# Alternative WS-17

*Group*
**Water Supply**

Title
**Develop Transfer Supplies With Additional South of Delta Storage**

This alternative focuses on increasing the reliability of the system (both for export and environmental needs) through developing sources for water transfers from the Sacramento and San Joaquin valleys. This alternative will increase channel capacities across the Delta but avoids developing new in-Delta conveyance or storage facilities. The implementation of this alternative will maximize water transfers by developing conjunctive use programs which will make transfers sources more available. Conjunctive use programs will be monitored to ensure efficient use of existing groundwater resources and long-term protection of the resource. The export criteria during the months of February though June would be increased to allow more adaptive management of export diversions during high winter and spring flows. The export criteria and the permitted diversion capacity of the SWP and CVP pumping plants will be increased to full capacity of the facilities. A new moderately sized off-storage facility (200-300 TAF) will be develop along the west side of the San Joaquin Valley to regulate water diverted from the Delta. This new facility will regulate water seasonally to users as well as to groundwater banking facilities.

In addition to exporting more water in the winter and spring runoff period, this alternative, will move more water through the Delta in the July through October period when additional capacity will be available. To offset increases in export pumping, an intensive adaptive management program will be implemented, along with a high level of in-Delta habitat restoration. The adaptive management program will monitor the success of various restoration programs, fish screening and salvage programs, and water movement through the Delta. Due to the continued reliance on Delta exports, at their current location, this alternative would also emphasize a levee maintenance and improvement program to protect against disruption of the export system.

## Key Actions

***Delta Export Criteria***— Change Delta export criteria to enable greater exports during periods of high Delta inflow. Under this alternative the 35 percent export ratio during February through June and the May 15 through April 15 restrictions relative to San Joaquin flows would be increased to accommodate greater exports. Reducing the restrictions on exports during this period would increase the yield from the Delta. The additional yield could be stored in a number of existing south of Delta reservoir facilities.

***Water Transfers***— Develop transferrable supplies from well integrated conjunctive use programs. Conjunctive use programs will be developed in the Sacramento and San

Joaquin Valleys to develop dependable transfer supplies. The program will provide assistance to local agencies to develop groundwater resources and participate in surface water and groundwater substitution programs. Conjunctive use programs will also be monitored to ensure that basins are not over drafted or water quality is not degraded. It is estimated that such a program could yield up to 400 TAF of annual supply. Transfer water would be secured through a fallowing program that can be implemented during drought periods. To ease the implementation of water transfers a programmatic environmental impact statement (PEIS) would be prepared to define criteria for transferring water through the Delta. The PEIS would also identify appropriate and streamlined refill impact criteria.

***Transfer/Conjunctive Use Adaptive Management Program***— The conjunctive use and water transfer program developed specifically to increase the availability of transfer water for the SWP, CVP, and environmental needs will be closely monitored to ensure it efficient use and effective long-term management. The program will coordinate timing of water transfers to coincide with in stream fishery needs and upstream of the Delta and capacity of export water from the Delta. The program will also act as a broker to match available transfer supplies with demands.

***Groundwater Banking***— Provide additional insurance for drought conditions with groundwater banking programs, particularly to the south of the Delta. New groundwater storage facilities in the San Joaquin and Tulare basins could be developed to store water for drought use. Additional groundwater banking facilities should also be developed in the Southern California area. Water for storage in these facilities would be developed from increases in exports from the Delta which would be regulated by an off-stream storage facility.

***Delta Cross Channel Gate Operations***— Modify existing operating criteria for the Cross Channel gate to allow the gates to be open during February through June period. Allowing the gates to remain open will increase the flow into the south Delta and reduce the possibility of reverse flow conditions in the western Delta. In addition the capacity of the facility will be increased to allow more water to be conveyed to the south Delta.

***Migration Barriers***— Install fish migration barriers at Georgiana Slough and the Delta Cross Channel to reduce fish entrainment in the interior Delta. Migration barriers, acoustic or otherwise, will also allow the Delta Cross Channel to be open during February through June when out-migrating salmon are present. The ability to keep the Delta Cross Channel gates open will increase flows to the south Delta to improve the ability to export water.

***Delta Channel Capacity Improvement***— The capacity of Delta channels will be increased to effectively move water from the north Delta to the south Delta. This would include widening some channel capacities and constructing new or expanded channels, such a the

Snodgrass Slough project. Channel modifications will coordinated with habitat and levee improvements where practicable.

***Levee Improvements***— Due to the continued export operations in the south Delta, a levee maintenance program would be implemented that will maintain and increase, where appropriate, levee stability and protection levels. A program should also be implemented to modify levees, as appropriate, to provide shallow water habitat and improve riparian habitat.

***Reduce Fish Entrainment and Losses at CVP and SWP Facilities***— Reduce entrainment and mortality of fish salvaged at Banks and Tracy pumping plants. Measures to reduce entrainment and losses should include:

- Increase diversion screen efficiencies.
- Improve fish salvage and handling.
- Monitor entrainment on a real time basis to identify periods of peak susceptibility of various species.
- Improve predator control at both facilities.
- Coordinate operations of two diversions, including interchangeable pumping, to reduce combined losses.

***Hatchery Management***—Improve hatchery production for various fish species that use the Bay-Delta Estuary. Improved hatchery production and coordination would serve to: mitigate the loss of stream spawning and rearing habitat; mitigate increasing harvest pressures; and provide short term support for various species until other programs to improve fish survival and habitat conditions are implemented.

***Delta Adaptive Management Programs***— Develop adaptive management programs for efficient operations of the Delta Cross Channel, migration barriers, export and Delta outflows, fish salvage operations and hatchery programs. An adaptive management program should consider the appointment of a Delta water master to oversee the effective management of Delta programs related to movement of water for export, local diversion, and environmental needs. To ensure genetic diversity hatchery production should be practiced to compliment, not replace, measures to improve the natural production and survival of fish species.

***Delta Habitat Restoration***— Develop an intensive program of habitat restoration that would improve the availability of riverine, riparian, wetland, and terrestrial habitat within the Delta. These habitat improvements would be focused on increasing the natural productivity and survival of species that rely on the Bay-Delta Estuary.

## Preliminary Assessment

***Ecosystem Quality***— Core habitat restoration actions would be implemented near the

maximum levels within the Bay-Delta Estuary and on the Sacramento and San Joaquin Rivers. The habitat measures undertaken as part of this alternative would improve habitat availability and quality. Because this alternative is focused on retaining the south Delta export facilities and increasing the volumes of water exported from Delta, habitat and ecosystem restoration measures in the Delta would be focused on reducing the impacts of diversions and reverse flows associated with Delta exports.

***Water Supply***— This alternative would rely on exporting greater volumes during winter and spring periods, which are currently restricted by permits and Bay-Delta standards. Changes to the 1995 Bay-Delta Plan, specifically increasing the export ratio during February through June, would allow for additional water to be exported, increasing the yield from the Delta. The additional yield would be stored in existing and new surface reservoirs to the south of the Delta and groundwater banking facilities developed as part of this program. Off-stream storage and groundwater banking facilities will be operated to store excess water in the groundwater banking facility for insurance against drought deficiencies.

The reliance on water transfers in this alternative would be very aggressive. Water transfers would be developed by through a joint state and federal program for supply and environmental needs. This alternative would develop supplies that could satisfy near-term demands for the system. Continued growth in the areas upstream of the Delta will decrease the availability of transfer water developed under this alternative. Likewise, continued growth in the south land will continue to increase the demand for export water, probably beyond supply developed in this alternative.

***Water Quality***— Water quality will be improved through implementation of core actions. Key actions implemented to the maximum levels feasible will be to control agricultural drainage. Changes in agricultural drain management to reduce the overall pollutant loads of the system will be preferred, including modifications to agricultural practices to reduce the discharge of pollutants.

***System Reliability***— The reliability of water supplies for the SWP, CVP and the environment will only be moderately improved by this alternative. This alternative does not attempt to develop long-term supply reliability for any need. While transfers can be plentiful in the near future and in particular water types, their availability will be affected by continued urban development in areas upstream of the Delta. System vulnerability is improved in this alternative, above the current levels. Because this alternative continues to rely on water exports in the south Delta, the level of levee protection will be increased to an appropriate level to reduce the risk of catastrophic failures that would interrupt supply availability