

11.0 Readers' Guide and Summary of Effects

11.0.1 Readers' Guide

Chapter 11, *Fish and Aquatic Resources*, describes the environmental setting and potential impacts of the action alternatives on covered and non-covered fish and aquatic species in and upstream of the Sacramento-San Joaquin Delta. The chapter contains analysis of the results of implementing action alternatives that include the BDCP habitat conservation plan (HCP) alternatives with 21 associated conservation measures, as well as three non-HCP alternatives (that do not contain the BDCP) and 11 Environmental Commitments. This guide is intended to help the reader understand the organization of the chapter and more easily identify the existing conditions information and impact analysis of species of interest.

11.0.1.1 Species Evaluated in Chapter 11

The chapter analyzes 20 fish and aquatic species—11 of which are covered species and 9 of which are non-covered species.

Covered fish species are those identified as endangered, threatened, or at risk of being listed as endangered or threatened during the BDCP permit term, for which BDCP will provide conservation and management. Alternatives 4A, 2D, and 5A, are not HCP alternatives and, therefore, would not cover species that are not federally or state-listed as threatened or endangered. However, for consistency in terminology, the term *covered species* is still used for the non-HCP alternative discussions (4A, 2D, and 5A).

The covered fish species analyzed in Chapter 11 are:

- Delta smelt
- Longfin smelt
- Winter-run Chinook salmon
- Spring-run Chinook salmon
- Fall-run/Late fall-run Chinook salmon
- Steelhead
- Sacramento splittail
- Green sturgeon
- White sturgeon
- Pacific lamprey
- River lamprey

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1 low to moderate, they are not expected to cause biologically meaningful effects on steelhead juvenile
2 rearing habitat.

3 Mean water temperatures in the American River at the confluence with the Sacramento River and
4 the Watt Avenue Bridge were examined during the year-round steelhead rearing period (Appendix
5 11D). There would be no differences (<5%) in mean monthly water temperature between NAA_ELT
6 and H3_ELT in any month or water year type throughout the period.

7 The percentage of months exceeding a 65°F temperature threshold in the American River at the
8 Watt Avenue Bridge was evaluated during May through October (Table 11-4A-81). During May
9 through July, and October, the percentage of months exceeding the threshold under H3_ELT would
10 be similar to or up to 9% lower (absolute difference) than the percentage under NAA_ELT. During
11 August and September, the percentage of months exceeding the threshold would increase up to 11%
12 (absolute difference) under H3_ELT.

13 **Table 11-4A-81. Differences between Baseline and H3_ELT Scenarios in Percentage of Months**
14 **during the 82-Year CALSIM Modeling Period during Which Water Temperatures in the American**
15 **River at the Watt Avenue Bridge Exceed the 65°F Threshold, May through October**

Month	Degrees Above Threshold				
	>1.0	>2.0	>3.0	>4.0	>5.0
EXISTING CONDITIONS vs. H3_ELT					
May	26 (131%)	20 (133%)	11 (100%)	6 (100%)	4 (75%)
June	27 (42%)	22 (42%)	17 (42%)	15 (48%)	14 (65%)
July	0 (0%)	1 (1%)	30 (47%)	21 (59%)	25 (143%)
August	0 (0%)	2 (3%)	17 (21%)	49 (103%)	57 (184%)
September	11 (13%)	37 (70%)	32 (100%)	30 (185%)	22 (300%)
October	17 (350%)	10 (400%)	9 (NA)	2 (NA)	1 (NA)
NAA_ELT vs. H3_ELT					
May	-1 (-3%)	-2 (-7%)	-1 (-5%)	0 (0%)	0 (0%)
June	0 (0%)	-2 (-3%)	-5 (-8%)	-7 (-14%)	-9 (-20%)
July	0 (0%)	0 (0%)	-2 (-3%)	-9 (-13%)	-5 (-11%)
August	0 (0%)	0 (0%)	0 (0%)	5 (5%)	11 (15%)
September	2 (3%)	9 (11%)	6 (11%)	7 (19%)	4 (14%)
October	-1 (-5%)	-1 (-9%)	2 (40%)	1 (100%)	1 (NA)

Note: Negative numbers indicate lower values under Alternative 4A (i.e., the calculations are based on Alternative 4A minus the baseline).

NA = could not be calculated because the denominator was 0.

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17 Total degree-months exceeding 65°F were summed by month and water year type at the Watt
18 Avenue Bridge during May through October (Table 11-4A-82). Total degree-months (all water year
19 types combined) exceeding the threshold would be similar between NAA_ELT and H3_ELT or up to
20 38 degree-months lower under H3_ELT in all months except August and September, in which
21 degree-months would be 28 degree-months higher under H3_ELT.