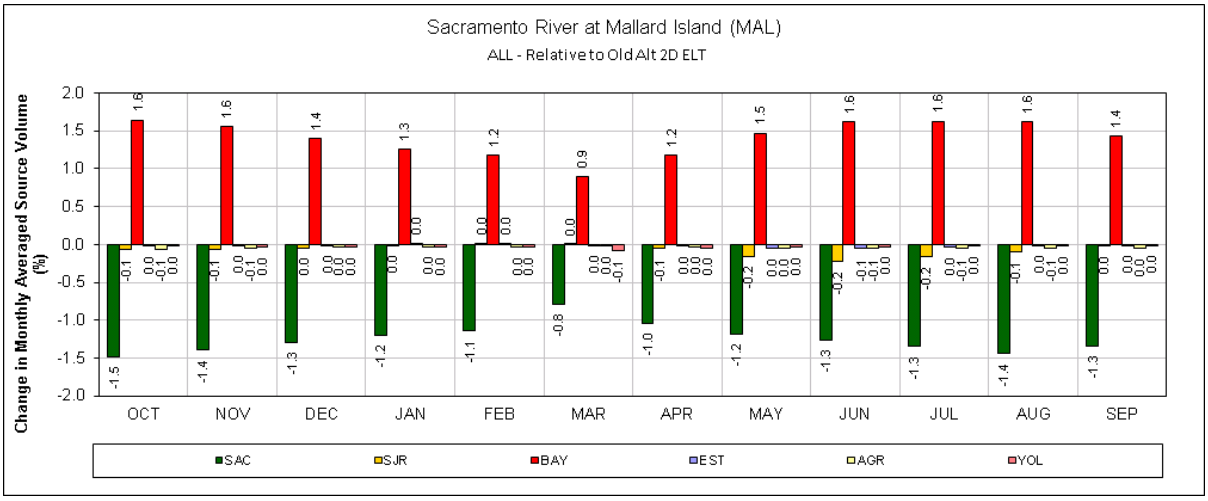
explained in Impact WQ-13 for Alternatives 2D and 5A, modeled changes of fish tissue mercury concentrations are within the inherent uncertainty of the modeling approach and would not likely be measurable in the environment, thus, changes in source water fractions would not alter conclusions regarding potential for adverse effects. Based on these considerations, the CEQA and NEPA conclusions presented in Impact WQ-13 for mercury for Alternatives 2D and 5A remain applicable with the modeling updates.

Nitrate: Modeled long-term average nitrate concentrations for the Delta assessment locations provided in Appendix 8J, *Nitrate*, Table 34, for Alternatives 2D and 5A, range from 0.21 to 1.37 mg/L-nitrogen (N), well below the 10 mg/L-N objective. Primary source water mean concentrations vary, from 0.07 mg/L-N for Bay water to 1.839 mg/L-N for the San Joaquin River; mean monthly Sacramento River concentrations range from 0.068 to 0.209 mg/L-N (Chapter 8, Table 8-51). Thus, while the updated modeling for Alternatives 2D and 5A shows higher Bay water fractions at certain Delta assessment locations, this would not contribute to increased nitrate concentrations at those locations to a degree that there would be additional degradation or exceedance of water quality objectives. Increased fractions of the other source waters at Delta assessment locations shown in the updated modeling also would not contribute to exceedance of water quality objectives, because source water concentrations are well below 10 mg/L-N. The higher fractions of other source waters may result in higher modeled concentrations of nitrate at certain locations compared to those presented in Appendix 8J for Alternatives 2D and 5A, but those concentrations would not contribute to degradation that would adversely affect beneficial uses, because concentrations are well below the 10 mg/L-N objective. Based on these considerations, the CEQA and NEPA conclusions presented in Impact WQ-15 for nitrate for Alternatives 2D and 5A remain applicable with the modeling updates.

Organic Carbon: The assessment of organic carbon in Chapter 8 focused on dissolved organic carbon (DOC). There are no state or federal water quality objectives for organic carbon, so the organic carbon impact assessment relied upon considering modeled incremental increases in long-term average DOC along with thresholds related to drinking water treatment requirements. Modeled long-term average DOC concentrations for the Delta assessment locations provided in Appendix 8K, *Organic Carbon*, Tables 12 and 13 for Alternatives 2D and 5A, respectively, range from 2.6 to 3.8 mg/L. Relative to Existing Conditions and the No Action Alternative (ELT), DOC concentrations were modeled to increase by up to 0.2 mg/L at some Delta locations. The mean monthly DOC input concentrations for the Sacramento River range from 1.8 to 3.0 mg/L (Chapter 8, Table 8-52), which is similar to or less than the modeled long-term average concentrations presented in Appendix 8K. For the San Joaquin River, three months have mean concentrations of 4.7 to 4.8 mg/L; the mean monthly concentration for the remaining months is 3.4 to 3.9 mg/L (Chapter 8, Table 8-52). Thus, locations that would have an increased Sacramento River water fraction with the updated modeling would have modeled DOC concentrations similar to or lower than the concentrations presented in Appendix 8K for Alternatives 2D and 5A. The San Joaquin River mean monthly input concentrations are also largely within the range of the modeled concentrations presented in Appendix 8K for Alternatives 2D and 5A. The increase in San Joaquin River water at certain locations with the updated modeling is very low, 0.2 percent or less (see Figures 1 through 9 at the end of this section). Thus, locations that have a greater San Joaquin River fraction in the updated modeling would have DOC increases relative to Existing Conditions and the No Action Alternative (ELT) similar to that represented in the Appendix 8K modeling results. Finally, average DOC concentrations in sea water are lower than average concentrations in both the Sacramento River and San Joaquin River. Hence, greater San Francisco Bay water at certain Delta assessment

locations would not be expected to increase DOC concentration relative to those presented in the Appendix 8K modeling results. Based on these considerations, the CEQA and NEPA conclusions presented in Impact WQ-17 for organic carbon for Alternatives 2D and 5A remain applicable with the modeling updates described above.

Selenium: Data compiled for the mass-balance modeling of selenium (Chapter 8, Table 8-56) shows that of the primary Delta source waters, the San Joaquin River has the highest selenium concentrations, with the long-term average concentration being 0.45 µg/L. In comparison, the Bay average concentration is 0.10 µg/L, similar to the Sacramento River (0.09 µg/L), Eastside Tributaries (0.10 µg/L), and agriculture in the Delta (0.11 µg/L), and lower than the Yolo Bypass (0.23 µg/L). Because the Bay water concentration is nearly the same or lower than the other source water selenium concentrations, the higher fraction of Bay water at Delta assessment locations would not contribute to higher concentrations of selenium at those locations. The selenium impact assessment was based on modeled selenium concentrations in biota, including sturgeon at the western Delta locations of the Sacramento River at Mallard Island and San Joaquin River at Antioch. The effect of the updating modeling is greater Bay water fractions at these locations, thus, concentrations similar to those presented in Appendix 8M, *Selenium*, Table M-33. The increase in San Joaquin River water at certain locations with the updated modeling is very low, 0.2 percent or less (see Figures 1 through 9 at the end of this section). Thus, locations that have a greater San Joaquin River fraction in the updated modeling would show selenium increases relative to Existing Conditions and the No Action Alternative (ELT) similar to that represented in the Appendix 8M modeling results. Based on these considerations, the CEQA and NEPA conclusions presented in Impact WQ-25 for selenium for Alternatives 2D and 5A remain applicable with the modeling updates described above.



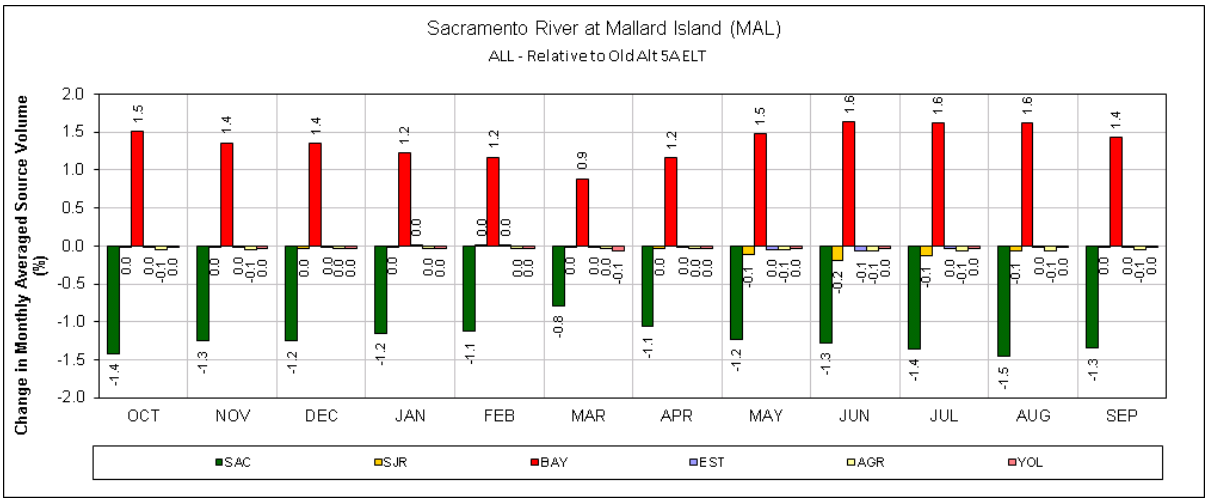
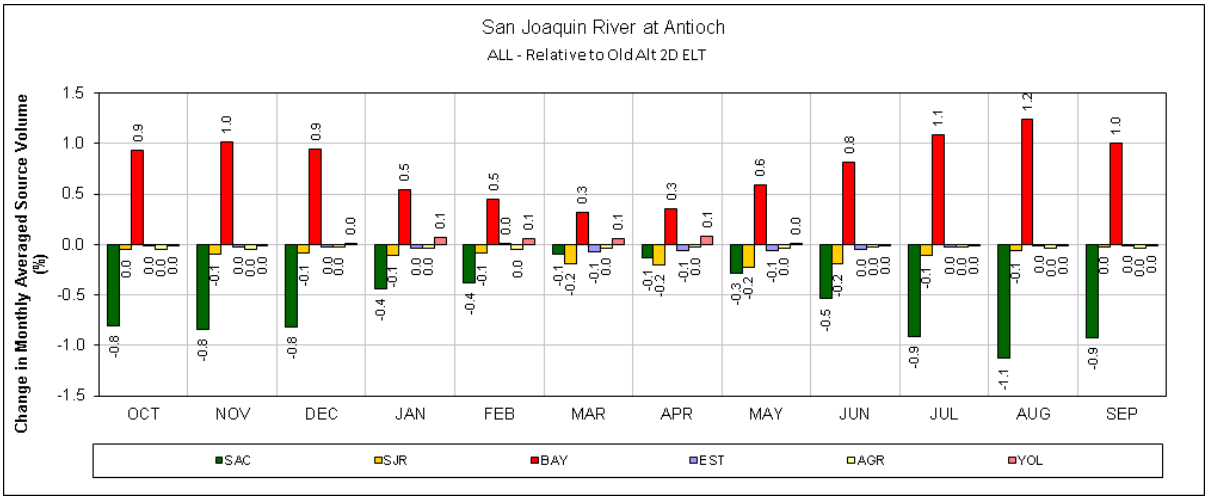


Figure 1. Change in Sacramento River at Mallard Island monthly average source water volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.



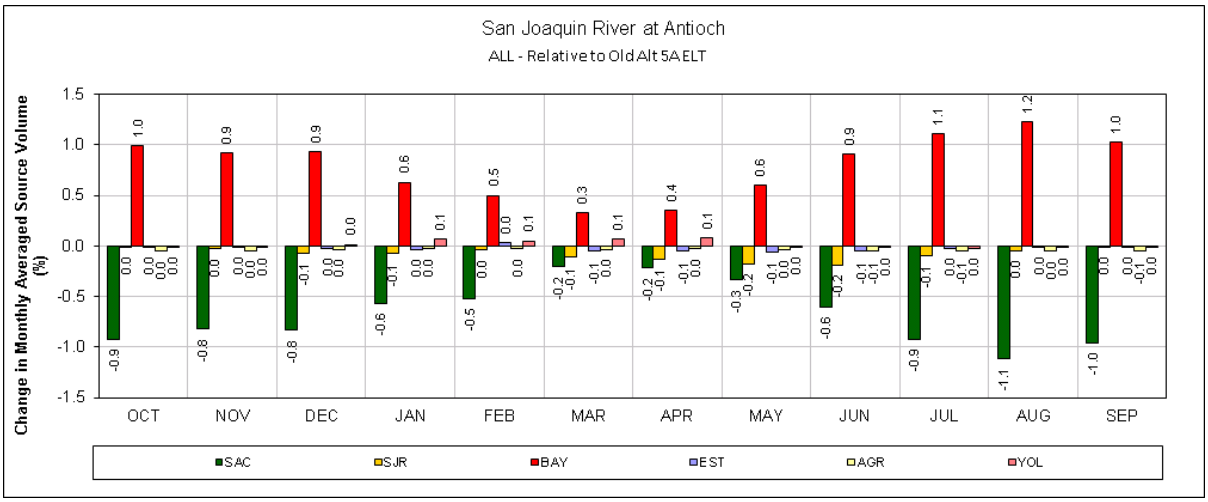
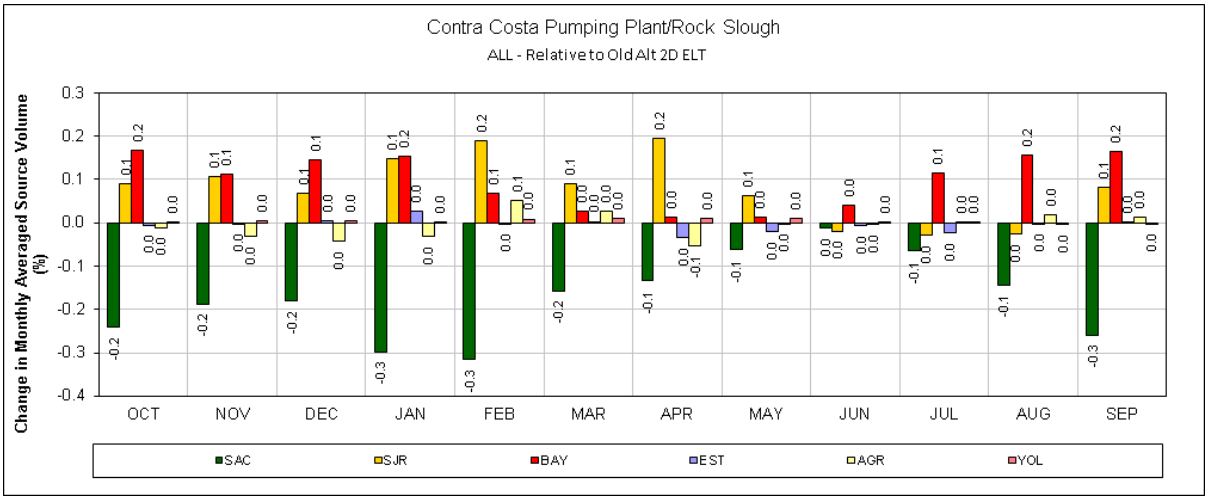


Figure 2. Change in San Joaquin River at Antioch monthly average source volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.



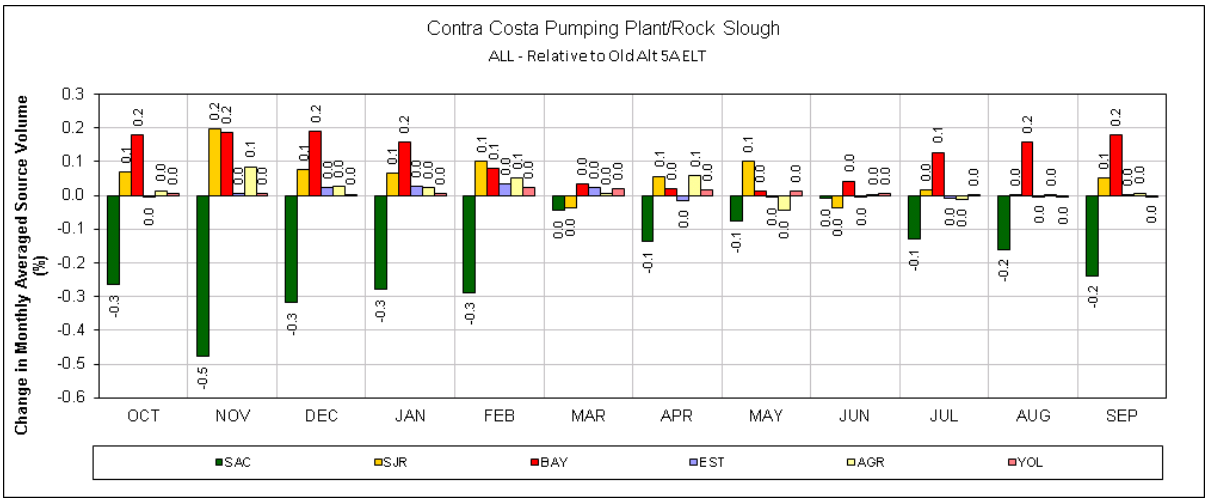
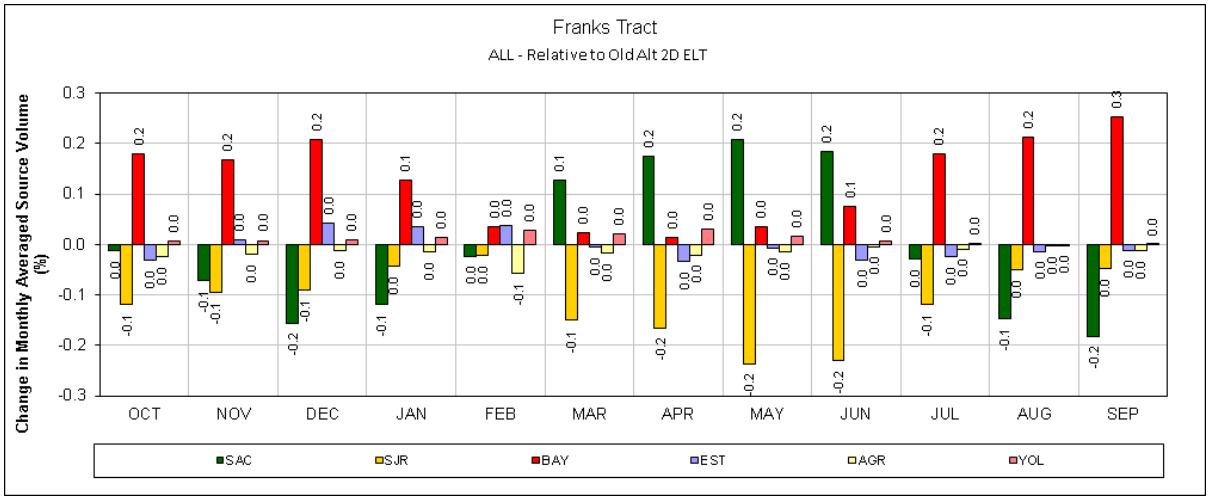


Figure 3. Change in Contra Costa Pumping Plant #1 monthly average source volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.



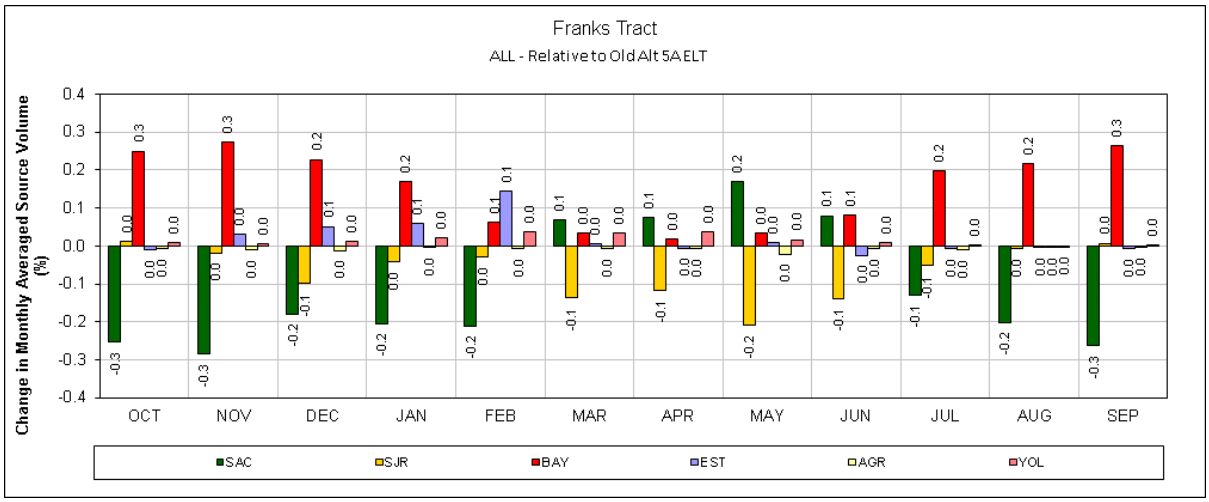
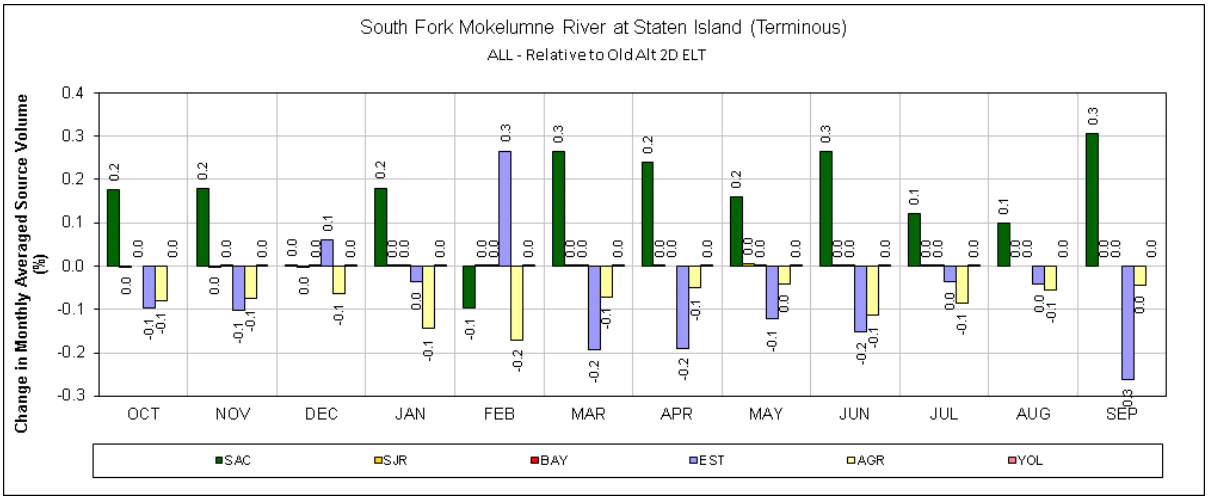


Figure 4. Change in Franks Tract monthly average source volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.



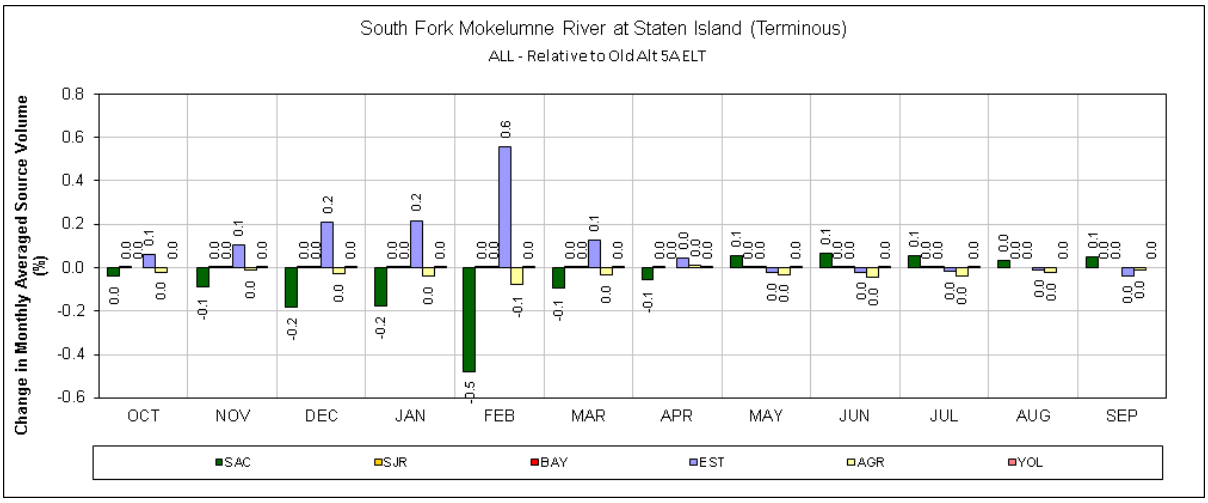
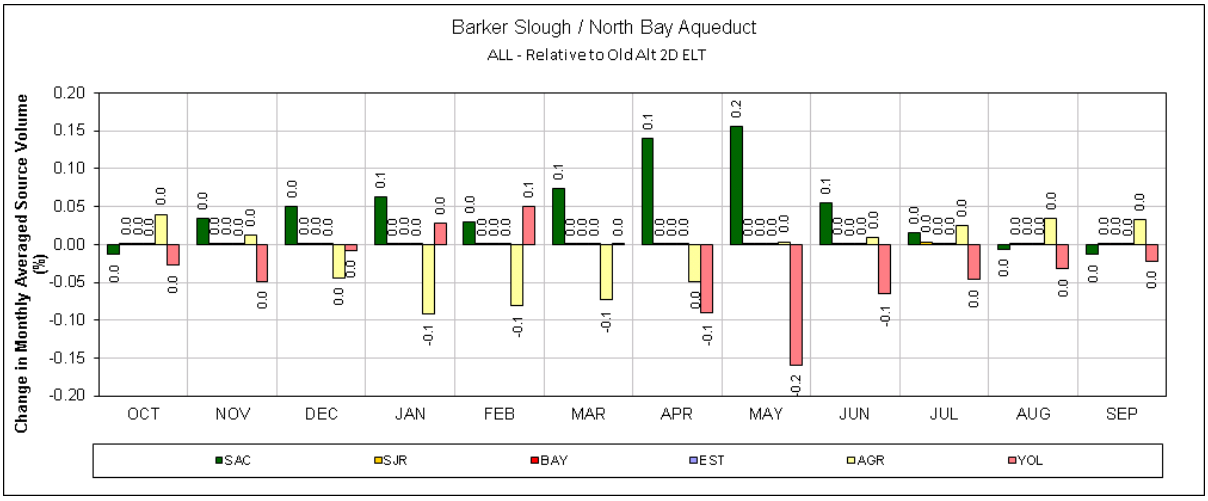


Figure 5. Change in South Fork Mokelumne River at Staten Island (Terminous) monthly average source volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.



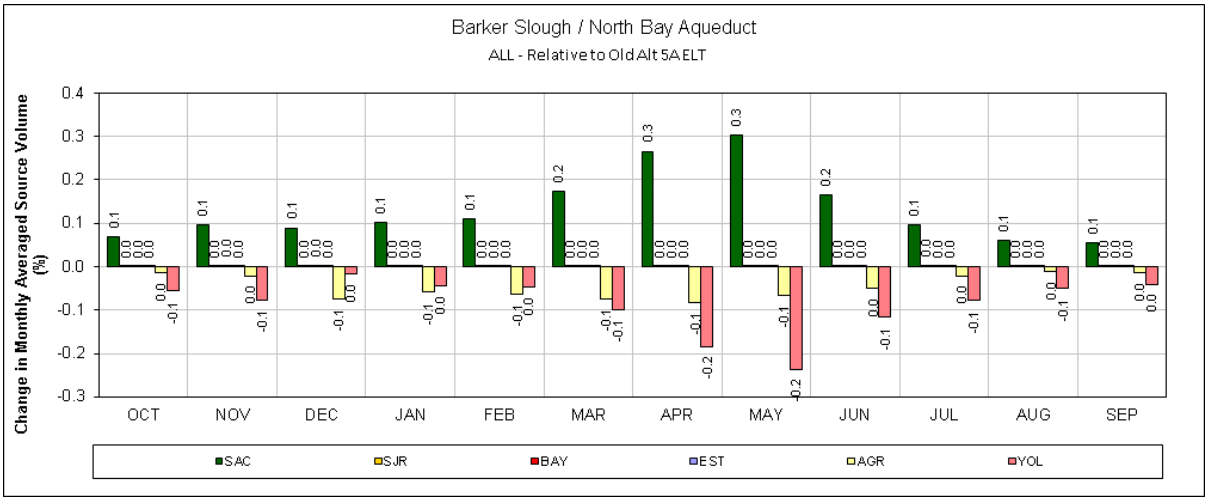
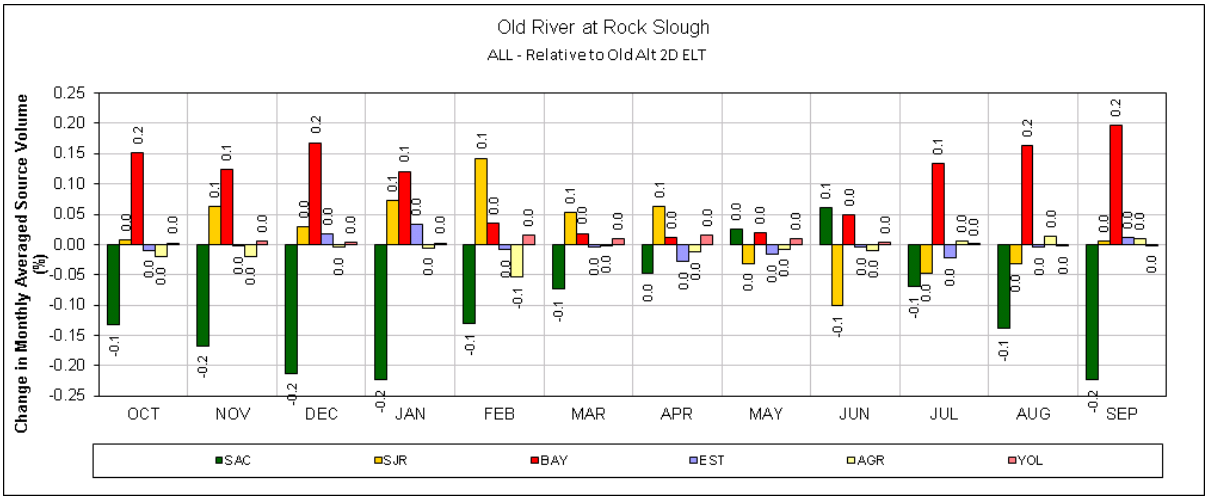


Figure 6. Change in Barker Slough/North Bay Aqueduct monthly average source volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.



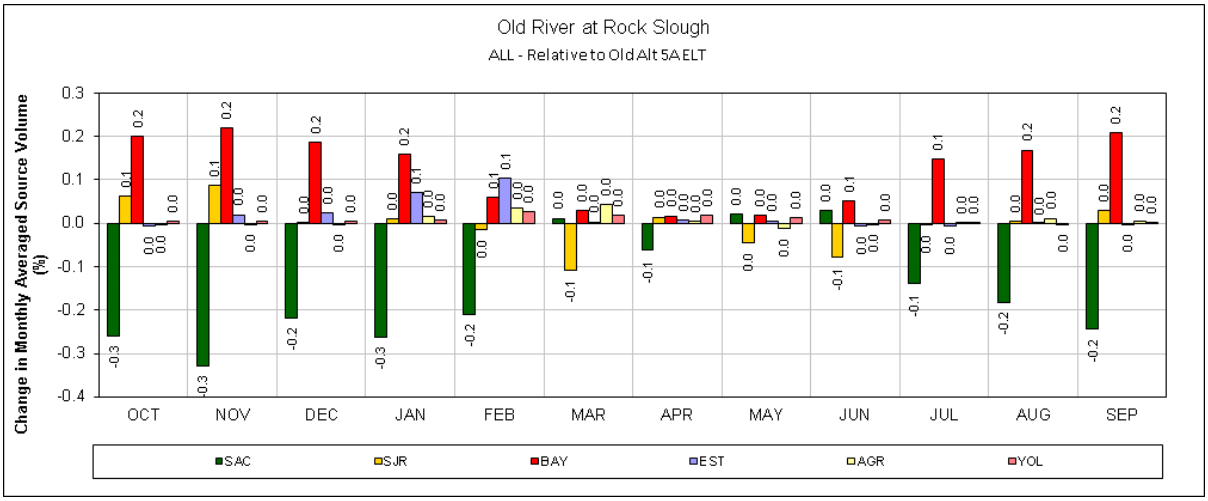
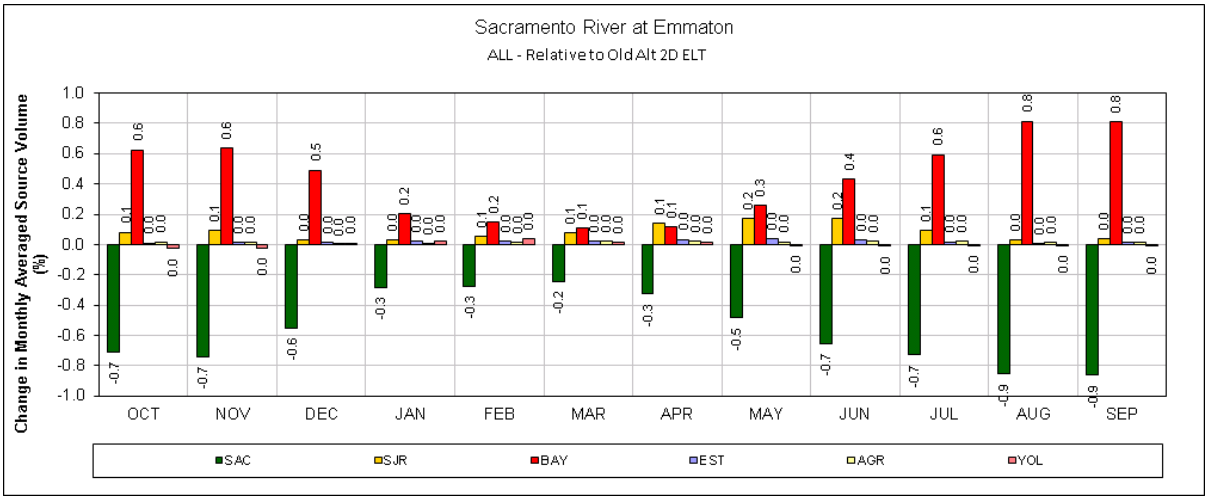


Figure 7. Change in Old River at Rock Slough monthly average source volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.



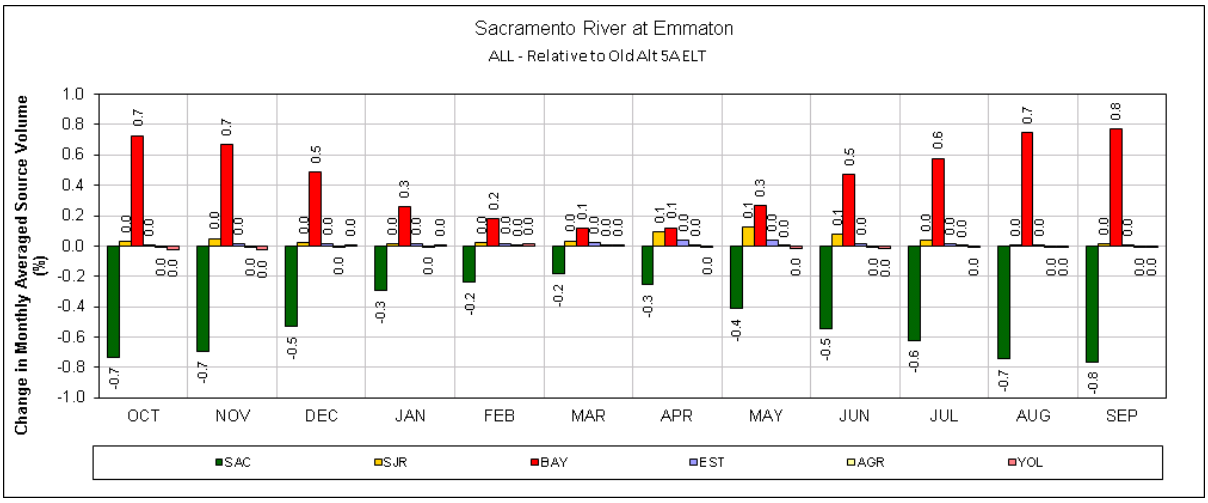
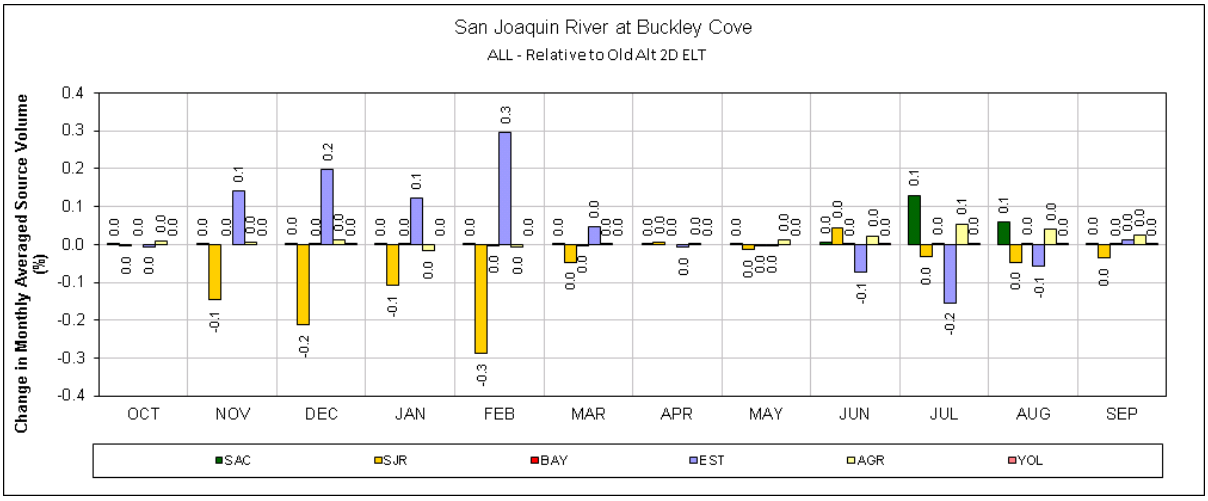


Figure 8. Change in Sacramento River at Emmaton monthly average source volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.



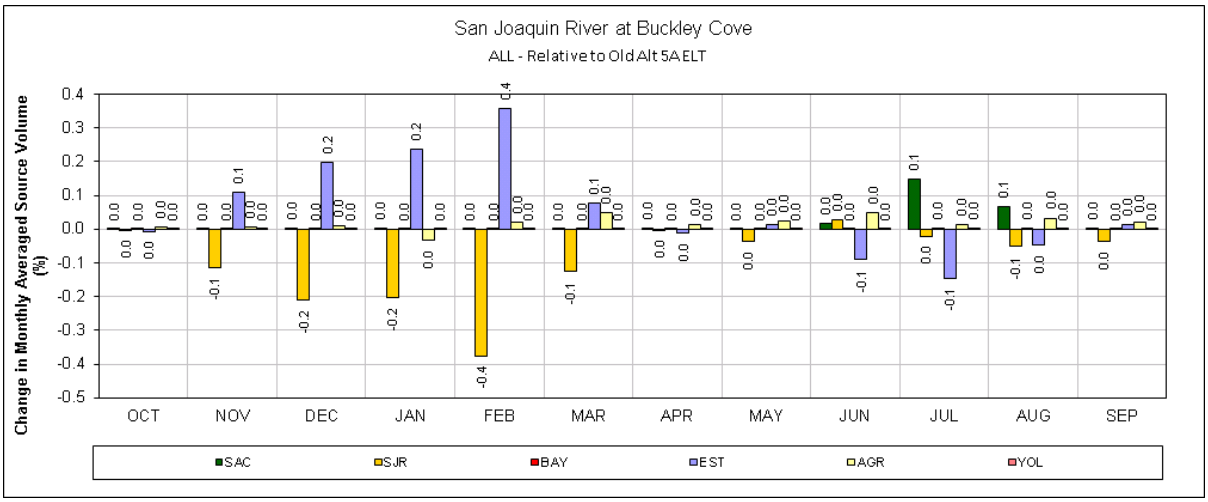


Figure 9. Change in San Joaquin River at Buckley Cove monthly average source volume relative to source volumes presented in Appendix 8D, *Source Water Fingerprinting Results*, for Alternatives 2D and 5A.

Discussion of Updated DSM2 Modeling Results Relative to CCWD Mitigation Assessment

Section 31B.3.4 of Appendix 31B, *Mitigation MeasureWQ-7e: CCWD Settlement Agreement*, presents an assessment of the water quality effects that would result from implementation of the CCWD Mitigation Agreement. The assessment addresses effects that would occur under Alternatives 2D and 5A, in addition to Alternative 4A. The CCWD Mitigation Agreement assessment shows that there would be little to no change in EC as a result of implementation of the agreement facilities and operations at all Delta assessment locations. Thus, the EC results that have been identified and discussed above for the updated DSM2 modeling of Alternatives 2D and 5A would be relevant to the EC conditions that would occur with implementation of the CCWD Mitigation Agreement under these alternatives.