

DRAFT

**FISH SPECIES RECOVERY ACTIONS
POTENTIALLY COMPRISING CALFED CORE ACTIONS
CLASSIFIED BY SPECIES OR GROUP OF SPECIAL CONCERN**

WINTER-RUN CHINOOK SALMON

BAY-DELTA HABITAT RESTORATION:

Protect and Enhance Existing Shallow-Water Habitat

- Conserve, restore and expand tidal wetlands and shallow-water habitat within the winter-run chinook rearing and migratory habitat areas that should be evaluated for tidal marsh and shallow-water habitat restoration. Include the Sacramento River portion of the Northern Delta, Suisun Marsh Sloughs, the northern shoreline of Suisun and Grizzly Bays, and the northern shoreline of San Pablo Bay.

Convert Existing Leveed Lands to Tidal Action

- Convert existing leveed lands in Suisun Marsh and northern Delta to tidal marsh and shallow-water habitat.

UPSTREAM HABITAT RESTORATION:

Modify Fish Passage at Upstream Dams or Through Other Barriers

- Eliminate adverse flow fluctuations by working with Anderson-Cottonwood Irrigation District to modify their dam operations or to modify or replace the facility. Evaluate the need for alternative fish ladders and flashboards. Upgrade fish ladders on weirs at the head of the Sutter and Yolo bypasses.

Revegetate Degraded Riparian Habitats

- Acquire land or conservation easements from willing sellers along the riparian corridor of the Sacramento River.
- Pursue opportunities to replant riparian vegetation along channelized sections of the Sacramento River. All revegetation will be consistent with existing flood control and land use constraints.

Improve Floodway Drainage to Reduce Fish Stranding

- Implement a program to improve drainage of floodway lands in the Yolo and Sutter bypasses to reduce the numbers of winter-run salmon stranded or lost to predators.

REDUCTIONS OF THE EFFECTS OF DIVERSIONS:

Install Screens on Unscreened In-Delta Diversions

- Implement a comprehensive program to install positive barrier fish screens at unscreened or poorly screened diversions on the Sacramento River, in the Sacramento-San Joaquin Delta, and Suisun Marsh Sloughs. Priorities for screen should be based on diversion location, size, period of use and available partnership funding.

Evaluate and Implement Effective Acoustic Barriers to Anadromous Fish Movement

- Continue to evaluate the benefits and detriments of hydroacoustic barriers at locations where positive barrier fish screens are infeasible.

MANAGEMENT OF WATER QUALITY:

Provide Incentives for Pollution Source Control on Agricultural Lands

- Implement a program to promote water use efficiency and drainage source reduction and measures to reduce pesticide and herbicide discharge to the Colusa Basin Drain. Implement programs to provide for agricultural reuse of water from the Colusa Basin Drain.

DELTA SMELT AND OTHER SACRAMENTO-SAN JOAQUIN DELTA NATIVE FISH

BAY-DELTA HABITAT RESTORATION:

Protect and Enhance Existing Shallow-Water Habitat

- Develop additional habitat and vegetation zones within the Delta. The following spawning and rearing areas should be considered for restoration as tidal, shallow-water vegetated habitat: Prospect Island, Hastings Tract, Liberty Island, Medford Island, New Hope Tract, Brack Tract, and Terminous Tract.

- Develop additional shallow-water, tidal habitat and vegetation zones within Suisun Marsh and Suisun Bay. In Suisun Marsh these areas should include fresh- and brackish water habitats.
- Develop additional shallow-water habitat and vegetation zones in freshwater areas. In the Suisun Marsh region these areas include Joyce Island, Hill Slough, Cutoff Slough, First Mallard Slough, Northern Suisun Slough, and Nurse Slough. Along the Sacramento River these areas include Prospect Island, Cache Slough, Sutter Slough, Steamboat Slough, and Deicker Island. Along the San Joaquin River, this would include the area upstream of the City of Stockton and below the mouth of the Stanislaus River.
- Implement pilot projects in Suisun Bay and the Delta to establish shallow-water habitat on the outer sides of levees and to convert existing leveed lands to tidal action.

REDUCTION OF EFFECTS ON DIVERSIONS:

Install Screens on Unscreened In-Delta Diversions

- Seek out opportunities to consolidate agricultural diversions in the Delta. Implement a pilot project to screen a diversion in the Delta in the lower Sacramento River corridor.

Evaluate and Implement Effective Acoustic Barriers to Anadromous Fish Movement

- Continue to evaluate the benefits and detriments of hydroacoustic barriers at locations where positive barrier fish screens are infeasible.

SPRING-RUN CHINOOK SALMON

BAY-DELTA HABITAT RESTORATION:

Protect and Enhance Existing Shallow-Water Habitat

- Conserve, restore, and expand tidal wetlands and shallow-water habitat within the spring-run chinook rearing and migratory habitats. Areas that should be evaluated for tidal marsh and shallow-water habitat restoration include the Sacramento River portion of the Northern Delta, Suisun Marsh sloughs, the northern shoreline of Suisun and Grizzly Bays, and the northern shoreline of San Pablo Bay.

UPSTREAM HABITAT RESTORATION:

Modify Fish Passage at Upstream Dams or Through Other Barriers

- Improve fish passage in Eagle Canyon on Battle Creek. Allow adult spring-run access to Battle Creek above the Coleman Hatchery Weir.
- Replace or repair existing fish ladders on Big Chico Creek.
- Correct fish passage problems on Butte Creek through dam removal or improvements to existing fish ladders at the following locations:
 - Durham - Mutual Dam
 - Adams Dam,
 - Gorrill Dam,
 - Western Canal Dam,
 - McGowan Dam,
 - McPherrin Dam, and
 - White Mallard Dam.
- Implement new operational criteria, modifications to existing structures, or new fish ladders at the following locations in the Butte Creek watershed:
 - Butte Slough Outfall,
 - East-West Diversion Weir,
 - Sutter Bypass Weir #2,
 - Sutter Bypass Weir #1,
 - Sutter Bypass Weir #5,
 - Sutter Bypass Weir #3, and
 - the natural barrier below Centerville Dam.
- Implement a program to allow spring-run access to Butte Creek above Centerville Dam.
- Implement a program to provide for adult salmon and steelhead passage above Saeltzer Dam on Clear Creek.

Modify Natural Barriers to Improve Fish Passage

- Provide for improved fish passage at Clough Dam on Mill Creek.

Revegetate Degraded Riparian Habitats

- Acquire land or conservation easements from willing sellers along the riparian corridor of the Sacramento River.

- Pursue opportunities to replant riparian vegetation along channelized sections of the Sacramento River. All revegetation will be consistent with existing flood control and land use constraints.
- On Big Chico Creek, cooperate with local landowners to encourage revegetation of denuded stream reaches and to establish a protected riparian strip.
- Along Butte Creek, cooperate with landowners to revegetate denuded stream reaches and to establish a protected riparian strip.
- Control or remove bamboo at several sites in lower Deer Creek.
- Cooperate with landowners to maintain and restore riparian habitat along the lower reaches of Mill Creek

Encourage Appropriate Livestock Management in Riparian Habitats

- Cooperate with landowners to install livestock exclusion fencing along Deer Creek.

REDUCTIONS OF THE EFFECTS OF DIVERSIONS:

Install Screens on Unscreened In-Delta Diversions

- Implement a comprehensive program to install positive barrier fish screens at unscreened or poorly screened diversions on the Sacramento River, in the Sacramento-San Joaquin Delta, and Suisun Marsh Sloughs. Priorities for screening should be based on diversion location, size, period of use, and available partnership funding.
- Cooperate with local diverters to install fish screens on agricultural diversions along Battle Creek.
- Cooperate with PG&E to screen all unscreened hydropower diversions on Battle Creek.
- Work with local diverters to install fish screens as necessary along Butte Creek at the following locations:
 - Durham - Mutual Dam,
 - Adams Dam,
 - Gorrill Dam,
 - Little Dry Creek pumps, and
 - White Mallard Dam.

MANAGEMENT OF WATER QUALITY:

Encourage Management of Land Uses to Protect Water Quality

- Cooperate with landowners and managers to organize and/or support local watershed conservancies. Local conservancies should be encouraged on Clear Creek, Deer Creek, Cow Creek, Big Chico, Antelope Creek, and Butte Creek.
- Cooperate with local watershed conservancies to develop and implement watershed management and restoration plans.

FALL-RUN CHINOOK SALMON DEPENDENT ON THE SAN JOAQUIN RIVER SYSTEM

BAY-DELTA HABITAT RESTORATION:

- Conserve, restore, and expand riparian habitat within the San Joaquin Fall-Run chinook rearing and migratory habitat areas. Areas that should be evaluated for habitat restoration and protection include the San Joaquin River portion of the Eastern and Central Delta.

UPSTREAM HABITAT RESTORATION:

Encourage Gravel-Mining Practices that Protect Fish Habitat

- Develop cooperative agreements to modify gravel mining methods to reduce their effects on salmon spawning and rearing habitat on streams tributary to the San Joaquin River.
- Take action to isolate existing gravel mining puts along the Merced, Stanislaus, and Tuolumne Rivers.

Modify Fish Passage at Upstream Dams or Through Other Barriers

- Operate a temporary fish barrier at the head of Old River during fall.

Revegetate Degraded Riparian Habitats

- Acquire land or conservation easements from willing sellers along the riparian corridor of the San Joaquin River downstream of the confluence with the Merced River.
- Acquire land or conservation easements from willing sellers along the riparian corridors of the Merced, Tuolumne, and Stanislaus Rivers.

REDUCTIONS OF THE EFFECTS OF DIVERSIONS:

Install Screens on Unscreened In-Delta Diversions

- Implement a comprehensive program to install positive barrier fish screens at unscreened or poorly screened diversions on the Delta along the San Joaquin River. Priorities for screening should be based on diversion location, size, period of use, and available partnership funding.

MANAGEMENT OF WATER QUALITY:

Establish Incentives for Retirement of Lands with Drainage Problems

- Implement a cooperative program to retire agricultural lands that discharge large quantities of high concentrations of contaminants to the San Joaquin River.