

Appendix 7B Hydrodynamic Geomorphic Modeling Results

7B.1 Introduction

The information contained in this appendix was originally produced in the Sites Reservoir Project Environmental Impact Report/Environmental Impact Statement (EIR/EIS) (2017 Draft EIR/EIS). This information is included so the reader can reference the results of suspended sediment transport, bedload, and river meandering models that were used for the impact analysis in Chapter 7, *Fluvial Geomorphology*. This modeling for the 2017 Draft EIR/EIS was conducted for three alternatives: Alternative A (with a 1.3-MAF reservoir that included a third point of Sacramento River diversion at Delevan), Alternative B (with a 1.8-MAF reservoir with no third point of diversion), and Alternative C (with a 1.8-MAF reservoir that included the third point of diversion at Delevan). Line items and numbers identified or noted as “No Action Alternative” represent the “Existing conditions/No Project/No Action Condition” as described in the 2017 Draft EIR/EIS. The previous modeled results are valid for the scale at which impacts on geomorphic resources are being considered for Alternatives 1, 2, and 3, and those results are generally conservative (i.e., higher in volume) relative to the amount of water (and sediment) that would be diverted under Alternatives 1, 2, and 3. The figure numbering and page numbering in this appendix reflects the original numbering in the 2017 Draft EIR/EIS and table numbering may not be consistent throughout this appendix, as was reflected in the 2017 Draft EIR/EIS.

Tables 7B-1 and 7B-2 compare the modeled diversions to storage between the 2017 Draft EIR/EIS and the Final EIR/EIS. The comparison shows that geomorphic modeling performed for the 2017 Draft EIR/EIS provides a conservative estimate (i.e., overestimate) of effects downstream of Red Bluff and Hamilton City for the Final EIR/EIS. Alternative B from the 2017 Draft EIR/EIS was used for this comparison because this alternative had two points of diversion from the Sacramento River (at Red Bluff and Hamilton City), similar to the alternatives evaluated in the Final EIR/EIS. The diversions at Red Bluff and Hamilton City simulated for the Final EIR/EIS are generally less than the values simulated for the 2017 Draft EIR/EIS. The comparison focuses on the months with largest diversions to Sites Reservoir storage (December–March). The comparisons show that the median monthly Final EIR/EIS diversions at Red Bluff and Hamilton City are similar or substantially less than the median monthly 2017 Draft EIR/EIS diversions at Red Bluff and Hamilton City and therefore estimates of geomorphic change based on the 2017 Draft EIR/EIS diversions are conservative relative to the diversions described in the Final EIR/EIS.

No Action Alternative (NAA) was used in the comparison table to be consistent with terminology in Appendix 7B.

Table 7B1. 2017 Draft EIR/EIS and Final EIR/EIS Median Diversions (cfs). Months are when the largest diversions to Sites Reservoir would occur.

Diversion	Month	2017 Draft EIR/EIS ¹		Final EIR/EIS ²			
		NAA	ALT B	NAA	ALT 1A	ALT 1B	ALT 3
Red Bluff Diversion (TC Canal)	Dec	0	0	0	37	29	63
	Jan	0	2,074	0	88	88	88
	Feb	0	2,121	0	105	106	396
	Mar	0	2,121	16	98	99	117
Hamilton City Diversion (GCID)	Dec	194	140	206	228	229	229
	Jan	75	133	78	87	94	94
	Feb	68	156	65	67	68	77
	Mar	20	666	25	58	58	69

Sources: ¹ 2017 Draft EIR/EIS, Appendix 6B; ² Upper Sacramento River Daily Operations Model.

Notes: cfs = cubic feet per second; NAA = No Action Alternative; ALT = alternative; TC Canal = Tehama-Colusa Canal; GCID = Glenn-Colusa Irrigation District.

Table 7B-2. Differences between 2017 Draft EIR/EIS Alternative B and Final EIR/EIS Median Diversions (cfs) (Final Minus Draft). Negative numbers indicate the Final EIR/EIS diversion decreased relative to the 2017 Draft EIR/EIS.

Diversion	Month	Difference in Median of the Monthly Flows			
		NAA 051422	ALT 1A 051722	ALT 1B 051722	ALT 3 051722
Red Bluff Diversion (TC Canal)	Dec	0	37	29	63
	Jan	0	-1,986	-1,986	-1,986
	Feb	0	-2,016	-2,015	-1,725
	Mar	16	-2,023	-2,022	-2,004
Hamilton City Diversion (GCID)	Dec	12	88	89	89
	Jan	3	-46	-39	-39
	Feb	-3	-89	-88	-79
	Mar	5	-608	-608	-597

Notes: cfs = cubic feet per second; NAA = No Action Alternative; ALT = alternative; TC Canal = Tehama-Colusa Canal; GCID = Glenn-Colusa Irrigation District. Alternatives 1A, 1B, and 3 are the alternatives with the larger, 1.5 MAF reservoir, as described in the RDEIR/SDEIS and the Final EIR/EIS. Of the 2017 Draft EIR/EIS alternatives, Alternative B is the most similar to Alternatives 1A, 1B, and 3 because it had the same two points of diversion on the Sacramento River, Red Bluff, and Hamilton City.