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Central Valley Project Act (Stats.1933, Ch. 1042)	1933	Design and operation of the CVP	NA	Multiple	Salinity control in the Sacramento-San Joaquin Delta is one of the primary purposes of the Central Valley Project.
Effects of the CVP on the Southern Delta Water Supply, joint study by US Water and Power Resources Service (nee USBR) and South Delta Water Agency	1980; compared historical water quality and flow data as far back as 1930s.	"Comparing the average monthly TDS (over the entire year), load-flow regressions show a 1950-1969 increase of 43 percent--from 259 mg/L to 371 mg/L. For the 1950s alone the percentage increase is about 22 percent and for the 1960s, 65 percent....Thus, according to this analysis, in this first decade after the CVP went into operation, about 56 percent of the increase in average TDS was caused simply by a reduction in flow from upstream sources; the remaining 44 percent was a result of increased salt burden, perhaps associated with an expansion of irrigated lands in the basin. Similarly in the 1960s (compared to thee 1930s and 1940s) about 27 percent of the average increase in TDS...can be accounted for by a reduction in flow and 73 percent attributed to increased salt burden. It is of interest to note here that the absolute change apparently caused by reduction in flow changed relatively little from the 1950s to the 1960s...while that charged to an increase in salt burden incrased about four times [...]. This is consistent with other analyses that indicate a progressive buildup in salt load in the San Joaquin system." (p. 126.)			
D-893	1958	USBR – Appropriate water for operating American River CVP facilities	1,000,000 AF of storage, 8,000 cfs maximum diversion rate	Multiple	During a twelve-year period the State Water Board adopted six difference decisions (Decisions 893, 990, 1020, 1250, 1308, and 1356) approving permits for various components of the federal CVP operated by USBR. The permits issued as a result of the decisions included a term by which the Water Board reserved jurisdiction to revisit salinity control requirements. (Decision 893, p. 71, Condition 12; Decision 990, p. 86, Condition 25; Decision 1020, p. 21, Condition 9; Order Extending Time in Which to Formulate Terms and Conditions Relative to Salinity Control Pursuant to Decision 990 and Decision 1020, p. 2; Decision 1250, p. 5, Condition 9; Decision 1308, p. 11-12, Condition 8; Decision 1356, p. 17, Condition 21.)
D-990	1961	USBR - Appropriate water for operating the CVP	8,022,000 AF of storage; 23,674 cfs maximum diversion rate	Multiple	Order reserved to the State Water Rights Board continuing jurisdiction over CVP permits for the purpose of formulating terms and conditions relative to salinity control in the Delta. Narrative noted 1500 cfs minimum flow needed to maintain 1000 ppm water quality at Antioch for irrigation purposes. Industrial interests preferred no more than 350 ppm at Antioch, preferred 150 to 250 ppm at Antioch. D-990 also stated that the State's water rights applications assigned to the Bureau of Reclamation for the CVP included salinity control as a purpose of the water rights.

Sources: State Water Resources Control Board, Order WR 2006-0006, Figure 2, pp. 8-9; various State Water Resources Control Board water quality control plans and water right decisions cited herein and available online at http://www.waterboards.ca.gov/waterrights/board_decisions/adopted_orders/decisions/; Jackson and. Paterson, 1977; California Water Impact Network.

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D-1020	1961	USBR - Appropriate water for the San Luis Unit.	1,000,000 AF of storage; 4,200 cfs maximum diversion; 1500 cfs direct diversion	Old River	While the State Water Rights Board received testimony from Delta Water Users Association concerning south Delta salinity conditions deteriorating in the San Joaquin River north of Mendota Pool since 1950, the Board received no specific terms or conditions from the parties for this decision, and so established no salinity standard.
D-1250	1965	USBR - Appropriate water for power production at San Luis Reservoir	1,000,000 AF for off-stream storage; 4,200 cfs maximum diversion rate	Old River	Order reserved to the State Water Rights Board continuing jurisdiction over CVP permits for the purpose of formulating terms and conditions relative to salinity control in the Delta.
D-1275	1967	DWR - Appropriate water for operating the SWP	5,066,100 AF of storage; 30,060 cfs in direct diversions	Feather River, Delta Channels	Board found that "sufficient information is not available to finally determine the terms and conditions regarding water quality in the Delta which will reasonably protected vested rights without resulting in waste of water" and reserved its jurisdiction over permit terms and conditions while both USBR and DWR conducted studies regarding "the problem of water quality in the San Francisco Bay and the Delta for the purpose of determining what standards of water quality should be maintained and recommending how this is to be accomplished." (p. 18)
D-1291	1970	DWR - Appropriate water for operating the SWP	same as D-1275, but adjusted seasons of diversion at sources	Feather River, Delta Channels	No amendments made to D-1275, Term 19 that reserves Board jurisdiction regarding water quality in the Delta.
D-1356	1970	USBR - Appropriate water for Eastside Division projects	Folsom and Auburn Dam projects	American River Basin	Order reserved to the State Water Rights Board continuing jurisdiction over CVP permits for the purpose of formulating terms and conditions relative to salinity control and fish and wildlife protection in the Delta.

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D-1379	1971	To continue reserving jurisdiction on water quality and fish and wildlife issues relating to permits of the CVP and SWP	39 permits involving 10,000,000 AF	As identified for SWP and CVP	"…The Delta has become a man-made ecosystem which must be protected and managed intelligently to achieve a level of environmental quality that will meet all present and future needs." (p. 5) SWRCB saw its role as protecting vested water rights, as well as reserved jurisdiction pertaining to water quality and fish and wildlife protection. D-1379 established quantitative water quality standards largely for the western Delta, and narrative standards for fish and wildlife protection. The State Water Board's amendment of D-1379 (adopted October 1971) states that "The State Water Project cannot eliminate reverse flow in the San Joaquin River portion of the Delta or provide predominantly San Joaquin River water in the southeastern Delta in September, October and November prior to the operation of the Peripheral Canal....Prior to the operation of such a facility it is implicit in the Board's order that the permittees shall maintain the standard to the best of their ability with the facilities available."
1978 Water Quality Control Plan	1978	State Water Board Adopts 1978 Plan and Decision 1485: Based on the conclusions of the University of California crop study, the State Water Board, in the 1978 Plan, established the salinity objectives in effect today. Specifically, it found that to protect southern Delta agriculture it was necessary to maintain a 30-day running average salinity objective of 0.7 mmhos/cm EC from April through August and 1.0 mmhos/cm EC from September through March at four locations in the southern Delta: (1) the San Joaquin River at Vernalis, (2) San Joaquin River at Brandt Bridge, (3) Old River near Middle River, and (4) Old River at Tracy Road. (1978 Plan, p. VI-29.) The State Water Board did not allocate responsibility for the 1978 Plan southern Delta EC objectives in Decision 1485. The 1978 Plan and Decision 1485 state that if contracts to ensure the water supplies and facilities mentioned above are not executed by January 1, 1980, the State Water Board will take appropriate enforcement actions to prevent encroachment on riparian rights in the southern Delta. (1978 Plan, p. VI-6; Decision 1485, p.28, Condition 8.) Contracts were not negotiated, but SDWA asked the State Water Board to delay taking action.			

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Draft 1988 Water Quality Control Plan	1988 (not adopted)				This plan was not adopted due to intense objections to its proposed water ethic and reliance on several flow-related objectives. Retains the 1978 WQCP southern Delta salinity standards, but does not assign responsibility for their being met. Narrative of this Draft WQCP for southern Delta agriculture (pp. 7-4 to 7-5) noted that: water quality degraded in the Delta near Vernalis in the last 50 years, with salt concentrations having more than doubled during that time due to increased salt loading from agricultural drainage and decreased flows from upstream water development; called for implementation of the 1978 southern Delta salinity objectives, but noted that "decisive action is needed." This draft plan also stated that two aspects of these objectives needed review: "First, the mean monthly monitoring frequency contained in the Delta Plan [1978] is too long, as explained by the South Delta Water Agency, and should be reduced to a 14-day running average consistent with western and interior Delta objectives. Second, the objectives need to be tested to see if they would be attained during unimpaired flow conditions. This analysis indicates that the 0.7 mmhos/cm EC set forth in the objectives during the primary irrigation season of April through August generally would be available under unimpaired runoff conditions during all water year types. This analysis used water quality to flow relationships for the San Joaquin River that existed prior to 1945 [prior to completion and operation of the Friant Dam and Delta Cross Channel]." The draft plan adds that, "During the secondary irrigation season, September through March, the 1.0 mmhos/cm EC provides water quality sufficient to protect crops irrigated during this time of year e.g., alfalfa, pasture, and sugar beets. This quality protects the seedling stages of these crops and is sufficient for winter leaching. Also, analysis shows that 1.0 mmhos/cm EC generally would be achieved during these months under unimpaired runoff conditions. These objectives are used for each set of water quality objectives and are shown in detail in the recommended objectives presented later in this chapter."
	1988				Concerning Chinook salmon protection, the draft plan states that "San Joaquin River salmon populations fluctuate markedly, partly in response to spring flow conditions, and range from less than one to 26 percent of the Central Valley salmon population….One race was eliminated from the San Joaquin Basin by the construction of Friant Dam. Sufficient evidence was presented in the Phase I Hearing to determine Delta protectioins needed for the fall run salmon but not the other races of Chinook salmon on the San Joaquin or Sacramento River systems." In addition, the draft plan stated, "Available data indicate that river flows in April through June up to a certain limit (22,500 cfs on the Sacramento River at Rio Vista and 20,000 cfs on the San Joaquin River at Vernalis) provide benefits to salmon migration. These benefits are linearly related to increasoing Sacramento River flows. Limited data from the San joaquin indicate a similar relationship." (pp. 7-6 to 7-7). "While the option exists to take no action related to the further regulation of flows and exports, it is not reasonable to rely on "out of Estuary" measures to correct habitat concerns related to factors in the Estuary....Currently there are no requirements for minimum upstream flows on the San Joaquin River for upstream salmon migration. Low dissolved oxygen at Stockton may also cause a blockage to upstream salmon passage. A 1969 agreement between DWR, USBR and DFG provided for 1) installation of a temporary barrier across Old River when dissolved oxygen falls below 6 mg/L so that flows increase down the San Joaquin River, or 2) if that is not successful, increased flow releases [from upstream reservoirs]. This objective should be incorporated in this Plan." (p. 7-10)

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	1988	Because of the condition of salmonid fisheries on the San Joaquin River, the draft plan recommended a suite of objectives that included reducing April through July exports to levels that would "reflect the conditions that occurred during a time when both striped bass and salmon populations were in much healthier conditions, prior to the increased export of the SWP (1953-1967...). Reducing exports to the period before the SWP does not always provide the positive downstream flow in Old and Middle rivers sought by many fishery groups. Under this alternative, positive flows occur only about 20 percent of the time during April - July. It does reduce the magnitude of reverse flows compared to present conditions. A safe level of exports is not known. However, pre-SWP spring export rates appears to be a reasonable interim goal until a safe level of exports is found.			
	1988	"The average impact on existing and planned spring exports is a decrease of about 0.67 MAF. Compared to the last 15 years of spring exports, they would be reduced by about 0.2 MAF. In order to make up for this decrease in spring exports the CVP and SWP could increase exports in fall and winter months above today's levels as planned in their 1990 operations study. This is possible with existing facilities as shown in DWR's 1990 operations study. These actions would in effect freeze existing total annual exports at about the 1985 levels. The 1985 level of exports is the highest to date and 16 percent higher than the average level of exports since implementation of the 1978 Delta Plan. However,...this level of Delta supply is sufficient to meet reasonable water demands south and west of the Delta through the year 2010." (p. 7-32)			
1991 Water Quality Control Plan	1991 (rejected by US EPA)	The State Water Board did not change the southern Delta EC objectives in the 1991 Plan from the objectives in the 1978 Plan. However, because of on-going negotiations among DWR, USBR, and SDWA, the State Water Board established a staged implementation plan for the objectives with two interim stages and a final stage. The final stage, to be implemented no later than 1996, required implementation of a 30-day running average EC at all four southern Delta locations (Vernalis, Brandt Bridge, Old River near Middle River, and Old River at Tracy Road) of 0.7 between April and August and 1.0 between September and March for all year-types. The 1991 Plan also stated that if a three-party contract has been implemented among DWR, USBR, and SDWA, that contract will be reviewed prior to implementation of the southern Delta EC objectives and, after also considering the needs of other beneficial uses, revisions will be made to the objectives and compliance/ monitoring locations noted, as appropriate. (1995 Plan, Table 1-1, p. 4 and 8.) No responsibility for compliance was assigned by the WQCP at the time.			
Draft Decision 1630	1992 (not adopted)	This draft water right decision intended to implement the 1991 WQCP was not adopted due to intense objections to its pulse flow and other fish and wildlife protection requirements. It would have retained the 1991 WQCP version of the southern Delta salinity standards, including retention of the 30-day running average for EC objectives. It included spring and fall pulse flows in the San Joaquin River together with export limit at the SWP, and CVP pumps (including Contra Costa Canal) of no more than 1,500 cfs combined (and split equally between DWR and USBR). Attraction flows were also included for October.			
1995 Water Quality Control Plan	1995	The State Water Board did not change the southern Delta EC objectives in the 1995 Plan from the objectives in the 1991 Plan except that the effective date of the objectives at the Old River sites was extended from January 1, 1996 to December 31, 1997. The 1995 Plan includes the same condition as the 1991 Plan regarding review of the objectives upon execution of a three-party agreement. (1995 Plan, p. 17.)			

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Water Right Order 95-06	1995	The State Water Board temporarily amended DWR's and USBR's water rights for the SWP and the CVP to be consistent with the 1995 Plan. This order allowed DWR and USBR to operate the SWP and CVP in accordance with the 1995 Plan while the State Water Board prepared a long-term water right decision to implement the plan. Among other requirements, the order required USBR to release conserved water from New Melones Reservoir to comply with the 1995 Plan Vernalis EC objectives. The order was to expire on December 31, 1998 or upon adoption by the State Water Board of a long-term water right decision implementing the 1995 Plan. (Order 95-6, p. 51-52.)			
Water Right Order 98-9	1998	The State Water Board continued the temporary terms and conditions set forth in Order 95-6. The order was to expire on December 31, 1999 or upon adoption by the State Water Board of a long-term water right decision implementing the 1995 Plan. (Order 98-9, p. 23-24.)			
D-1641	2000	For the first time, the State Water Board assigned sole responsibility to USBR for meeting the Vernalis EC objectives and DWR and USBR for meeting the EC objectives at Brandt Bridge, Old River near Middle River, and Old River at Tracy Road. Decision 1641 immediately implemented the Vernalis objectives and implemented a year round objective of 1.0 EC at the interior southern Delta stations until April of 2005. After April of 2005, Decision 1641 requires implementation of 0.7 EC during April through August unless permanent barriers or equivalent measures are completed and a plan to protect agriculture is approved, in which case the required objective is 1.0 EC. (Decision 1641, p. 159-160 and Table 2, p. 182.) Decision 1641 also approved use by DWR and USBR of each other's points of diversion (JPOD) subject to completion by DWR and USBR and approval by the Division Chief of mitigation requirements including a WQRP. (Decision 1641, p. 150-153; 155-158.)			
2006 Water Quality Control Plan	2006	The State Water Board assigned sole responsibility to USBR for meeting the Vernalis EC objectives and DWR and USBR for meeting the EC objectives at Brandt Bridge, Old River near Middle River, and Old River at Tracy Road. Decision 1641 immediately implemented the Vernalis objectives and implemented a year round objective of 1.0 EC at the interior southern Delta stations until April of 2005. After April of 2005, Decision 1641 requires implementation of 0.7 EC during April through August unless permanent barriers or equivalent measures are completed and a plan to protect agriculture is approved, in which case the required objective is 1.0 EC. (Decision 1641, p. 159-160 and Table 2, p. 182.) Decision 1641 also approved use by DWR and USBR of each other's points of diversion (JPOD) subject to completion by DWR and USBR and approval by the Division Chief of mitigation requirements including a WQRP. (Decision 1641, p. 150-153; 155-158.)			
2009 Water Quality Control Plan Update	2009	The State Water Board found no reasons to change the 2006 Water Quality Control Plan and began identifying instead a research and planning program to prepare to update the Bay-Delta Water Quality Control Plan for the next three-year cycle, which would conclude in 2012. The Board's research program included a study of salt tolerance in crop plants grown in the South Delta.			

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