Appendix 4.D: Comparison of Key Hydrological Variables for Proposed Project with Longfin Smelt Spring Outflow Criteria to No Action Alternative and Proposed Project Scenarios

4.D Comparison of Key Hydrological Variables for Proposed Project with Longfin Smelt Spring Outflow Criteria to No Action Alternative and Proposed Project Scenarios

This appendix provides a comparison of CalSim outputs for key hydrological variables, to provide context for potential differences as a result of the Proposed Project with longfin smelt Spring Outflow Criteria (PP_{LFS}) to the No Action Alternative (NAA) and Proposed Project (PP). The principal assumptions of the NAA and PP scenarios are described in ICF International (2016: Appendix 5.A *CALSIM Methods and Results*, Section 5.A.5 *CalSim II Modeling Assumptions*). The PP_{LFS} scenario has the same assumptions, except for the additional spring outflow criteria described in Section 5.3.2 *Longfin Smelt* in Chapter 5 *Take Minimization and Mitigation Measures*. Key hydrologic variables selected for this summary include indicators of upstream conditions (May and September storage at Shasta, Oroville, and Folsom reservoirs, i.e., CalSim reservoirs S4, S6, and S8) and indicators of Delta conditions: flow below the North Delta Diversion (NDD; an indicator of migration conditions for juvenile salmonids entering the Delta, based on CalSim channel C400, near Hood); Old and Middle River flows (an indicator of south Delta hydrodynamic conditions, particularly with respect to entrainment at the south Delta export facilities, based on CalSim channel C408); and previous month's X2 (an indicator of Delta outflow which has been correlated with ecological responses in species such as longfin smelt and Delta Smelt). The tables below summarize monthly water-year-type means of these hydrological variables, and differences between these means.

4.D.1 Reservoir Storage

Results for Shasta (Table 4.D-1), Oroville (Table 4.D-2), and Folsom (Table 4.D-3) reservoirs indicated that there would be little difference (2% or less) between PP (LFS outflow) and PP in May and September storage. Therefore, the upstream effects of PP (LFS outflow) and PP are expected to be similar.

Table 4.D-1. Water-year-type Mean of Shasta Reservoir Storage (Thousand Acre-Feet), May and September, from the 1922–2003 CalSim-II Simulation.

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP[1]
May	W	4,460	4,461	4,461	1 (0%)	1 (0%)	0 (0%)
	AN	4,427	4,422	4,420	-5 (0%)	-7 (0%)	-2 (0%)
	BN	3,959	3,989	3,998	30 (1%)	39 (1%)	9 (0%)
	D	3,667	3,713	3,722	46 (1%)	55 (2%)	9 (0%)
	C	2,065	2,113	2,118	48 (2%)	52 (3%)	4 (0%)
Sep	W	2,985	2,974	2,980	-11 (0%)	-5 (0%)	6 (0%)
	AN	2,835	2,873	2,871	38 (1%)	36 (1%)	-3 (0%)
	BN	2,615	2,690	2,695	75 (3%)	80 (3%)	5 (0%)
	D	2,459	2,473	2,472	14 (1%)	13 (1%)	0 (0%)
	C	914	977	972	63 (7%)	58 (6%)	-5 (0%)

Notes:
[1]Negative values indicate lower values under the first-named scenario in the comparison.
Green shading indicates differences that are > +5% from the perspective of the first-named scenario.

Table 4.D-2. Water-year-type Mean of Oroville Reservoir Storage (Thousand Acre-Feet), May and September, from the 1922–2003 CalSim-II Simulation.

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP[1]
May	W	3,486	3,488	3,488	1 (0%)	1 (0%)	0 (0%)
	AN	3,392	3,410	3,410	18 (1%)	18 (1%)	0 (0%)
	BN	2,716	2,832	2,845	116 (4%)	129 (5%)	12 (0%)
	D	2,209	2,288	2,266	78 (4%)	57 (3%)	-22 (-1%)
	C	1,388	1,423	1,448	35 (3%)	60 (4%)	25 (2%)
Sep	W	2,102	2,163	2,160	61 (3%)	58 (3%)	-4 (0%)
	AN	1,657	1,738	1,742	81 (5%)	85 (5%)	3 (0%)
	BN	1,307	1,503	1,502	196 (15%)	195 (15%)	-1 (0%)
	D	1,146	1,247	1,239	102 (9%)	94 (8%)	-8 (-1%)
	C	874	912	935	38 (4%)	61 (7%)	22 (2%)

Notes:
[1]Negative values indicate lower values under the first-named scenario in the comparison.
Green shading indicates differences that are > +5% from the perspective of the first-named scenario.

Table 4.D-3. Water-year-type Mean of Folsom Reservoir Storage (Thousand Acre-Feet), May and September, from the 1922–2003 CalSim-II Simulation.

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP[1]
May	W	951	952	951	1 (0%)	0 (0%)	-1 (0%)
	AN	946	947	947	0 (0%)	0 (0%)	0 (0%)
	BN	841	841	842	0 (0%)	1 (0%)	1 (0%)
	D	760	761	762	1 (0%)	2 (0%)	0 (0%)
	C	481	476	478	-5 (-1%)	-3 (-1%)	2 (0%)
Sep	W	576	567	566	-8 (-1%)	-9 (-2%)	-1 (0%)
	AN	478	488	489	10 (2%)	11 (2%)	2 (0%)
	BN	450	443	449	-7 (-2%)	-2 (0%)	5 (1%)
	D	421	388	380	-33 (-8%)	-41 (-10%)	-8 (-2%)
	C	231	228	230	-3 (-1%)	-1 (0%)	2 (1%)

Notes:
[1]Negative values indicate lower values under the first-named scenario in the comparison.
Red shading indicates differences that are < -5% from the perspective of the first-named scenario.

4.D.2 Delta

Within the Delta, flows below the NDD were generally similar, with some differences during the March–May period to which the longfin smelt spring outflow criteria are applied. These included slightly greater flow below the NDD in March of below normal years under PP (LFS outflow) compared to PP, and slightly less flow below the NDD in April of wet years under PP (LFS outflow) compared to PP (Table 4.D-4). These patterns reflect differences in the criteria used to determine the upper bounds on outflow, principally the 44,500-cfs limit to required outflow under the PP (LFS outflow) scenario, which slightly decreased the mean outflow in April relative to the PP.

Table 4.D-4. Monthly Water-year-type Mean of Flows Below the North Delta Diversion (Cubic Feet per Second), from the 1922–2003 CalSim-II Simulation.

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP
Jan	W	49,341	42,889	42,969	-6,452 (-13%)	-6,372 (-13%)	80 (0%)
	AN	38,565	33,003	33,002	-5,563 (-14%)	-5,563 (-14%)	0 (0%)
	BN	18,314	16,395	16,452	-1,920 (-10%)	-1,862 (-10%)	58 (0%)
	D	17,243	15,577	15,584	-1,665 (-10%)	-1,659 (-10%)	7 (0%)
	C	14,090	13,300	13,307	-789 (-6%)	-783 (-6%)	6 (0%)
Feb	W	56,615	48,770	48,684	-7,844 (-14%)	-7,931 (-14%)	-86 (0%)
	AN	46,659	39,972	40,068	-6,687 (-14%)	-6,591 (-14%)	96 (0%)
	BN	30,326	26,251	26,279	-4,075 (-13%)	-4,047 (-13%)	28 (0%)
	D	23,436	20,073	20,108	-3,362 (-14%)	-3,327 (-14%)	35 (0%)
	C	16,010	14,171	14,182	-1,839 (-11%)	-1,828 (-11%)	11 (0%)
Mar	W	47,988	40,145	40,361	-7,844 (-16%)	-7,627 (-16%)	217 (1%)
	AN	40,801	34,100	35,447	-6,700 (-16%)	-5,354 (-13%)	1,347 (4%)
	BN	18,542	15,051	16,060	-3,492 (-19%)	-2,482 (-13%)	1,010 (7%)
	D	21,284	17,259	17,923	-4,025 (-19%)	-3,360 (-16%)	664 (4%)
	C	12,529	11,683	11,636	-846 (-7%)	-894 (-7%)	-47 (0%)
Apr	W	34,998	32,406	30,778	-2,592 (-7%)	-4,220 (-12%)	-1,628 (-5%)
	AN	24,080	22,944	22,401	-1,136 (-5%)	-1,679 (-7%)	-542 (-2%)
	BN	14,076	13,607	13,730	-469 (-3%)	-346 (-2%)	123 (1%)
	D	14,895	14,348	14,207	-547 (-4%)	-688 (-5%)	-141 (-1%)
	C	10,290	10,144	10,166	-147 (-1%)	-124 (-1%)	22 (0%)
May	W	29,839	26,747	26,011	-3,092 (-10%)	-3,828 (-13%)	-736 (-3%)
	AN	16,711	15,444	15,496	-1,266 (-8%)	-1,215 (-7%)	52 (0%)
	BN	12,460	12,027	11,943	-433 (-3%)	-517 (-4%)	-85 (-1%)
	D	11,633	11,382	11,304	-251 (-2%)	-329 (-3%)	-77 (-1%)
	C	8,214	8,031	8,030	-184 (-2%)	-184 (-2%)	0 (0%)
Jun	W	19,958	15,110	15,108	-4,848 (-24%)	-4,850 (-24%)	-2 (0%)
	AN	13,413	11,467	11,431	-1,946 (-15%)	-1,982 (-15%)	-36 (0%)
	BN	12,773	12,021	12,025	-752 (-6%)	-748 (-6%)	4 (0%)
	D	12,608	11,547	11,907	-1,061 (-8%)	-701 (-6%)	360 (3%)
	C	9,334	9,078	9,178	-256 (-3%)	-156 (-2%)	100 (1%)
Jul	W	20,301	13,614	13,587	-6,687 (-33%)	-6,715 (-33%)	-27 (0%)
	AN	22,871	14,013	14,068	-8,858 (-39%)	-8,803 (-38%)	55 (0%)
	BN	22,005	13,807	13,787	-8,198 (-37%)	-8,218 (-37%)	-20 (0%)
	D	16,873	11,555	11,459	-5,318 (-32%)	-5,414 (-32%)	-96 (-1%)
	C	11,013	9,194	9,204	-1,820 (-17%)	-1,809 (-16%)	10 (0%)
Aug	W	15,934	9,244	9,173	-6,690 (-42%)	-6,761 (-42%)	-71 (-1%)
	AN	16,655	9,777	9,787	-6,878 (-41%)	-6,868 (-41%)	10 (0%)
	BN	15,402	8,794	8,811	-6,608 (-43%)	-6,591 (-43%)	17 (0%)
	D	10,437	9,668	9,696	-769 (-7%)	-741 (-7%)	28 (0%)
	C	8,508	8,698	8,696	190 (2%)	188 (2%)	-3 (0%)

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP
Sep	W	27,883	20,880	20,690	-7,003 (-25%)	-7,193 (-26%)	-190 (-1%)
	AN	21,134	14,115	14,114	-7,019 (-33%)	-7,020 (-33%)	-1 (0%)
	BN	11,952	6,463	6,457	-5,490 (-46%)	-5,496 (-46%)	-6 (0%)
	D	9,994	6,530	6,510	-3,464 (-35%)	-3,484 (-35%)	-20 (0%)
	C	7,102	6,362	6,361	-740 (-10%)	-741 (-10%)	-1 (0%)
Oct	W	12,949	8,954	8,908	-3,995 (-31%)	-4,040 (-31%)	-46 (-1%)
	AN	10,086	7,533	7,526	-2,553 (-25%)	-2,560 (-25%)	-7 (0%)
	BN	11,935	7,868	7,811	-4,067 (-34%)	-4,124 (-35%)	-57 (-1%)
	D	10,098	7,427	7,431	-2,671 (-26%)	-2,667 (-26%)	4 (0%)
	C	7,912	6,948	6,992	-964 (-12%)	-921 (-12%)	44 (1%)
Nov	W	20,445	14,682	14,730	-5,763 (-28%)	-5,714 (-28%)	48 (0%)
	AN	17,226	12,748	12,846	-4,478 (-26%)	-4,379 (-25%)	99 (1%)
	BN	15,878	11,230	11,229	-4,648 (-29%)	-4,649 (-29%)	-1 (0%)
	D	12,673	8,733	8,705	-3,939 (-31%)	-3,967 (-31%)	-28 (0%)
	C	8,493	7,379	7,396	-1,113 (-13%)	-1,097 (-13%)	16 (0%)
Dec	W	36,334	33,083	33,187	-3,251 (-9%)	-3,147 (-9%)	104 (0%)
	AN	24,692	22,543	22,502	-2,149 (-9%)	-2,191 (-9%)	-41 (0%)
	BN	15,798	14,226	14,243	-1,573 (-10%)	-1,556 (-10%)	17 (0%)
	D	13,601	12,747	12,794	-854 (-6%)	-807 (-6%)	47 (0%)
	C	11,156	10,327	10,346	-830 (-7%)	-810 (-7%)	20 (0%)

Notes:
[1]Negative values indicate lower values under the first-named scenario in the comparison.
Red shading indicates differences that are < -5% from the perspective of the first-named scenario.
Green shading indicates differences that are > +5% from the perspective of the first-named scenario.

For Old and Middle River flows, differences between PP (LFS outflow) and PP were generally minor, although in terms of percentage change, the differences may appear greater because of the comparison of negative and positive numbers in some instances (Table 4.D-5). The greatest differences were in March of below normal and dry years, for which export curtailments resulted in Old and Middle River flows that were ~1,400–1,900 cfs greater under PP (LFS outflow) than PP.

Table 4.D-5. Monthly Water-year-type Mean of Old and Middle River Flows (Cubic Feet per Second), from the 1922–2003 CalSim-II Simulation.

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP
Jan	W	-1,901	1,753	1,753	3,654 (192%)	3,654 (192%)	0 (0%)
	AN	-3,664	-1,625	-1,690	2,039 (56%)	1,974 (54%)	-65 (-4%)
	BN	-4,380	-1,399	-1,399	2,981 (68%)	2,981 (68%)	0 (0%)
	D	-4,617	-3,202	-3,202	1,415 (31%)	1,415 (31%)	0 (0%)
	C	-4,505	-3,925	-3,925	580 (13%)	580 (13%)	0 (0%)
Feb	W	-1,743	4,141	4,215	5,884 (338%)	5,959 (342%)	75 (2%)
	AN	-3,053	-787	-763	2,265 (74%)	2,290 (75%)	24 (3%)
	BN	-3,365	-2,161	-2,144	1,204 (36%)	1,221 (36%)	18 (1%)
	D	-3,531	-2,774	-2,774	758 (21%)	757 (21%)	0 (0%)
	C	-2,867	-2,844	-2,855	23 (1%)	12 (0%)	-11 (0%)
Mar	W	-1,544	4,914	5,168	6,458 (418%)	6,712 (435%)	254 (5%)
	AN	-4,178	1,174	1,473	5,353 (128%)	5,651 (135%)	299 (25%)
	BN	-3,968	-2,665	-1,222	1,303 (33%)	2,746 (69%)	1,442 (54%)
	D	-3,076	-2,482	-579	595 (19%)	2,497 (81%)	1,902 (77%)
	C	-1,783	-1,662	-1,202	121 (7%)	581 (33%)	460 (28%)
Apr	W	2,563	4,221	3,852	1,658 (65%)	1,289 (50%)	-369 (-9%)
	AN	655	1,014	997	360 (55%)	343 (52%)	-17 (-2%)
	BN	-25	-461	-460	-436 (-1742%)	-435 (-1740%)	0 (0%)
	D	-637	-823	-809	-186 (-29%)	-172 (-27%)	14 (2%)
	C	-848	-1,075	-1,082	-227 (-27%)	-234 (-28%)	-7 (-1%)
May	W	1,970	4,032	3,957	2,062 (105%)	1,986 (101%)	-76 (-2%)
	AN	397	869	868	472 (119%)	472 (119%)	0 (0%)
	BN	-341	-427	-428	-87 (-26%)	-87 (-26%)	0 (0%)
	D	-904	-792	-872	112 (12%)	33 (4%)	-79 (-10%)
	C	-864	-1,060	-1,060	-196 (-23%)	-196 (-23%)	0 (0%)
Jun	W	-4,290	-396	-343	3,894 (91%)	3,946 (92%)	53 (13%)
	AN	-4,537	-2,678	-2,678	1,858 (41%)	1,858 (41%)	0 (0%)
	BN	-3,454	-2,740	-2,755	714 (21%)	699 (20%)	-15 (-1%)
	D	-3,272	-2,427	-2,767	845 (26%)	504 (15%)	-340 (-14%)
	C	-1,346	-1,205	-1,298	141 (10%)	48 (4%)	-93 (-8%)
Jul	W	-8,927	-4,266	-4,203	4,661 (52%)	4,725 (53%)	64 (1%)
	AN	-9,066	-3,412	-3,431	5,654 (62%)	5,635 (62%)	-19 (-1%)
	BN	-10,511	-4,643	-4,621	5,868 (56%)	5,890 (56%)	22 (0%)
	D	-8,914	-4,096	-4,016	4,818 (54%)	4,898 (55%)	80 (2%)
	C	-4,351	-2,717	-2,727	1,634 (38%)	1,624 (37%)	-10 (0%)
Aug	W	-10,570	-4,513	-4,438	6,057 (57%)	6,132 (58%)	75 (2%)
	AN	-10,765	-4,480	-4,491	6,286 (58%)	6,275 (58%)	-11 (0%)
	BN	-9,616	-3,618	-3,635	5,997 (62%)	5,980 (62%)	-17 (0%)
	D	-4,874	-4,754	-4,792	120 (2%)	82 (2%)	-38 (-1%)
	C	-3,221	-3,805	-3,801	-584 (-18%)	-580 (-18%)	4 (0%)

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP
Sep	W	-9,306	-2,042	-1,889	7,264 (78%)	7,416 (80%)	152 (7%)
	AN	-9,613	-2,297	-2,299	7,316 (76%)	7,314 (76%)	-2 (0%)
	BN	-8,083	-3,203	-3,201	4,880 (60%)	4,882 (60%)	1 (0%)
	D	-6,408	-3,069	-3,060	3,339 (52%)	3,348 (52%)	9 (0%)
	C	-3,780	-2,832	-2,831	948 (25%)	949 (25%)	1 (0%)
Oct	W	-5,803	-1,085	-1,059	4,718 (81%)	4,745 (82%)	26 (2%)
	AN	-5,497	-1,373	-1,385	4,123 (75%)	4,111 (75%)	-12 (-1%)
	BN	-5,386	-620	-573	4,765 (88%)	4,813 (89%)	47 (8%)
	D	-5,367	-1,499	-1,543	3,868 (72%)	3,824 (71%)	-43 (-3%)
	C	-4,531	-2,063	-2,018	2,468 (54%)	2,513 (55%)	46 (2%)
Nov	W	-7,161	-1,581	-1,613	5,579 (78%)	5,547 (77%)	-32 (-2%)
	AN	-6,738	-2,826	-2,864	3,911 (58%)	3,874 (57%)	-38 (-1%)
	BN	-6,498	-1,769	-1,769	4,730 (73%)	4,730 (73%)	0 (0%)
	D	-5,785	-2,122	-2,076	3,663 (63%)	3,709 (64%)	47 (2%)
	C	-4,365	-2,861	-2,864	1,505 (34%)	1,501 (34%)	-3 (0%)
Dec	W	-5,539	-4,411	-4,382	1,128 (20%)	1,157 (21%)	29 (1%)
	AN	-6,826	-5,639	-5,674	1,187 (17%)	1,152 (17%)	-35 (-1%)
	BN	-8,028	-6,812	-6,811	1,216 (15%)	1,217 (15%)	1 (0%)
	D	-6,688	-6,052	-6,089	636 (10%)	599 (9%)	-37 (-1%)
	C	-4,826	-4,468	-4,663	358 (7%)	163 (3%)	-195 (-4%)

Notes: [1]Negative values indicate lower values under the first-named scenario in the comparison.
Red shading indicates differences that are < -5% from the perspective of the first-named scenario.
Green shading indicates differences that are > +5% from the perspective of the first-named scenario.

For X2, the differences between PP (LFS outflow) and PP were generally minor except, as expected, during the spring months for which the longfin smelt spring outflow criteria gave monthly mean X2 that was up to 1.5 km farther downstream under PP (LFS outflow) (Table 4.D-6).

Table 4.D-6. Monthly Water-year-type Mean of Previous Month's X2 (Location Upstream of the Golden Gate Bridge for the Near-Bottom 2-Parts-Per-Thousand Salinity Isohaline), from the 1922–2003 CalSim-II Simulation.

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP
Jan	W	63.7	64.2	64.2	0.5	0.5	-0.1
	AN	75.2	75.5	75.5	0.3	0.3	0.0
	BN	80.6	80.6	80.6	0.0	0.0	0.0
	D	84.5	84.7	84.7	0.2	0.2	0.0
	C	88.0	88.2	88.3	0.1	0.3	0.1
Feb	W	54.8	54.9	54.8	0.1	0.1	0.0
	AN	61.0	61.0	61.0	0.0	0.0	0.0
	BN	74.9	72.9	72.9	-1.9	-2.0	-0.1
	D	77.8	77.0	77.0	-0.8	-0.8	0.0
	C	82.2	81.9	82.0	-0.3	-0.2	0.1
Mar	W	51.2	51.3	51.3	0.1	0.1	0.0
	AN	54.9	55.4	55.4	0.5	0.5	0.0
	BN	64.4	63.8	63.7	-0.6	-0.7	-0.1
	D	67.7	68.0	67.9	0.2	0.2	0.0
	C	75.2	75.7	75.7	0.5	0.5	0.0
Apr	W	53.1	53.2	53.1	0.1	0.0	-0.1
	AN	55.3	55.3	54.7	0.0	-0.6	-0.6
	BN	67.1	67.6	66.2	0.5	-0.9	-1.4
	D	65.6	67.2	65.6	1.6	0.1	-1.5
	C	74.6	75.2	74.8	0.6	0.2	-0.4
May	W	55.5	55.5	55.7	0.0	0.2	0.2
	AN	59.7	59.5	59.3	-0.2	-0.3	-0.2
	BN	69.5	69.9	69.0	0.4	-0.6	-0.9
	D	69.1	69.8	69.0	0.7	-0.1	-0.8
	C	77.9	78.0	77.7	0.0	-0.2	-0.2
Jun	W	58.6	58.6	58.7	0.0	0.2	0.1
	AN	65.4	65.3	65.3	-0.1	-0.1	0.0
	BN	73.2	73.0	72.9	-0.2	-0.2	-0.1
	D	74.6	74.3	74.4	-0.3	-0.3	0.1
	C	82.4	82.5	82.4	0.0	0.0	0.0
Jul	W	67.4	67.4	67.4	0.0	0.0	0.0
	AN	75.4	75.1	75.1	-0.3	-0.4	0.0
	BN	79.1	78.7	78.7	-0.4	-0.4	0.0
	D	80.1	79.9	79.9	-0.2	-0.2	0.1
	C	85.2	85.2	85.2	0.0	0.0	0.0
Aug	W	74.9	76.3	76.2	1.4	1.4	0.0
	AN	77.8	80.2	80.2	2.4	2.4	0.0
	BN	81.0	82.7	82.6	1.6	1.6	0.0
	D	84.5	84.7	84.6	0.2	0.1	0.0
	C	87.9	88.0	88.0	0.1	0.1	0.0

Month	WYT	NAA	PP	PP_{LFS}	PP vs. NAA[1]	PP_{LFS} vs. NAA[1]	PP_{LFS} vs. PP
Sep	W	82.7	83.9	83.9	1.1	1.1	0.0
	AN	83.0	84.9	84.8	1.8	1.8	0.0
	BN	85.1	86.6	86.6	1.5	1.5	0.0
	D	87.7	88.5	88.5	0.9	0.8	0.0
	C	90.3	90.8	90.8	0.6	0.5	0.0
Oct	W	81.0	81.3	81.3	0.3	0.3	0.0
	AN	86.0	86.6	86.6	0.5	0.5	0.0
	BN	80.0	80.4	80.4	0.4	0.4	0.0
	D	84.9	85.4	85.4	0.5	0.5	0.0
	C	89.4	90.2	90.1	0.8	0.8	0.0
Nov	W	80.6	79.7	79.8	-0.9	-0.9	0.0
	AN	86.8	85.2	85.2	-1.6	-1.6	0.0
	BN	80.4	79.6	79.6	-0.8	-0.8	0.0
	D	85.7	84.5	84.5	-1.2	-1.1	0.0
	C	90.4	89.2	89.1	-1.3	-1.4	-0.1
Dec	W	76.9	76.6	76.7	-0.2	-0.2	0.0
	AN	82.5	81.8	81.8	-0.8	-0.7	0.0
	BN	80.1	79.5	79.5	-0.6	-0.6	0.0
	D	85.5	84.9	84.9	-0.6	-0.6	0.0
	C	90.7	89.3	89.2	-1.3	-1.4	-0.1

Notes:
[1]Negative values indicate lower values under the first-named scenario in the comparison.
Red shading indicates differences that are < -5% from the perspective of the first-named scenario.
Green shading indicates differences that are > +5% from the perspective of the first-named scenario.

4.D.3 References

ICF International. 2016. *Biological Assessment for the California WaterFix*. July. (ICF 00237.15.) Sacramento, CA. Prepared for United States Department of the Interior, Bureau of Reclamation, Sacramento, CA.