

## Alternative WS-15

Group

Water Supply

Title

Eastside M&I Conveyance Facility

This alternative envisions a new conveyance facility, located along the east side of the Sacramento and San Joaquin Valleys, connecting intakes on the Sacramento, Feather, American, and all other east-side rivers to the California aqueduct at the Edmonston pumping plant. The purpose of this alternative is to increase populations of anadromous and Bay-Delta native fish by relocating M&I export diversions upstream of the Delta and by improving instream habitat. This alternative would also greatly improve the reliability and quality of M&I exports, and would make them less vulnerable to catastrophic failures.

This alternative would divert water from the upper Sacramento River and transport it in a canal to southern California. The facility would be sized (5000 cfs at its terminus) to meet M&I export and agricultural conjunctive use demands. The diversion impacts associated with the export of M&I water from the south Delta would be eliminated. Interties with eastside rivers such as the Mokolumne, the Tuolumne and the Stanislaus would be included, benefits would also accrue to Bay Area M&I water users. The existing Folsom South, Madera, Friant-Kern, and Cross Valley canals would be modified or paralleled to convey high quality M&I supplies to the California Aqueduct and groundwater banking facilities in the San Joaquin Valley. Instream flow requirements would be maintained in eastside rivers by substituting canal water for agricultural diversions from these rivers. The eastside interties could also be used to facilitate transfers of water from eastside streams. Water from the canal would be used to recharge groundwater basins on a continuous basis for conjunctive use. The vulnerability of Delta land use, Delta water supply, agricultural export water supply and Delta ecosystem function to catastrophic failure is reduced by improving levees on eight critical western islands, and elsewhere within the Delta.

Reduction in instream flows in the Feather and American Rivers would be compensated by the restoration of in-channel habitats. The increased conveyance capacity provided by the canal would result in an increased water supply (by providing the opportunity to divert more water during periods of storm flow. Some of this water could be used for environmental purposes.

### Key Actions

**Construct East Valley Conveyance Facility**—Relocate M&I export diversions to the Sacramento River upstream of the Feather confluence, and to the Feather at Thermalito. Construct a new conveyance facility from these points south, along the east side of the Sacramento and San Joaquin Valleys, connecting to the California Aqueduct in Kern County. Enlarge and modify the existing Folsom South, Madera, Friant-Kern, and Cross Valley Canals as feasible to serve as parts of the new conveyance. Size the facility to meet M&I export needs, including supplemental dry year supplies for EBMUD and Hetch Hetchy; environmental needs in the San Joaquin River; groundwater recharge and banking in the eastern San Joaquin County to improve M&I supply reliability and to make dry period water available for environmental uses in the Delta and its tributaries. This would eliminate diversions for M&I purposes in the Delta, reducing diversion impacts.

***Delta Habitat Restoration and Subsidence Control***—Acquire Delta island properties from willing sellers, convert land use to diverse and permanently flooded wildlife habitat to minimize or reverse subsidence in the west Delta. Also acquire Delta island and tract properties from willing sellers within the 100 year flood plain for creation of tidal and seasonal wetlands, creation of diverse riparian and uplands habitats, and providing flood storage areas to compensate for increased flood flows due to watershed urbanization. Because agricultural water export intakes would remain at existing locations in the south Delta, these habitat restoration measures would be implemented at moderate levels.

***Upstream Habitat Restoration***—To compensate for reductions in instream flows, in-channel habitat restoration would be undertaken along the Feather and American Rivers. A variety of habitat types including spawning substrate, shaded riverine; riparian, wetland and terrestrial habitats would be restored.

***Levee Upgrades***—Provide landside buffer zones of 50 to 75 yards to minimize levee subsidence for islands providing valuable existing habitat, such as on Bradford Island. Improve levee maintenance and stabilization to at least National Flood Insurance Program standards (NFIP; 100-year flood protection) for all islands, such as Tyler and Mandeville, containing existing infrastructure and/or land use that provides economic benefit to the region. Improve levee maintenance and stabilization to at least Bulletin 192-82 or PL-99 standards (generally considerably more than 100-year flood protection) for critical western Delta islands, such as Brannan-Andrus, Bethel, and Sherman, to reduce risk to critical infrastructure (e.g. Mokelumne Aqueduct, PG&E gas lines, Highway 160) and to reduce risk to export water quality from salinity intrusion due to levee failure. The upgrades to levees would be accompanied by restoration on and adjacent to these levees, providing a mix of shaded riverine aquatic, wetland, and terrestrial habitats. A levee management plan would provide necessary funding for ongoing maintenance and emergency funding and direction to reclaim Delta islands in the event of inundation in order to continue protection of Delta functions as an integrated resource system.

## Supporting Actions

***Fish Passage Improvements***—Improve anadromous fish passage at high priority small dams and other barriers in the Sacramento and San Joaquin river basins (about 50 percent of all small structures).

***Reservoir Operations***—Change reservoir operations to supply the canal, maintain instream flows and provide fish transport flows.

***Manage Drainage/Discharges***—Pollutant loads in the San Joaquin River would be reduced by approximately 50% to offset the loss of dilution water from the Sacramento River. A variety of methods for achieving this goal would be applied, but the program would focus on land retirement.

***Control Induced/Nuisance Species***—Reduce the numbers of aquatic predators from key habitat and modify habitat to limit introduced/nuisance species.

**Conjunctive Use of Groundwater**—Implement a conjunctive use program in the San Joaquin Valley that uses water from the eastside to recharge groundwater basins. During the irrigation season, this groundwater would be used instead of water diverted from eastside streams. Alternatively, groundwater could be pumped into the canal during dry periods to allow water to reduce demands on the Sacramento, Feather and American River reservoirs.

## **Preliminary Assessment**

**Ecosystem Quality**—Habitat restoration actions would be implemented at moderate levels in this alternative because agricultural exports would continue to be diverted from the south Delta, but M&I exports would be moved from the Delta. Additional improvements to ecosystem quality would be achieved through reducing diversion and reverse flow impacts currently associated with Delta exports. Consequently, productivity improvements would be expected in the western Delta and lower San Joaquin River. Losses of anadromous and resident fish from the Sacramento River, Suisun Bay and the Delta to exports at the south Delta pumping plants would be reduced. This alternative would provide similar protection from diversion impacts as the small isolated transfer facility, so it would require similar habitat restoration in the Delta. However, losses of instream flows in Feather and American Rivers would be compensated through habitat restoration and supplemental environmental flows. Continued losses of Delta resident, and San Joaquin and Delta anadromous fish would still occur at the export pumps, though at a reduced level.

**Water Supply**—M&I water users in the Bay Area and southern California would have improved supply reliability and quality. M&I water users in the San Joaquin Valley could benefit from the conjunctive use program. Under this alternative, 1995 Water Quality Control Plan objectives would remain in place to protect in-Delta users.

**Water Quality**—Water quality will be enhanced to varying levels for areas receiving Delta export water. M&I users would receive higher quality water from the Sacramento, Feather and American Rivers. In-Delta water users would benefit from the reduction in pollutant loads in the San Joaquin River.

**System Reliability**—The system reliability would be increased within the Delta due to the more stable levees in the Delta system. The canal would also provide a more reliable source of water to some M&I users. Delta habitat restoration and levee maintenance would also improve system reliability.

## **Possible Supplemental Actions**

A fish barrier at Georgianna Slough could be installed to increase the protection of Sacramento River fish. Tidal barriers in the south Delta could be used to further improve south Delta water supply, if needed. Improve anadromous fish survival by providing passage through upstream obstructions and by opening alternative migration routes and reducing upstream diversions (including the Keswick Canal).