

Alternative D Through Delta Conveyance

General

This alternative will increase the through-Delta channel conveyance capacity from the Sacramento River to the south Delta export facilities. A new screened diversion facility on the Sacramento River between Hood and Freeport will supply water for continued through Delta transport of water for export by the CVP and SWP pumping facilities. Fish mortality caused by entrainment in the central and south Delta will be reduced through the operation of the screened diversion from the Sacramento River. Additional storage to the south of the Delta will be constructed to increase water supply reliability and improve operational flexibility.

Delta export patterns at the south Delta CVP and SWP facilities will be shifted away from the spring period (February through June) through utilization of extensive new storage to the south of the Delta. Conjunctive use and groundwater banking programs in the southern San Joaquin Valley and the Tulare Lake Basin will also be increased to provide additional supply reliability during below average flow years. An in-Delta island storage facility will be developed to provide water for environmental purposes.

Demand management, including urban and agricultural water conservation, water reclamation, and land retirement, will provide additional supplies for existing water users and for the environment. This alternative will also establish a long-term drought water bank to improve water supply reliability in dry years.

Operation of Delta Diversions

Diversions from the Delta will be reliant on the existing export facilities with an increase in the permitted pumping capacity to the existing physical capacity during specific window when fish are less vulnerable to entrainment, late fall to mid-winter. Through reoperation of upstream storage and storage to the south of the Delta, the export pattern will be shifted, as much as possible from the March through June period to reduce impacts to fish.

- Delta exports for the CVP and SWP facilities will be shifted to late fall to mid-February, preferably, or July to the late fall, as a second priority. Diversions during this period will be made to storage in San Luis Reservoir and to a new storage facility with a capacity of 1 to 1.5 MAF. Nearly half of the export demand will be diverted shifted to the new diversion period.
- The permitted diversion capacity of the south Delta CVP and SWP facilities will be increased to the physical limit of the pumping plants during periods when fish are less likely to be entrained, primarily late fall to mid-February. The use of the full physical capacity will be guided by real time monitoring for the presence of fish of special concern.

- Using the increased permitted capacity of the export facilities, the falling limb of flood flow hydrographs will be diverted to storage south of the Delta. This operation will increase the yield from the Delta and at upstream reservoirs, where less water will be required for Delta export needs. New water generated in this manner will be made available for environmental uses in upstream rivers and in the Delta.
- The shift of nearly half of the Delta exports to July through February will reduce the volume of diversions during March through June, the current diversion period. This shift will reduce impacts to fish now associated with CVP and SWP operations.
- Diversions from the Sacramento River to the central and south Delta will be made through a new state of the art screened facility with a capacity of 5,000 to 7,000 cfs. Diversions through this facility will be patterned to follow the diversion pattern of the south Delta export facility, shifting diversions to late fall through mid-February. Diversions from the Sacramento River will be monitored for the presence of fish of special concern. During periods when abundant fish are located around the diversion or fish are otherwise vulnerable to the operation of the diversion the diversion will be curtailed or shutdown completely.
- Channel capacities in the north and south Delta will be improved to more efficiently move water across the Delta and to allow increased pumping capacity at the south Delta CVP and SWP facilities, as allowed through new permitted conditions.
- Water will be diverted into in-Delta storage during November through January to minimize impacts to Delta aquatic species. There will be multiple diversion intakes into this Delta island storage facility to further minimize impacts to fish.

Operation of New and Existing Storage

New storage will be developed south of the Delta, as indicated above. This storage, in conjunction with existing storage and increased utilization of groundwater conjunctive use and banking will increase the overall reliability and flexibility of water supply operations in the state.

- New and existing surface storage south of Delta will be filled with water diverted from the falling limb of high flood flow events in the Delta, and from storage releases from upstream reservoir.
- Sacramento Valley project reservoirs (Shasta, Oroville, and Folsom) will be reoperated to release water primarily during late fall to mid-February and July to late fall. As much water as possible will be transferred to south of Delta storage during these periods to reduce the amount of water transferred across the Delta between March and June. Upstream release patterns would change according to this shift.

- Water in excess of carry-over needs in Sacramento Valley project reservoirs at the end of the operational year, typically September, will be transferred through the Delta to be stored as groundwater. Transferring this excess water would increase flood control storage space and help to regulate and reduce the occurrence of spills at project reservoirs.
- During above average flow years, or when south of Delta storage is full, water from diversions will be used to recharge groundwater basins in conjunctive use and banking areas in the southern San Joaquin Valley and Tulare Lake Basin. Water stored in these basins will be utilized primarily during below average years to reduce the amount of exports from the Delta. A reduction in export will free-up water for environmental flows during these periods of naturally reduced flows.
- A portion of the new water developed through skimming of hydrographs will free-up existing project supplies which could be banking in conjunctive use areas in the Sacramento Valley and in the San Joaquin Valley for use during drought years. Groundwater storage, through conjunctive use operations, will form the basis of a long-term drought water bank program.
- Water stored in the new in-Delta island storage facility will be released from March through July, as needed, to: 1) improve fish transport through the Delta, particularly during periods of south Delta exports; 2) improve management of the X2 standard; 3) improve water quality in the south Delta; and 4) to provide water for export at the south Delta pumping facilities.

Operation of Water Developed Through Conservation

Water developed through urban best management practices (BMP's) and agricultural efficient water management practices (EWMP's) will be used for a combination of water supply and environmental benefits, depending on the basin in which the water is developed.

- Water developed through implementation of agricultural EWMP's in the San Joaquin Valley will be used primarily to provide additional flows on the San Joaquin River and in the south Delta to improve water quality and the environment.
- Retirement of marginally-productive agricultural lands that contribute substantially to in stream water quality problems in the San Joaquin River will free up water that can be held in storage, released, or transferred to improve water quality and fish transport.
- Water developed through implementation of agricultural EWMP'S in the Sacramento Valley will be used primarily to augment water supply availability.
- Water conserved through urban wastewater reclamation (100,000 to 200,000 acre-feet) will be used to offset urban demands within the regions where the water was reclaimed. Reclaimed water could be used as grey water for landscape irrigation purposes, recharging

groundwater which could be used for below average flow periods, for agricultural uses, or for potable or non-potable urban use.

Operation of Water for Fish and Wildlife Uses

Water developed for fish and wildlife purposes will be in the most efficient manner possible to enhance fish and wildlife habitats in the Sacramento and San Joaquin Valley and the Bay-Delta estuary.

- About 100,000 acre-feet of water will be purchased from willing sellers in the San Joaquin Valley. This water will be used to aid in the transport of fish through the Delta, particularly during periods of south Delta export operations, and to improve water quality in the south Delta during periods of low Delta inflows from the San Joaquin River.