

Alternative C

Dual Delta Conveyance

Overview

This alternative will include a new screened diversion facility on the Sacramento River between Hood and Freeport. This diversion facility will supply a new small isolated conveyance facility that will transport water around the east side of the Delta to the existing south Delta pumping plants. The new screened diversion facility will also supply water for continued through-Delta conveyance. Fish entrainment will be substantially reduced, and isolation of some diversions from Delta channels will improve export water quality. New surface storage upstream and downstream of the Delta will be built to improve flows for fisheries while increasing water supply reliability and flexibility. Moderate habitat restoration will complement the reduction in entrainment and improvement in flow to increase fish populations. Source control measures will improve water quality, and moderate levee improvements will reduce system vulnerability.

New storage and conveyance improve reliability, flow conditions, water quality

The new dual diversion facility on the Sacramento River will be equipped with state-of-the-art fish screens to minimize entrainment of fish. Real-time monitoring will be used to shift diversions among multiple intakes and thus avoid entrainment effects during critical periods of fish out-migration or spawning. A new canal, isolated from Delta channels, will be constructed to convey water (approximately 5,000-7,000 cfs) from the new diversion point to the existing Banks and Tracy Pumping Plants. The isolated facility will be sized to supply most Delta export needs during sensitive spring periods and potentially to provide drinking water supplies to some users in Sacramento County, San Joaquin County, and the Bay Area. The conveyance facility will include siphons under all important stream courses to prevent disruption of water quality and aquatic habitat values in the streams.

Dual diversion and small isolated conveyance protect water quality and fish

Improvements to north Delta channels will provide multiple benefits for flood conveyance, habitat restoration, water supply, and south Delta water quality. A variety of actions will be studied and implemented to reduce adverse effects of salinity in San Joaquin River inflow, to maintain water levels and circulation in south Delta channels, and to reduce recycled salt load to the San Joaquin Valley.

Some through-Delta conveyance continues

Water storage facilities with a combined capacity of 1 to 2 million acre-feet will be constructed upstream and downstream of the Delta to increase the capability to capture, store, and use flows for environmental and water supply benefits. Increased upstream water storage will be used in concert with reoperation of many upstream reservoirs to provide water to improve anadromous fish habitat and flows to transport fish through the Delta.

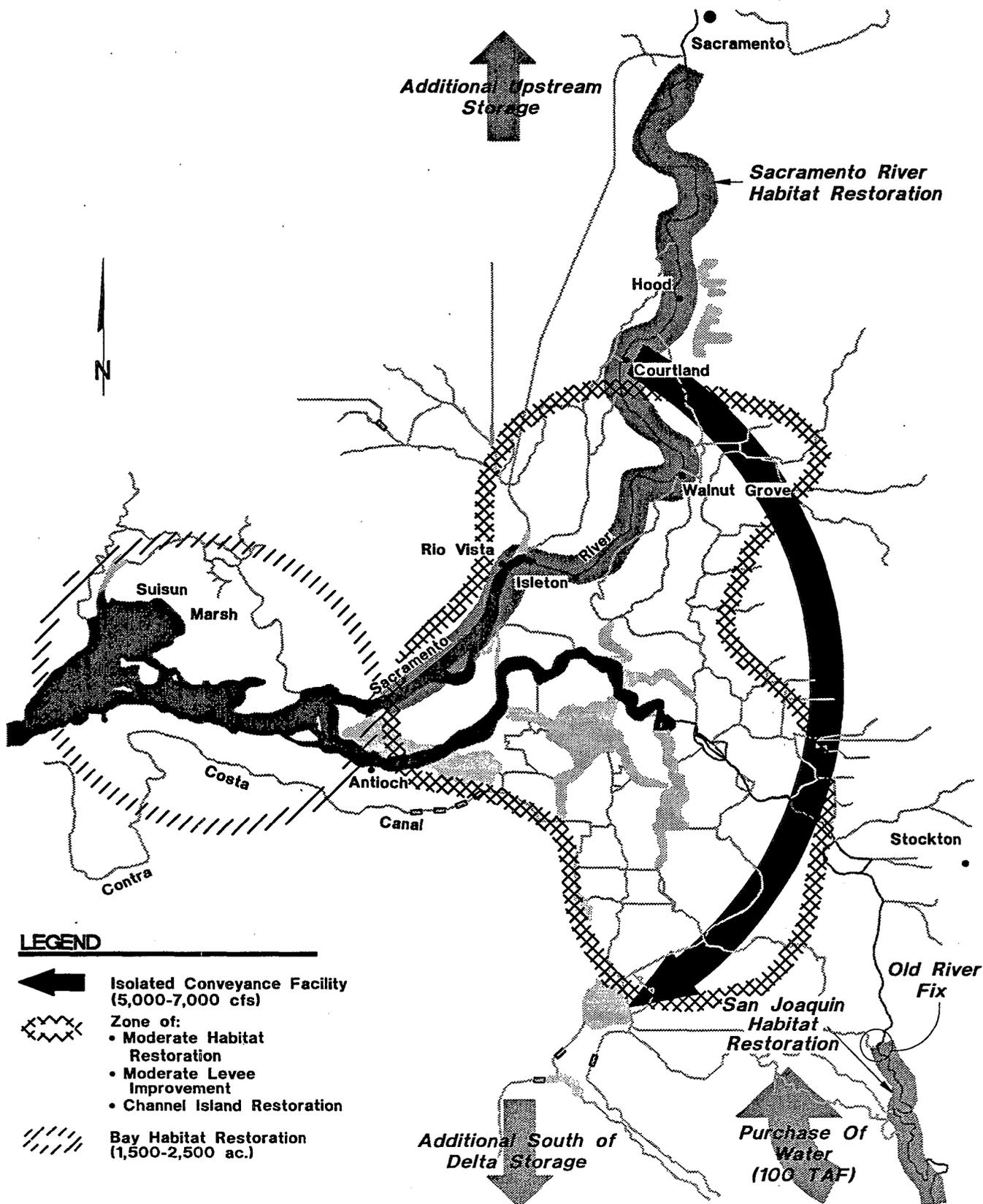
New water storage is added upstream and downstream

The permitted capacity of existing export pumps will be expanded to their full physical capacity, but only during windows when fish are less vulnerable during high flood runoff periods (e.g., in late fall and early winter). Real-time monitoring will be expanded to guide pumping operations, allowing pumping to be curtailed

System operation is improved

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LEGEND

-  Isolated Conveyance Facility (5,000-7,000 cfs)
-  Zone of:
 - Moderate Habitat Restoration
 - Moderate Levee Improvement
 - Channel Island Restoration
-  Bay Habitat Restoration (1,500-2,500 ac.)

when vulnerable fish are present. Construction of water storage facilities downstream and upstream of the Delta and expanded conjunctive use programs in the San Joaquin Valley and other service areas will greatly increase water management flexibility to utilize Delta water for consumptive use during less environmentally damaging periods (e.g., late fall and early winter), thus avoiding entrainment of vulnerable fish while maintaining the total volume of Delta water use.

This alternative will provide moderate levels of habitat along the Sacramento River downstream of Sacramento and will restore channel features on the San Joaquin River to improve survival of anadromous fish. Moderate habitat restoration in the Delta will include shallow riverine and riparian habitats to improve conditions for Delta native and anadromous fish. Moderate levels of shallow tidal habitat will be developed near Suisun Bay to benefit migrating salmon and provide spawning and rearing areas for Delta smelt.

Moderate habitat restoration upstream, in the Delta, and near Suisun Bay

Reduction of San Joaquin River reverse flows during export pumping in the south Delta in combination with moving the diversion point for the balance of exports will minimize entrainment of fish during more vulnerable periods. Water (approximately 100 TAF) will be obtained or developed in the San Joaquin River basin for release as spring pulse flows to improve transport of San Joaquin River fish through the Delta. Fish screens will be installed on high and moderate priority unscreened diversions throughout the Bay-Delta system and a fish guidance system will be implemented at the head of Old River. Ecosystem restoration actions will be guided by a strategy of adaptive management.

Improvements in flow, and new screens, reduce entrainment

Expanded demand management, conjunctive use, and groundwater and surface banking will improve full system operational flexibility that can further reduce fish entrainment by providing more Delta flow in the critical spring period for fish (February-June). This additional Delta flow will be provided through a combination of methods that will be implemented on a priority basis. These methods include reducing consumptive use of Delta water during those months by reducing demand and switching to alternative supplies in all service areas that are dependent upon Delta water supplies; dedicating some newly developed storage to providing Delta outflow; conjunctively using groundwater basins to provide spring Delta flows; implementing conservation and reclamation actions in ways that allow shifting the timing of the releases of conserved water into the Delta during the spring; and making upstream reservoir storage operational changes that will provide more direct inflow to all parts of the Delta during critical spring periods.

Water bank, improved demand management help balance supply and demand

Delta and tributary water quality will be improved through source control efforts to reduce and manage discharges from agricultural operations and urban areas throughout the Bay-Delta system. Retirement of marginally productive agricultural lands that contribute substantially to instream water quality problems in the San Joaquin River will be expanded, improving water quality while reducing water demand. Measures to moderately reduce the total salt load transported to the San Joaquin Valley will be implemented to augment the water quality benefits of the isolated conveyance facility. Pollutants in San Joaquin River inflow will be diluted using water purchased or developed in the San Joaquin River basin.

Pollutant source control

The vulnerability of the Bay-Delta system will be reduced through implementation of a comprehensive Delta Protection Plan. The plan will guide the stabilization or improvement of certain Delta levees to increase protection, the maintenance of levees, and implementation of an emergency response program to address levee failure. Under this alternative, stabilization of levees, maintenance, and emergency response would all receive moderate emphasis.

*Comprehensive
Delta Protection
Plan*

A range of diversion points from Hood through Freeport are possible on the Sacramento River below the confluence with the American River. A variation of those diversions that can be investigated is a diversion point upstream of Bryte that utilizes either the Yolo Bypass or the Sacramento Ship Channel to convey water south to Liberty Island and then crosses Ryer and Grand Islands, siphons under the Sacramento River, and rejoins the previously discussed eastern canal alignment.

*Optional
diversion points*

New storage and conveyance increase water supply reliability and water quality while improving flow conditions for fish and reducing entrainment. Levee rehabilitation incorporates habitat improvements while simultaneously reducing system vulnerability, increasing ecosystem quality, and improving water quality.

*Actions provide
multiple benefits*

Potential Sequencing

Stage 1. Implementation will begin with core actions.

Core actions

Stage 2. Actions implemented during Stage 2 of this alternative will include establishment of a permanent drought water bank, implementation of a moderate demand management program, high priority habitat restoration actions, and installation of high priority fish screens. Implementation of a comprehensive Delta protection plan will begin. Additional San Joaquin River water (100 TAF) will be developed or acquired for environmental uses. Approximately 70,000 to 100,000 acres of marginally productive agricultural lands in the San Joaquin Valley will be retired. Expanded real-time monitoring will be implemented to allow the Delta export pumps to be operated at full capacity during safe periods and provide operational flexibility to avoid fish entrainment during vulnerable periods. Groundwater banking programs in the San Joaquin Valley and other service areas will be expanded.

*Demand
management and
habitat
restoration*

Stage 3. In Stage 3, downstream water storage will be constructed to increase capabilities to coordinate Delta water use and shifted upstream reservoir storage operations to avoid entrainment effects while maximizing the utility of water for users. Storage upstream of the Delta will be constructed to maximize flexibility in managing flows through the Delta for supporting environmental, water quality, and water supply uses. Moderate habitat restoration actions and fish screen installations will be implemented. Stabilization of levees, maintenance, and emergency response would all receive moderate emphasis. An additional 200,000 to 300,000 acres of marginally productive agricultural lands in the San Joaquin Valley will be retired during this stage. To test screening technologies, a small screened diversion from the Sacramento River to Snodgrass Slough will be constructed.

*New storage,
demand
management,
levee
improvements*

Stage 4. Stage 4 will consist of constructing the dual screened diversion facilities on the Sacramento River in the north Delta, a small isolated conveyance facility for a portion of Delta exports, and north Delta channel improvements.

*New screens and
isolated
conveyance*

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Potential Sequencing

