

Appendix 14. CALFED Ecosystem Quality Objectives - Sacramento River Ecological Zone

ZONE TYPE: Linear

ZONE DESCRIPTION:

The Sacramento River Ecological Zone includes the mainstem of the Sacramento River from Keswick Dam (river mile 302) near Redding to the "I" Street bridge (river mile __) in Sacramento.

ECOLOGICAL SUBUNITS:

1. Keswick Dam (river mile 302) to the Red Bluff Diversion Dam (river mile 243).
2. Red Bluff Diversion Dam (river mile 243) to Chico Landing (river mile 194).
3. Chico Landing (river mile 194) to Verona (river mile 80).
4. Verona (river mile 80) to Sacramento (river mile __).

MISSION:

The mission of the CALFED Bay-Delta Program is to develop a long-term comprehensive plan that will restore ecological health and improve water management for beneficial uses of the Bay-Delta system.

GOAL:

Improve and increase aquatic and terrestrial habitats and improve ecological functions in the Bay-Delta to support sustainable populations of diverse and valuable plant and animal species.

OBJECTIVES:

- A. Improve and Increase Aquatic Habitats so that they can support sustainable production and survival of native and other desirable estuarine and anadromous fish in the estuary.**
1. Increase amount of high quality shallow riverine habitat to allow sustainable fish spawning and early rearing.
 - a. Increase amount of quality riverine edge habitat to allow spawning and rearing by sustainable populations of native fish species.

Implementation Objective: Restore some semblance of the natural supply of sediments to fluvial and estuarine systems.

Implementation Objective Rationale:

Target: Restore a desirable level of sediment to meet the needs of spawning fish, maintain natural streamchannel meanders and bar formation, and match existing rates of downstream displacement in the Sacramento River from Keswick Dam to Sacramento.

Target Rationale:

Action:

Implementation Objective: Restore natural compound cross sections and channel configurations by supplementing natural sediment and erosion processes as necessary with human-made processes.

Implementation Objective Rationale:

Target: Working with available hydrologic and sediment regimes, in a manner consistent with flood control requirements, more closely emulate natural streamchannel configurations in the Sacramento River from Keswick Dam to Sacramento.

Target Rationale:

Action:

Target: Modify cross sections and channel configurations in the Sacramento River from Keswick Dam to Sacramento to provide a more natural configuration, while maintaining consistency with flood control requirements.

Target Rationale:

Action:

Implementation Objective: Restore natural floodplain configurations associated with rivers and tributaries.

Implementation Objective Rationale:

Target: Create floodplain preserves along the Sacramento River from Keswick Dam to Sacramento where natural sedimentation and vegetation succession can occur unimpeded, and as a source of riverine and estuarine nutrients and allochthonous material.

Target Rationale:

Action:

Implementation Objective: Maintain, enhance, or restore natural stream meander processes.

Implementation Objective Rationale:

Target: Preserve the existing natural meander belts in the Sacramento River between Chico Landing and Red Bluff.

Target Rationale:

Action:

Target: Establish nodes of floodplain expansion or levee setbacks where channel migration can occur in select reaches of the Sacramento River between Chico Landing and Sacramento.

Target Rationale:

Action:

Implementation Objective: Maintain, enhance, or restore gravel recruitment processes that are important sources of gravel to riverine systems of the Sacramento-San Joaquin basin.

Implementation Objective Rationale:

Target: Maintain existing levels of erosion and gravel recruitment in portions of the Sacramento River from Keswick Dam to Sacramento that sustain an adequate level of gravel recruitment.

Target Rationale:

Action:

Target: Enhance and restore natural erosion and gravel recruitment processes in the Sacramento River from Keswick Dam to Sacramento.

Target Rationale:

Action:

Target: Restore desirable levels of gravel recruitment through direct manipulation and input on the Sacramento River from Keswick Dam to Sacramento where the natural

fluvial process has been interrupted by dams or other human-made features that retain the sediment supply.

Target Rationale:

Action:

Implementation Objective: Maintain, enhance, or restore the gravel transport and cleansing processes in riverine systems of the Sacramento-San Joaquin basin.

Implementation Objective Rationale:

Target: Increase the rate of gravel transport and cleansing in the Sacramento River from Keswick Dam to Sacramento by restoring more natural hydrograph patterns.

Target Rationale:

Action:

Target: Enhance or restore gravel transport and cleansing in the Sacramento River from Keswick Dam to Sacramento to desirable levels through direct manipulation of channel and floodplain deposits.

Target Rationale:

Action:

Implementaion Objective: Reestablish natural geomorphological and fluvial processes in artificially confined channel reaches.

Implementation Objective Rationale:

Target: Set back miles of levees along the Sacramento River between Chico-Landing and Sacramento in feasible and cost-effective areas to reestablish hydrologic connectivity between these channels and natural floodplains.

Target Rationale:

Action:

Implementation Objective: Reestablish floodplain riparian vegetation along artificially confined channel reaches.

Implementation Objective Rationale:

Target: Modify vegetation maintenance practices in ways consistent with flood protection needs along levee berms and graded banks along █ miles of the Sacramento River between Chico Landing and Sacramento where local practices inhibit establishment and maturation of riparian vegetation.

Target Rationale:

Action:

Implementation Objective: Promote rangeland management practices and livestock stocking levels that are consistent with maintaining high-quality habitat conditions.

Implementation Objective Rationale:

Target: Adjust grazing levels and seasonal timing of grazing or eliminate grazing in active floodplains of the Sacramento River from Keswick Dam to Sacramento to encourage establishment of, or enhance the quality of existing, riparian vegetation, maintain or enhance shaded riverine aquatic habitat, and reduce the rate of channel bank erosion.

Target Rationale:

Action:

Implementation Objective: Manage flows to improve habitat conditions for all life stages of important fish species.

Implementation Objective Rationale:

Target: Improve flows in the Sacramento River from Keswick Dam to Sacramento at important times of the year for spawning, rearing, foraging, and migration of important fishes.

Target Rationale:

Action:

Implementation Objective: Reduce effects on fish and their habitat from extreme daily or seasonal flow fluctuations below mainstem and tributary reservoirs.

Implementation Objective Rationale:

Target: Manage reservoirs to reduce flow fluctuations that dewater salmon and steelhead redds in the Sacramento River from Keswick Dam to Sacramento.

Target Rationale:

Action:

Target: Manage unnecessary high flows from reservoirs along the Sacramento River and its tributaries where possible considering flood control requirements so as not to mobilize spawning substrate during the spawning to emergence period of salmon and steelhead.

Target Rationale:

Action:

Implementation Objective: Reduce the effects of gravel mining on gravel recruitment in mainstem rivers and tributaries.

Implementation Objective Rationale:

Target: Protect, enhance, and restore natural gravel recruitment in areas of active and inactive gravel mining along the Sacramento River from Keswick Dam to Sacramento.

Target Rationale:

Action:

Target: Reduce gravel mining operations in active floodplains of the Sacramento River its major tributaries to restore historic movement of gravels and other sediments necessary for restoration of fish spawning habitats in the Sacramento River from Keswick Dam to Sacramento.

Target Rationale:

Action:

Implementation Objective: Provide flows necessary for successful reproduction of striped bass.

Implementation Objective Rationale:

Target: Maintain and enhance striped bass spawning habitat by maintaining flows of  cubic feet/second (cfs) from April 1-June 15 at Sacramento for the Sacramento River