

USBR Targeted Benefits Quantifiable Objectives

Row #	Sub-region	TB # (1) [duplicate]	Location (2)	Type and Category of Targeted Benefit (3)		Bene-ficiary (4)	Description of Quantified Targeted Benefit (5)	Quantifiable Objective (6)	Possible Actions (provided as examples; proposers are encouraged to consider local actions that are not listed) (7)
6	1	6 [13, 20 30, 57, 75]	Sacramento River below Keswick	Flow:	Provide flow to improve aquatic ecosystem conditions	Eco	More closely emulate seasonal streamflow patterns in dry and normal year- types by allowing a late-winter or early-spring flow event of approximately 8,000 to 10,000 cfs in dry years and 15,000 to 20,000 cfs in below normal water-years to occur below Keswick Dam; Maintain base flows of 6,000 to 8,000 cfs during fall.	44 - 180 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
7	1	7	All affected lands	Quantity :	Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Reduce unwanted ET by ____ acre-feet per year.	6.5 TAF per year plus additional water generated through reduction in application through improved irrigation systems	Reduce ET flows using improved irrigation methods, such as drip irrigation, and planting densities.
8	1	8	All suitable lands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco, Ag or M&I	Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater to ____ acre feet per year during periods of shortage; and increasing flows to groundwater to ____ acre feet per year during periods of excess.	TBD	TBD
13	2	13 [6, 20 30, 57, 75]	Sacramento River below Keswick	Flow:	Provide flow to improve aquatic ecosystem conditions	Eco	More closely emulate seasonal streamflow patterns in dry and normal year- types by allowing a late-winter or early-spring flow event of approximately 8,000 to 10,000 cfs in dry years and 15,000 to 20,000 cfs in below normal water-years to occur below Keswick Dam; Maintain base flows of 6,000 to 8,000 cfs during fall.	44 - 180 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
15	2	15 [23, 31]	Sacramento River	Quality:	Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	Reduce diazinon to ____.	TBD	Cover crop, furrow or field diking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications that are outside the scope of AgWUE.
18	2	18	All affected lands	Quantity :	Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Reduce unwanted ET by ____ acre-feet per year.	6.5 TAF per year plus additional water generated through reduction in application through improved irrigation systems	Reduce ET flows using improved irrigation methods, such as drip irrigation, and planting densities.
19	2	19	All suitable lands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco, Ag or M&I	Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater to ____ acre feet per year during periods of shortage; and increasing flows to groundwater to ____ acre feet per year during periods of excess.	TBD	TBD
20	3	20 [6, 13, 30, 57, 75]	Sacramento River below Keswick	Flow:	Provide flow to improve aquatic ecosystem conditions	Eco	More closely emulate seasonal streamflow patterns in dry and normal year- types by allowing a late-winter or early-spring flow event of approximately 8,000 to 10,000 cfs in dry years and 15,000 to 20,000 cfs in below normal water-years to occur below Keswick Dam; Maintain base flows of 6,000 to 8,000 cfs during fall.	44 - 180 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
21	3	21	Colusa Basin	Quality:	Reduce group A pesticides to enhance and maintain	Eco or M&I	Reduce ____ [Group A pesticide] to ____.	TBD	TBD
22	3	22	Colusa Drain	Quality:	Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	Reduce carbofuran/furadan, malathion, methyl parathion to ____.	TBD	Cover crop, furrow or field diking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications that are outside the scope of AgWUE.

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24	3	24	Colusa Basin	Quality:	Reduce salinity to enhance and maintain beneficial uses of water	Ag, M&I	Reduce electrical conductivity to less than ___ (dS/m) to allow municipal treatment facilities the flexibility to meet the potential long-term regulatory scenario.	TBD	TBD
25	3	25	All affected lands	Quantity :	Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Reduce unwanted ET by ____ acre-feet per year.	5.1 TAF/Yr plus additional water generated through reduction in application through improved irrigation systems	Reduce ET flows using improved irrigation methods, such as drip irrigation, and planting densities.
26	3	26	All suitable lands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial	Eco, Ag or M&I	Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater to ____ acre feet per year during periods of shortage; and increasing flows to groundwater to ____ acre feet per year during periods of excess.	TBD	TBD
27	3	27 [35, 48, 54, 65, 73]	Wetlands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Cooperatively manage ___ acres of ag lands and restore ___ acres of seasonal, semipermanent, and permanent wetlands consistent with the CV Habitat Jt Venture and N. Am. Waterfowl Mgmt. Plan.	7.9 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
30	4	30 [6, 13, 20, 57, 75]	Sacramento River below Keswick	Flow:	Provide flow to improve aquatic ecosystem conditions	Eco	More closely emulate seasonal streamflow patterns in dry and normal year- types by allowing a late-winter or early-spring flow event of approximately 8,000 to 10,000 cfs in dry years and 15,000 to 20,000 cfs in below normal water-years to occur below Keswick Dam; Maintain base flows of 6,000 to 8,000 cfs during fall.	44 - 180 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or
31	4	31 [15, 23]	Sacramento River	Quality:	Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	Reduce diazinon to ____.	TBD	Cover crop, furrow or field diking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications that are outside the scope of AgWUE.
32	4	83	Sacramento Slough	Quality:	Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	Reduce diazinon to ____.	TBD	Cover crop, furrow or field diking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications that are outside the scope of AgWUE.
33	4	33	All affected lands	Quantity :	Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Reduce unwanted ET by ____ acre-feet per year.	4.6 TAF per year plus additional water generated through reduction in application	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or
34	4	34	All suitable lands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco, Ag or M&I	Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater to ____ acre feet per year during periods of shortage; and increasing flows to groundwater to ____ acre feet per year during periods of excess.	TBD	TBD
35	4	35 [27, 48, 54, 65, 73]	Wetlands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Cooperatively manage ___ acres of ag lands and restore ___ acres of seasonal, semipermanent, and permanent wetlands consistent with the CV Habitat Jt Venture and N. Am. Waterfowl Mgmt. Plan.	4.5 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
36	4	36	Colusa & Sutter National Wildlife Refuge	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Provide water for the Delevan, Colusa, and Sutter National Wildlife Refuges. The following water quantities are required for the following wetland types: seasonal marsh, 4.1 - 8.5 acre-feet/acre; permanent and semipermanent marsh or brood pond, 7.4 - 13.25 acre-feet/acre; managed riparian, 4.0 - 8.0 acre-feet/acre; upland, 4.25 acre-feet/acre; and reverse-cycle, 5.25 acre-feet/acre	TBD	TBD

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39	6	52 [59]	Sacramento River	Quality:	Reduce pesticides to enhance and maintain beneficial uses	Eco or M&I	Reduce diazinon to ____.	TBD	Cover crop, trow or field tiking and reduction in late season irrigation. Note: significant contributions to this TB can also be made through changes in chemical applications.
40	6	53	All affected lands	Quantity :	Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Reduce unwanted ET by ____ acre-feet per year.	3 TAF per year plus additional water generated through reduction in application	Reduce ET flows using improved irrigation methods, such as drip irrigation, and planting densities.
41	6	54 [27, 35, 48, 65, 73]	Wetlands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Cooperatively manage ____ acres of ag lands and restore ____ acres of seasonal, semipermanent, and permanent wetlands consistent with the CV Habitat Jt Venture and N. Am. Waterfowl Mgmt. Plan.	<1 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.
42	7	55	American River	Flow:	Provide flow to improve aquatic ecosystem conditions	Eco	Develop and implement an ecologically based streamflow regulation plan with various flow regimes. For example, for the lower American River in Wet years: July - Feb. 2500 cfs. Flows should be accompanied with the specified 10 day pulse flows, such as in Wet March: 6000-7000 cfs. Lower American River flow events should be coordinated with other Sacramento Valley flows.	1.8 - 31.2 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal
43	7	56	Bear River	Flow:	Provide flow to improve aquatic ecosystem conditions	Eco	Supplement flows in the Bear River to improve conditions for all chinook salmon and steelhead life stages, Provide a flow event of 300 to 500 cfs in dry years. Recommended minimum flows on the Bear River are as follows: Oct. 1-14, 100 cfs; Oct. 15 - June, 250 cfs; July - Sept., 10 cfs.	59.5 - 93.2 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or
44	7	57 [6, 13, 20, 30, 75]	Sacramento River below Keswick	Flow:	Provide flow to improve aquatic ecosystem conditions	Eco	More closely emulate seasonal streamflow patterns in dry and normal year- types by allowing a late-winter or early-spring flow event of approximately 8,000 to 10,000 cfs in dry years and 15,000 to 20,000 cfs in below normal water-years to occur below Keswick Dam; Maintain base flows of 6,000 to 8,000 cfs during fall.	44 - 180 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or
45	7	58	Natomas East Main Drain	Quality:	Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	Reduce diazinon to ____.	TBD	TBD
46	7	59 [52]	Sacramento River	Quality:	Reduce pesticides to enhance and maintain beneficial uses of water	Eco or M&I	Reduce diazinon to ____.	TBD	TBD
49	7	62	Bear River	Quality:	Reduce temperatures to enhance and maintain aquatic species populations	Eco	Improve water quality conditions in the Feather, Yuba, and Bear rivers to benefit anadromous fish.	TBD	TBD
50	7	63	All affected lands	Quantity :	Decrease nonproductive ET to increase water supply for beneficial uses	Eco, Ag or M&I	Reduce unwanted ET by ____ acre-feet per year.	3 TAF per year plus additional water generated through reduction in application	Reduce ET flows using improved irrigation methods, such as drip irrigation, and planting densities.
51	7	64	All suitable lands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco, Ag or M&I	Enhance the effectiveness of potential conjunctive use programs by reducing flows to groundwater to ____ acre feet per year during periods of shortage; and increasing flows to groundwater to ____ acre feet per year during periods of excess.	TBD	TBD
52	7	65 [27, 35, 48, 54, 73]	Wetlands	Quantity :	Provide long-term diversion flexibility to increase the water supply for beneficial uses	Eco	Cooperatively manage ____ acres of ag lands and restore ____ acres of seasonal, semipermanent, and permanent wetlands consistent with the CV Habitat Jt Venture and N. Am. Waterfowl Mgmt. Plan.	1 TAF per year	Improve farm irrigation management (such as irrigation scheduling) and more uniform irrigation methods (such as shorter furrows, sprinkler, or drip). Reduction in operational spill through improved management, canal automation or regulatory storage. Reduction in canal seepage through canal lining or piping.