

Appendix J

**Ecosystem Restoration Milestones  
in the Sacramento River Basin  
for Covered Fish Species**

















Milestone No.	Milestone Category/Habitat Type <sup>1</sup>	Milestone Description <sup>2</sup>	Species with Milestones (species goal <sup>3</sup> )											
			Sacramento River winter-run Chinook salmon (R)	Central Valley spring-run Chinook salmon (R)	Central Valley fall/late fall-run Chinook salmon (R)	Central Valley steelhead (R)	Valley elderberry longhorn beetle (R)	Northwestern pond turtle (m) <sup>4</sup>	Osprey (m) <sup>4</sup>	Yellow-breasted chat (m) <sup>4</sup>	Bald eagle (m)	Cooper's hawk (m)	American peregrine falcon (m)	Little willow flycatcher (r)
36	Cadmium, copper, zinc	<p>Conduct the following trace metals work (from Phase II Report):</p> <ul style="list-style-type: none"> <li>Determine spatial and temporal extent of metal pollution.</li> <li>Determine ecological significance and extent of copper contamination.</li> <li>Evaluate impacts of other metals such as cadmium, zinc, and chromium.</li> <li>Participate in Brake Pad Partnership to reduce introduction of copper.</li> <li>Partner with municipalities on evaluation and implementation of stormwater control facilities.</li> <li>Participate in remediation of mine sites as part of local watershed restoration and Delta restoration.</li> </ul>	X	X	X									
37	Toxicity of unknown origin	<p>Conduct the following unknown toxicity work (from Phase II Report):</p> <ul style="list-style-type: none"> <li>Conduct appropriate studies to identify unknown toxicity, and develop management actions as appropriate.</li> </ul>	X	X	X									
38	Riparian and Riverine Aquatic Habitats	Restore and maintain a minimum of three linear miles of riparian habitat along corridors of existing riparian scrub and shrub vegetation in each of the Ecological Management Units of the Suisun Marsh/North San Francisco Bay Ecological Management Zone.	X	X	X	X	X	X	X	X	X	X	X	X
39	Saline Emergent Wetland	In the Suisun Marsh/North San Francisco Bay EMZ, restore a minimum of 7,000 acres of Saline Emergent Wetland by restoring tidal action in the Suisun Bay and Marsh Ecological Management Unit (including 200 acres of muted tidal marsh along the Contra Costa shoreline) and a cumulative total of	X	X	X	X					X		X	















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56	Central Valley Stream Temperatures	Develop and implement a program to address the thermal impacts of irrigation return flows in the Sacramento River Basin. The goal of the program should be to achieve Basin Plan objectives for water temperature. The program should include provisions to: a) identify locations of irrigation return flows with thermal impacts; b) develop measures to avoid or eliminate thermal impacts from irrigation return flows; and c) prioritize problem sites based on impacts to Chinook salmon and steelhead. If feasible, proceed with implementation of some or all actions to address thermal impacts of irrigation return flows.			X	X									
57	Central Valley Streamflow	Design and begin implementation of an ecologically based streamflow regulation plan for Yuba River, Butte Creek, Big Chico Creek, Deer Creek, Mill Creek, Antelope Creek, Battle Creek, Cottonwood Creek, and Clear Creek.		X	X										
58	Coarse Sediment Supply	Complete a fluvial geomorphic assessment of coarse sediment supply needs and sources to maintain, improve, or supplement gravel recruitment and natural sediment transport processes linked to stream channel maintenance, erosion and deposition, maintenance of fish spawning areas, and the regeneration of riparian vegetation. Develop and implement a program to reduce erosion and maintain gravel recruitment on at least one tributary within each EMZ in the Sacramento River Basin.	X	X	X	X	X								
59	Natural Floodplain & Flood Processes	Develop floodplain management plans, including feasibility studies to construct setback levees, to restore and improve opportunities for rivers to inundate their floodplain on a seasonal basis for at least one tributary within each of the EMZs in the Sacramento River Basin. Among the areas to be included are the lower 10 miles of Clear Creek, Antelope Creek, and Dear Creek, and the lower reach of Cottonwood Creek.		X	X		X		X		X		X		















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85	Central Valley Stream Temperatures	Develop and implement a program to address the thermal impacts of irrigation return flows in the San Joaquin River Basin. The goal of the program should be to achieve Basin Plan objectives for water temperature. The program should include provisions to: a) identify locations of irrigation return flows with thermal impacts; b) develop measures to avoid or eliminate thermal impacts from irrigation return flows; and c) prioritize problem sites based on impacts to Chinook salmon and steelhead. If feasible, proceed with implementation of some or all actions to address thermal impacts of irrigation return flows.			X	X									
86	Coarse Sediment Supply	Complete a fluvial geomorphic assessment of coarse sediment supply needs and sources to maintain, improve, or supplement gravel recruitment and natural sediment transport processes linked to stream channel maintenance, erosion and deposition, maintenance of fish spawning areas, and the regeneration of riparian vegetation. Develop and implement a program to reduce erosion and maintain gravel recruitment on at least one tributary within each EMZ within the San Joaquin River Basin. In the East San Joaquin Basin EMZ, complete fluvial geomorphic assessments on all tributaries.	X	X	X	X	X								
87	Natural Floodplain and Flood Processes	Develop floodplain management plans, including feasibility studies to construct setback levees, to restore and improve opportunities for rivers to inundate their floodplain on a seasonal basis for at least one tributary within each of the EMZs in the San Joaquin River Basin. Among the areas to be included are at least 10 miles of stream channel in the West San Joaquin EMZ.		X	X		X				X		X		



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95	Riparian and Riverine Aquatic Habitats	<p>Implement 25% of the ERP target for diverse, self-sustaining riparian community for all EMZs in the San Joaquin River Basin.</p> <p>Bring at least three of the currently existing but unprotected delta coyote thistle occurrences into protection through purchase or conservation agreement, and ensure appropriate management.</p> <p>Increase suitable habitat for delta coyote thistle by at least 20% and the number of populations and individuals by at least 10% through habitat management and protection.</p> <p>Establish two new riparian brush rabbit habitat preserves within the historical range of the species. Protect and enhance a minimum of 150 contiguous acres of mature, shrub-rich riparian forest and associated highwater refugia on the San Joaquin River, between the Merced River confluence and Vernalis, and on each of the east-side tributaries (the Stanislaus, Tuolumne and Merced rivers) for habitat values and as potential riparian brush rabbit re-introduction sites.</p>	X	X		X	X	X	X	X	X	X	X
96	Dams and Other Structures	Develop and implement a program to address inadequate instream flows for steelhead and Chinook salmon on streams within San Joaquin River tributaries. Where appropriate provide adequate flows for Sacramento splittail and green sturgeon.			X	X							
97	Dams and Other Structures	Provide unimpeded upstream and downstream passage for salmon and steelhead on San Joaquin River Basin tributaries.			X	X							
98	Dams and Other Structures	Initiate a feasibility study of restoring steelhead migration into upper watershed areas (e.g., upstream of major low-elevation dams) in at least one San Joaquin River Basin EMZ Tributary.				X							









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110	Cadmium, copper, zinc	Conduct the following trace metals work (from Phase II Report): <ul style="list-style-type: none"> <li>Determine spatial and temporal extent of metal pollution.</li> <li>Determine ecological significance and extent of copper contamination.</li> <li>Evaluate impacts of other metals such as cadmium, zinc, and chromium.</li> <li>Participate in Brake Pad Partnership to reduce introduction of copper.</li> <li>Partner with municipalities on evaluation and implementation of stormwater control facilities.</li> <li>Participate in remediation of mine sites as part of local watershed restoration and Delta restoration.</li> </ul>	X	X	X									
111	Toxicity of unknown origin	Conduct the following unknown toxicity work (from Phase II Report): <ul style="list-style-type: none"> <li>Conduct appropriate studies to identify unknown toxicity, and develop management actions as appropriate.</li> </ul>	X	X	X									

Notes: <sup>1</sup> There are no milestones identified for Upland Scrub habitat.  
<sup>2</sup> Source: CALFED Bay-Delta Program. 2002. CALFED Ecosystem Restoration Program Milestones: Parsing and rationales. July. 1  
<sup>3</sup> CALFED Goals for Covered Species:  
 R = Recovery. Recover species' populations within the MSCS focus area to levels that ensure the species' long-term survival in nature.  
 r = Contribute to recovery. Implement some of the actions deemed necessary to recover species' populations within the MSCS focus area.  
 m = Maintain. Ensure that any adverse effects on the species that could be associated with implementation of CALFED actions will be fully offset through implementation of actions beneficial to the species.  
<sup>4</sup> These milestones may not be specifically designed to benefit "m" species; however, based on wildlife habitat associations found in MSCS Table C-1 "Wildlife and Fish Evaluated Species Associated with NCCP Habitats" benefits to these species can be inferred.