

**DRAFT SAIC**  
**Information Review for Proposed Project Description of Proposed Conservation Measures**

Conservation Measures	Need for More Detail for Effects Analysis	Benefits (DRERIP/Mini-Effects Analysis) *	Preliminary Estimated Cost	Responsibility/Authority	Disposition
<b>Other Stressors Conservation Measures</b>					
OSCM1: Determine whether ammonia and ammonium have adverse direct and/or indirect effects on BDCP covered species and, if adverse effects are found, assist wastewater treatment plants in identifying funding sources to reduce the load of ammonia and ammonium in effluent discharges.	Revise to identify an action that results in a biological outcome (e.g., modify treatment plants to include tertiary treatment). Currently, only identifies funding of unspecified actions with no defined outcome.	See attached tables for positive and negative DRERIP outcomes.	Undetermined	<ul style="list-style-type: none"> <li>▪ Local Sanitation Districts<sup>1</sup></li> <li>▪ Central Valley Regional Water Quality Control Board</li> <li>▪ San Francisco Regional Water Quality Control Board</li> <li>▪ Fishery Agencies<sup>2</sup></li> </ul>	
OSCM2: Determine whether endocrine disrupting compounds have adverse direct and/or indirect effects on BDCP covered species and, if adverse effects are found, assist wastewater treatment plants in identifying funding sources to reduce the load of endocrine disrupting compounds in effluent discharges.	Revise to identify an action that results in a biological outcome (e.g., modify treatment plants to include tertiary treatment). Currently, only identifies funding of unspecified actions with no defined outcome.	See attached tables for positive and negative DRERIP outcomes.	Undetermined	<ul style="list-style-type: none"> <li>▪ Local Sanitation Districts</li> <li>▪ Central Valley Regional Water Quality Control Board</li> <li>▪ Fishery Agencies</li> </ul>	
OSCM3: Reduce the load of methyl mercury entering Delta waterways.	Revise to identify potential mercury load reduction at Cache Creek Settling Basin; locations and extent of upstream remediation actions; and details and expectations of “most promising management practices.”	See attached tables for positive and negative DRERIP outcomes.	\$77.8 to 233.3 million based on assumption of 5-15% support of \$1.6 billion total cost	<ul style="list-style-type: none"> <li>▪ Department of Water Resources</li> <li>▪ Central Valley Regional Water Quality Control Board</li> </ul>	
OSCM4: Reduce the load of agricultural pesticides and herbicides entering Delta waterways from in-Delta sources that are believed to be toxic to covered fish species and the food organisms upon which they depend.	Revise to identify potential locations and extent of pesticide/herbicide reductions that would result from described actions, including the Irrigated Lands Program.	See attached tables for positive and negative DRERIP outcomes.	\$60 million	<ul style="list-style-type: none"> <li>▪ Central Valley Regional Water Quality Control Board</li> <li>▪ Area farmers and coalitions</li> <li>▪ Reclamation districts</li> <li>▪ Irrigation/drainage districts</li> <li>▪ Department of Pesticide Regulation</li> </ul>	
OSCM5: Reduce the loads of toxic contaminants in stormwater and urban runoff by working with existing efforts in the Delta.	Revise to identify locations and extent of stormwater toxics reduction actions; and anticipated reduction of toxic contaminants in stormwater loads as a result of actions funded.	See attached tables for positive and negative DRERIP outcomes.	Undetermined	<ul style="list-style-type: none"> <li>▪ Sacramento Stormwater Quality Partnership</li> <li>▪ Stormwater entities<sup>3</sup></li> </ul>	
OSCM7: Maintain dissolved oxygen levels above levels that impair covered fish species in the Stockton Deep Water Ship Channel during periods when covered fish species are present.	Revise to include demonstration project preliminary results to determine feasibility and effectiveness. Enlist assistance of DWR to obtain this information.	Not DRERIP.evaluated.	\$17.2 million	<ul style="list-style-type: none"> <li>▪ Fishery Agencies</li> </ul>	

<sup>1</sup> Sanitation districts that discharge wastewater into waterways within or just upstream of the Delta and Suisun Bay

<sup>2</sup> DFG, USFWS, and NOAA/NMFS

<sup>3</sup> Counties and cities whose stormwater contributes to Delta waterways

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OSCM8: Improve the quality of water discharged from managed seasonal wetlands into Suisun Bay and Delta waterways to prevent dissolved oxygen sags.	Revise to identify BMPs to be utilized, locations of BMP implementation, anticipated increase in DO, and anticipated decrease in methylmercury.	Not DRERIP.evaluated.	Undetermined	<ul style="list-style-type: none"> <li>▪ Willing owners/managers of seasonal managed wetlands in the Delta and Suisun Marsh</li> <li>▪ Wetland and Water Resources</li> <li>▪ Department of Water Resources</li> </ul>	
OSCM10: Reduce the risk for future introductions of non-native aquatic organisms from recreational watercraft.	Revise to include best (keep a species out that has no effect or dies off quickly) and worst (Quagga/zebra mussels establish in Delta) case scenarios.	Not DRERIP.evaluated.	\$109.5 million	<ul style="list-style-type: none"> <li>▪ California Department of Food and Agriculture</li> <li>▪ Department of Fish and Game</li> </ul>	
OSCM11: Improve the rapid detection of and rapid response to new non-native species introductions into Delta waterways.	Revise to include best (keep a species out) and worst (Quagga/zebra mussels establish in Delta) case scenarios.	Not DRERIP.evaluated.	\$22 million	<ul style="list-style-type: none"> <li>▪ Department of Fish and Game</li> </ul>	
OSCM13: Remove non-native submerged and floating aquatic vegetation from Delta waterways.	Revise to identify specific sites that would be targeted for removal of non-native SAV and FAV; how many acres would receive treatment at each site; and the potential effectiveness of removal techniques.	See attached tables for positive and negative DRERIP outcomes.	\$251.8 to 503.7 million for annual treatment of 5-10% of tidal marsh footprint acreage	<ul style="list-style-type: none"> <li>▪ California Department of Boating and Waterways</li> </ul>	
OSCM14: Increase the harvest of non-native predatory fish to decrease their abundance.	Revise to identify the locations of the two pilot study sites. The pilot study will give information regarding effectiveness of action in reducing non-native predatory fish populations.	See attached tables for positive and negative DRERIP outcomes.	Undetermined	<ul style="list-style-type: none"> <li>▪ Fishery Agencies</li> <li>▪ California Fish and Game Commission</li> </ul>	
OSCM16: Reduce illegal harvest of Chinook salmon, Central Valley steelhead, green sturgeon, and white sturgeon in the Delta.	Revise to include potential effectiveness of the action in reducing mortality of fish.	See attached tables for positive and negative DRERIP outcomes.	\$206.8 million	<ul style="list-style-type: none"> <li>▪ Department of Fish and Game</li> </ul>	
OSCM17: Reduce adverse effects of harvest on Sacramento splittail abundance.	The pilot study will give information regarding effectiveness of action in reducing harvest of splittail. Note that F&G Commission has recently issued splittail regulations.	See attached tables for positive and negative DRERIP outcomes.	Undetermined	<ul style="list-style-type: none"> <li>▪ Fishery Agencies</li> <li>▪ California Fish and Game Commission</li> <li>▪ Department of Fish and Game</li> </ul>	
OSCM18: Develop and implement hatchery and genetic management plans to minimize the potential for genetic and ecological impacts of hatchery reared salmonids on wild salmonid stocks.	Revise to include potential effects on fitness of the species and other biological effects.	Not DRERIP.evaluated.	\$59.2 million	<ul style="list-style-type: none"> <li>▪ Department of Fish and Game</li> <li>▪ National Oceanic and Atmospheric Administration</li> <li>▪ Central Valley fish hatchery coordinators</li> </ul>	
OSCM19: Reduce losses of wild stocks of Chinook salmon to commercial fishing and recreational fishing through a mark-select fishery.	The pilot study will give information regarding effectiveness of action in reducing losses of wild stocks of Chinook salmon.	See attached tables for positive and negative DRERIP outcomes.	\$547.2 million	<ul style="list-style-type: none"> <li>▪ Department of Fish and Game</li> <li>▪ Pacific Fishery Management Council</li> </ul>	
OSCM20: Establish new and expand existing conservation propagation programs for Delta and longfin smelt.		See attached tables for positive and negative DRERIP outcomes.	\$147.6 million	<ul style="list-style-type: none"> <li>▪ US Fish and Wildlife Service</li> <li>▪ UC Davis Fish Conservation and Culture Laboratory</li> <li>▪ Fishery Agencies</li> </ul>	

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OSCM21: Screen, remove, relocate, consolidate, modify and/or alter timing of non-project diversions to reduce entrainment of covered fish species in the Delta.	Revise to include priority of which diversions would be modified or removed and how much of this action will be conducted annually.	See attached tables for positive and negative DRERIP outcomes.	\$158.1 million for lower cost program to 427.8 million for higher cost program	<ul style="list-style-type: none"> <li>▪ Department of Fish and Game</li> <li>▪ US Bureau of Reclamation</li> </ul>	
OSCM24: Reduce the effects of predators on covered fish species by conducting localized predator control of high predator density locations.	Revise to identify the locations and number of localized predator reduction sites; and the techniques to be used for reduction and their potential effectiveness.	Not DRERIP.evaluated.	Undetermined	<ul style="list-style-type: none"> <li>▪ Fishery Agencies</li> </ul>	
OSCM25: Improve the survival of outmigrating juvenile salmonids by using non-physical barriers to re-direct them away from channels in which survival is lower.	Revise to identify potential number and locations of barriers.	Not DRERIP.evaluated.	\$491.4 million	<ul style="list-style-type: none"> <li>▪ Fishery Agencies</li> </ul>	
<b>Physical Habitat Conservation Measures</b>					
<u>Tidal Marsh Restoration</u>					
HRCM 16. Restore 65,000 acres of freshwater and brackish tidal marsh within Restoration Opportunity Areas.				<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	
HRCM4: Restore at least 5,000 acres freshwater tidal marsh within the Cache Slough Complex ROA.		See attached tables for positive and negative DRERIP outcomes.		<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	
HRCM5: Restore at least 1,500 acres of freshwater tidal marsh within the Cosumnes/Mokelumne ROA.		See attached tables for positive and negative DRERIP outcomes.		<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	
HRCM6: Restore at least 2,100 acres of tidal marsh within the West Delta ROA.		See attached tables for positive and negative DRERIP outcomes.		<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	
HRCM7: Restore at least 5,000 acres of tidal marsh within the South Delta ROA.		See attached tables for positive and negative DRERIP outcomes.		<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	
HRCM8: Restore at least 1,400 acres tidal marsh within the East Delta ROA.		See attached tables for positive and negative DRERIP outcomes.		<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	
HRCM9: Restore at least 7,000 acres of brackish tidal marsh within the Suisun Marsh Restoration Opportunity Area.		See attached tables for positive and negative DRERIP outcomes.		<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	
<u>Channel Margin Enhancement</u>					
HRCM##. Enhance channel margin habitats along at least 20 linear miles of Delta channel banks.		Not DRERIP.evaluated.		<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	
HRCM15: Enhance channel margin habitats along non-Project levees in the Delta to improve habitat conditions for covered fish species.		Not DRERIP.evaluated.		<ul style="list-style-type: none"> <li>▪ BDCP Management Entity</li> </ul>	

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HRCM12: Enhance channel margin habitats along Steamboat and Sutter Sloughs to improve habitat conditions for covered fish species.		See attached tables for positive and negative DRERIP outcomes.		▪ BDCP Management Entity	
HRCM13: Enhance channel margin habitats along the San Joaquin River between Vernalis and Mossdale to improve habitat conditions for covered fish species.		See attached tables for positive and negative DRERIP outcomes.		▪ BDCP Management Entity	
HRCM11/HRCM14: Restore at least 5,000 acres of riparian forest and scrub in Restoration Opportunity Areas.		See attached tables for positive and negative DRERIP outcomes.	Undetermined	▪ BDCP Management Entity	
<u>Floodplain Restoration</u>			\$5.5 to 8.3 million for all floodplain habitat restoration	▪ BDCP Management Entity	
HRCM1/HRCM2: Restore seasonally inundated floodplain habitat along the San Joaquin River downstream of Vernalis.		See attached tables for positive and negative DRERIP outcomes.		▪ BDCP Management Entity	
HRCM3: Restore seasonally inundated floodplain habitat along Old and/or Middle Rivers.		See attached tables for positive and negative DRERIP outcomes.		▪ BDCP Management Entity	
HRCM17: Assess the feasibility of a new flood bypass east of the Sacramento Deep Water Ship Channel to restore seasonally inundated floodplain habitat.	Determine whether this CM is necessary to achieve the 10,000-acre floodplain goal (with other restoration on SJ, Old, and Middle rivers). Needs detail as to facilities – levee improvements, levee construction, weir and gate facilities.	See attached tables for positive and negative DRERIP outcomes (evaluated as Conservation Measure WOCMN3)	\$5.5 to 8.3 million for all floodplain habitat restoration	▪ BDCP Management Entity	
<b>Water Operations Conservation Measures</b>					
WOCMN12: Operate South Delta diversions to maintain sufficient Old and Middle River Flows during the near-term implementation period for environmental benefits.	Near-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCMN5: Operate the Delta Cross Channel Gates during the near-term for environmental benefits.	Near-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCMN6: Maintain sufficient Rio Vista flows for environmental benefits during the near-term implementation period.	Near-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCMN8: Install and operate gates at Old River and Connection Slough (“Two Gates”) to reduce the transport of covered species into the interior Delta and improve water quality in the south and central Delta.		See attached tables for positive and negative DRERIP outcomes.		▪ BDCP Management Entity	
WOCMN9: Maintain sufficient Delta outflows during the near-term implementation period for environmental benefits.	Near-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCMN14: Maintain agricultural, municipal, and industrial water quality requirements during the near-term implementation period.	Near-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	

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WOCMN11: Operate the Montezuma Slough Salinity Control Gate during the near-term implementation period for environmental benefits.	No operational criteria have been established. Propose operational criteria (e.g., open at all times) and relate to habitat restoration in Suisun Marsh.	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCML1: Construct a new water diversion facility in the north Delta with multiple intakes and fish screens and an isolated conveyance facility and preferentially operate the facility while maintaining sufficient bypass flows for covered fish species.	Long-term operational criteria decision	See attached tables for positive and negative DRERIP outcomes.	\$206.3 to 222.9 million	▪ BDCP Management Entity	
WOCML12: Operate South Delta diversions to maintain sufficient Old and Middle River Flows during the long-term implementation period for environmental benefits.	Long-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCML2: Modify the Fremont Weir and Yolo Bypass and operate the Fremont Weir to provide for a higher frequency and duration of inundation of the Yolo Bypass	Long-term operational criteria decision	See attached tables for positive and negative DRERIP outcomes.	Undetermined	▪ BDCP Management Entity	
WOCML5: Operate the Delta Cross Channel gates during the long-term for environmental benefits.	Long-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCML6: Maintain sufficient Rio Vista flows for environmental benefits during the long-term implementation period.	Long-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCML9: Maintain sufficient Delta outflows during the long-term implementation period for environmental benefits.	Long-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCML#: Operate the Dual Conveyance Facilities to Maintain Delta Water Quality and Protect Covered Fish Species.	Long-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCML14: Maintain in-Delta agricultural, municipal, and industrial water quality requirements during the long-term implementation period.	Long-term operational criteria decision	Not DRERIP.evaluated.		▪ BDCP Management Entity	
WOCML11: Operate the Montezuma Slough Salinity Control Gate during the long-term implementation period for environmental benefits.	No operational criteria have been established. Propose operational criteria (e.g., open at all times) and relate to habitat restoration in Suisun Marsh.	Not DRERIP.evaluated.		▪ BDCP Management Entity	

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