

CENTRAL DELTA WATER AGENCY

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RE: Objection to December 15, 2021 Draft Order
WR 2021-00XX Petitions for Reconsideration June
1, 2021 TUC and Sacramento River Temperature
Plan

This objection is submitted on behalf of the Central Delta Water Agency, South Delta Water Agency and Rudy M. Mussi Investment LLC.

THE SUBJECT TEMPORARY URGENCY CHANGES GRANTED PURSUANT TO EMERGENCY PROCLAMATIONS OF GOVERNOR NEWSOM DATED MAY 10, 2021 AND JULY 8, 2021 ARE THE RESULT AN ABUSE OF EMERGENCY AUTHORITY DELEGATED TO AN INDIVIDUAL EMPLOYEE OF AN ADMINISTRATIVE AGENCY TO OVERRIDE STATUTORY MANDATES AND JUDICIAL DECISIONS. SUCH CHANGES CONSTITUTE UNJUSTIFIED, UNNECESSARY AND OVERREACHING ACTIONS BIASED IN FAVOR OF EXPORTS FROM

THE DELTA OF WATER WHICH IS NOT TRULY SURPLUS TO THE NEEDS IN THE DELTA AND OTHERS WITHIN THE DELTA WATERSHED

The Inability of the CVP and SWP to Meet Project Obligations Including SWRCB Water Quality Standards Is Not Due to Unforeseeable Droughts but Rather to Their Failure to Limit Deliveries to Project Contractors to Water Which is not Necessary to Meet Senior obligations.

The largest water diverters in the Sacramento-San Joaquin Delta Watershed are the federal CVP and SWP. They are projects operated by the United States through its Department of Interior and the State of California through its Resources Agency. As such they are regulated by sister agencies thus creating a conflict of interest between public trust and the interest of their water contractors. The conflict is amplified by the interest of the political leadership of our nation and State.

Both projects are based upon the premise that they would construct dams and other facilities to capture surplus flows wasting to the ocean to meet the present and future senior needs in the watersheds of origin and supply flows excess to the watershed needs to other areas of the State. Neither project was intended nor had planned to meet all the recognized water needs in the State. The CVP was to serve and subsidize water for farms meeting the 160 acre limitation in limited service areas. It was not intended to meet the water needs of the large land holdings which included large areas of arid land. The CVP built water projects and then contracted water based on classes reflecting the expected firmness of supply. The SWP was a build "as you go" project with contractors paying the entire cost with a limitation and share based on Table A entitlements of about 4.2 million acre feet per year. The SWP plan expected demand in the watersheds of origin to build over time with the demand of its contractors such that by the year 2000, 5.0 million acre feet per year would be needed in the Delta from development of dams and pipelines capturing surplus water on North Coast Rivers. Such North Coast development did not take place and the SWP is now operating without the planned supply of surplus water thereby driving the effort to take water away from meeting the needs in the watersheds of origin. See **Attachment A**.

THE CVP AND SWP HAVE FAILED TO DILIGENTLY CONSTRUCT THE PLANNED PROJECTS TO CAPTURE SUFFICIENT SURPLUS WATER TO MEET WATER CONTRACTOR WISHES AND COMPLY WITH WATER PERMIT TERMS, STATUTORY OBLIGATIONS AND PUBLIC TRUST RESPONSIBILITIES. INSTEAD THE PROJECTS HAVE

CAST ASIDE THEIR GOVERNMENT AGENCY PUBLIC TRUST RESPONSIBILITIES AND EMBARKED UPON A PATH OF UNDERMINING SENIOR WATER RIGHTS, REDUCING WATER QUALITY CONTROL PLAN OBJECTIVES, CIRCUMVENTING PROTECTIONS FOR THE PRESENT AND FUTURE WATER NEEDS OF THE DELTA AND OTHER AREAS WITHIN THE WATERSHEDS OF ORIGIN, CIRCUMVENTING THE OBLIGATION FOR CONSTRUCTING A SAN JOAQUIN VALLEY DRAIN WITH AN OUTLET TO THE OCEAN AND OTHERWISE TAKING EVERY ACTION THROUGH WATER TRANSFERS, CONTRACT MODIFICATIONS AND POLITICAL PRESSURE TO EXPORT WATER WHICH IS NOT SURPLUS TO THE NEEDS WITHIN THE WATERSHEDS FROM WHICH THE WATER IS EXTRACTED

Both projects have the obligation to provide salinity control for the Delta which protects the quality for local and project export diversions, the multiple fish, wildlife, recreation and life safety uses and public trust. Both projects have the obligation to mitigate their adverse impacts including among others blocking fish access to spawning grounds of suitable temperature, altering natural flows, inducing upstream water diversions and delivering water to the salt loaded portions of the Central Valley without the provision of a valley drain with an outlet to the ocean which was a precondition to the supply of water to the San Luis Unit. The fish and wildlife obligations of the CVP include the requirements of the CVPIA and those of the SWP the obligations to preserve fish and wildlife. (See Water Code 11912)

DWR contends that the SWP/CVP have had a high degree of success in meeting all operative water quality standards since 1978 claiming that the temporary urgency changes granted by the SWRCB using emergency authority were justifiable due to factors beyond the SWP/CVP reasonable control. Drought conditions are really not emergencies but historically reoccurring events. **Attachment B** hereto is a DWR summary of historic droughts impacting the Sacramento and San Joaquin Rivers. The historical records of detailed hydrology extend back to about 1917. The occurrence of earlier droughts has been documented based on examination of tree rings and other historical evidence. There is of course some future variability that cannot be accurately predicted and the information available to describe the past variability has limitations. The expectation is that warming of the climate may result in significant changes.

The fact remains that the planning for both the SWP and CVP anticipated a reoccurrence of hydrology similar to the 6-year drought of 1928 through 1934 to estimate the firm yield of the projects to supply such firm yield in the sixth year of such drought. The importance of determination of such firm yield is to alert contractors of the reasonable expectation of delivery. The contracts contained exculpatory provisions making even such firm yield delivery subject to senior rights (including watershed of origin rights to recapture water from the Projects), variable hydrology and other measures not controllable by the Projects. In determining firm yield, the depletion of reservoir storage in the early years of a drought impacts the ability to supply water in the later years. It appears that optimism or political factors have influenced the Project decisions to take more water in the early years and gamble with availability in the later years. This practice and changes in contract provisions have fueled the increased development of permanent type demand based on infirm supply particularly in arid and desert areas south of the Delta.

In the past regulatory compliance has been equated to water quality control plan standards as relaxed by temporary urgency changes. By way of example the D-1641 water quality standards do not contain fixed objectives for cold water requirements to protect salmon spawning. Instead, there is a process for developing a recommendation to the executive director of the SWRCB who determines the requirement on a real time basis. This process has resulted in the SWP and CVP claiming inability to meet regulatory fishery requirements in even the first or second year of a drought. Water quality standards reflect a balancing process to establish minimum requirements protective of specific uses and allow for substantial degradation of pre-existing water quality in various areas of the watersheds including by example the San Joaquin River. Adequate control of health and safety threats such as Microcystis and increasing methylation of mercury are absent.

THE PRIOR DROUGHT ACTIONS OF THE SWRCB DID NOT COMPLY WITH LAWS PROTECTIVE OF THE DELTA INCLUDING THE DELTA REFORM ACT OF 2009

The Delta Reform Act of 2009 includes provisions intended to provide additional protection for the Delta. Such provisions include Water Code §85054 which provides:

“§85054. Coequal goals

‘Coequal goals’ means the two goals of providing a more reliable water supply for California and protecting restoring, and enhancing the Delta ecosystem. The coequal goals shall be achieved in a manner that protects and enhances the unique cultural, recreational, natural resource, and agricultural values of the Delta as an evolving place.”

Water Code §85021 provides:

“§85021. Reduction of reliance on Delta for future water supply needs

The policy of the State of California is to reduce reliance on the Delta in meeting California’s future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.”

The Delta and other areas of origin both upstream and downstream are part of California and also need a more reliable water supply. The prior SWRCB drought actions were clearly directed only at the ability of the SWP and CVP to export water from the Delta. Restoration and protection of Delta water quality and flows including flushing flows are part of a more reliable water supply for California. Non-degradation of water quality, the statutory obligations to provide enhancement of water quality and an adequate supply for the Delta, and the priority for meeting the present and needs in the watersheds of origin do not appear to be recognized.

The need to reduce reliance on exports of water from the Delta lacks emphasis in the TUC considerations. The hydrology of the Delta watershed is inadequate to support even the past level of exports. Development within the watersheds of origin and the need to recapture water from SWP and CVP exports will increase. There is evidence that more water will be needed to mitigate for the

SWP and CVP damage to fish including meeting the CVPIA anadromous fish restoration requirements of 2 times the average natural production for the years 1967 through 1991. Climate change is also expected to adversely affect water supply. The increasing threat of terrorism, the continuing threat of natural calamities, including earthquakes and the growing need for electricity all gravitate towards less reliance on exports from the Delta and instead concentration on developing local self-sufficiency. The deficit due to the failure to develop North Coast watersheds will not be overcome by efforts at self-sufficiency. Increased efforts in urban communities can increase the amount of water available for agriculture and the environment however, The increasing development of arid and desert areas coupled with increasing planting of permanent crops will increase the gap between demand and the already diminishing supply of surface and groundwater. Much of the good effort with conservation, reclamation, recycling and even desalination has gone into additional development of arid and desert lands creating additional permanent demand.

The hydrology predating the construction of the CVP and SWP reflected that no surplus water would be available for export from the Sacramento-San Joaquin Watershed during a reoccurrence of the 1929-1934 drought.

Attachment C is a copy of the hydrographs from page 116 of the Weber Foundation Studies titled "An Approach To A California Public Works Plan" submitted to the California Legislature on January 28, 1960. The highlights and margin notes are mine.

The 1928/29-1933/34 six-year drought period reflected on **Attachment A** shows the average yearly runoff for the Sacramento – San Joaquin Delta Watershed is 17.631 million acre feet with local requirements of 25.690 million acre feet. There is a shortage during the drought period within the Delta Watershed of 8.049 million acre feet per year without any exports. It is questionable whether the groundwater basins can be successfully mined to meet the shortage within the watershed let alone the export demands. A comparable review of the hydrograph for the North Coast area reflects that surplus water could have been developed without infringing on local requirements.

The limited hydrology was clearly recognized in the planning for the SWP which was to develop projects on the rivers in the North Coast watersheds sufficient to import to the Delta about 5,000,000 acre feet of water seasonally for transfer to areas of deficiency. (See **Attachment A** December 1960 Bulletin 76 page 13). Such areas of deficiency were expected to be both north and south of the

Delta pumps. The projects in the North Coast watersheds were never constructed and the projects are woefully short of water.

The original planning for the SWP and CVP appears to have underestimated the needs to protect fish both as to flow requirements and carryover storage required for temperature control. Without such 5 million acre feet of water per year there is no truly surplus water for export except in wet years.

There is Substantial Evidence That the SWP and CVP Have Been Engaged in a Pattern and Practice of Providing Water to Their Contractors Without Regard to Meeting Senior Obligations in Subsequent Dry years.

In 2009 after only two (2) dry years, the SWP and CVP violated the February outflow requirements claiming that meeting the outflow requirements would reduce storage below the point necessary to meet cold water requirements for salmon later in the year. Although the project operators lied and the real reason for the violation was the ongoing pumping of the unregulated flow to help fill San Luis Reservoir, the incident clearly shows the inability of the projects to provide surplus water for export in the 3rd, 4th, 5th and 6th years of drought.

In May of 2013 the SWP and CVP again claimed a need to preserve cold water in storage for fish. They requested and were allowed by the SWRCB to reduce outflow by changing the year classification so as to exceed the western and interior Delta agricultural water quality objectives to save such cold water in storage. They did not suggest and did not reduce export pumping which would have had the same effect as reducing outflow.

In 2014 the 2nd or 3rd year of drought, the SWRCB issued curtailment notices to post 1914 water right holders in the areas of origin and reduced exports due to the lack of water.

The events surrounding the 2009 and 2013 Water Quality Standard Violations reveal disturbing collaboration among the USBR, DWR, state and federal fish agencies and the SWRCB to facilitate exports rather than meet legal obligations in the Bay Delta watershed.

In 2009 the Fishery Agency Representatives did not object to the planned violation of the standards and even though the water needed to meet the standards was being exported the SWRCB did not even admonish the state and federal agencies to seek relief in advance of violation. Although the need for retention of

water in storage to meet cold water requirements for fish was the alleged motivation for the violation of the standards, exports continued at an increasing rate including water that could have been held in storage for cold water requirements. See **Attachment D**.

In 2013 again the reason for the violation was to retain water in storage to meet cold water requirements for fish. Following the violation, the USBR and DWR requested that the standards for protection of agriculture in the central and western Delta be relaxed by allowing operation to critical year standards rather than dry year standards. The California Department of Fish and Wildlife Service, the United States Fish and Wildlife Service, and NOAA's National Marine Fishery Service supported the request. Although the SWRCB staff and all such agencies conferred on the matter, there was no suggestion that exports be reduced in lieu of water quality standards relaxation. Most disappointing was the SWRCB Executive Director's agreement not to recommend taking any enforcement action for the future operation to the relaxed standard thereby effectuating a change in standards without even a public hearing. See **Attachment E**.

In both the 2009 and 2013 cases exports continued at a relatively high rate even though the need for retention of water in storage for meeting cold water fish requirements was clearly recognized. See **Attachment D**.

It is clear that the CVP and SWP have not operated the projects in a manner so as to meet water quality standards during a reoccurrence of six years or even two years of drought.

Six-year droughts can be expected, and even longer droughts are possible. The historic occurrence of multi-year droughts was reported in a DWR Report, California's Most Significant Droughts: Comparing Historical and Recent Conditions (February 2015). **Attachment B** is Table 2.1 from such report.

The State Water Project Final Delivery Capability Report 2015 shows for Table A, a long-term average (1921-2003) as 2,550,000 acre feet per year; a single dry year (1977) as 454,000 acre feet and a 6-year drought (1987-1992) as 1,182,000 acre feet per year. These figures can be contrasted to the Maximum Possible SWP Table A Delivery of 4,132,000 acre feet per year. See **Attachment F** excerpts from SWP Final Delivery Capability Report 2015. It should be noted that the delivery amounts are the average for the period and do not reflect the year-to-year availability of water.

The failure of the SWP and CVP to carry out the plan for development of water projects to yield sufficient surplus water including the 5 million acre feet from the North Coast to meet the needs and obligations within the Delta and other areas of origin and the expectations of the export contractors is at the root of the crisis in the Delta.

Our view is that the SWP and CVP have been engaged in a pattern and practice of violating and seeking degradation of the D-1641 water quality objectives to facilitate greater exports from the Delta. They fail to make a good faith effort to operate the projects to meet the water quality objectives in each year of a six-year drought such as 1929-1934 or 1987-1992. The State under the prior administration even changed the definition of a drought emergency to facilitate degradation of water quality in the Delta. The Projects store natural flow in violation of the terms of their permits and licenses. They store and divert during the winter and spring when such water would naturally flush the Delta pool and then seek to avoid the legally required offsetting water quality protection in the summer. They facilitate and manipulate water for transfers to export service areas including transfers which provide for groundwater substitution without substantial evidence confirming no reduction of groundwater accretions to the natural flow and no increased natural surface flow losses to the lowered groundwater. They ignore their obligation to provide salinity control and an adequate water supply for the Delta and disregard the solemn promise that underlies the authorization for both the SWP and CVP that only water which is truly surplus to the present and future needs including fish and wildlife needs of the Delta and other areas of origin would be exported. The projects' unlawful actions have gone unchecked by their sister State and Federal agencies. This is due in great part to the conflict of interest of having one agency of the State enforcing against another agency of the State and similarly for the Federal agencies.

For the Delta the connection to the Bay and thence to the ocean renders the question of quantity a non-issue. The projects recognized this fact in the past but now seek to confuse the issue by putting forth without support that the quality of water (allegedly ocean water) limits the right of Delta landowners to divert.

The Delta Pool is somewhat like a lake. The volume of water in the channels constitutes the pool or lake which actually extends westerly beyond the legally defined Delta. There are inflows from the tributary rivers to the North, South, East and West, there is inflow from the Bay, there is precipitation and there

are local sources such as accretions from groundwater and artesian flows. The water quality in the pool will vary depending upon conditions and there will be changes in volume due to tides and flood flow but absent project operations there will be no lack of water. Even without river flow, the lands within the tidal range are riparian to the pool. It is generally understood that the Delta Pool has an outlet at Carquinez for the inflow from the multitude of tributaries flowing into and through the Delta. For most of the time in most years there is river flow into and out of the Delta Pool. Even without river flow, the tides move water into and out of the Delta pool. On the ebb tides, water flows out of the pool through Suisun Bay and the Carquinez Strait. On the flood tides, water from the ocean flows into San Francisco Bay mixing with the blend of fresh and salt water in the bay and then flows inland through Carquinez Strait into Suisun Bay and thence the Delta. The mix varies and at times fresh water extends to the west and at times of flood even into the ocean. Absent export project operations, most of the time there is a net outflow. The tidal cycle includes two ebb tides and two flood tides about every 25 hours. Tidal effects extend inland to about West Sacramento on the Sacramento River and to Vernalis on the San Joaquin River.

The law is crystal clear that riparian rights extend to lands contiguous to lakes and ponds and similar waterbodies just as they do to lands contiguous to flowing rivers and streams.

“It is not essential to a watercourse that the banks shall be unchangeable, or that there shall be everywhere a visible change in the angle of ascent, marking the line between bed and banks. The law cannot fix the limits of variation in these and other particulars. As was said, in effect, by Curtis, J. (*Howard v. Ingersoll*, 13 How. 428), the bed and banks or the channel is in all cases a natural object, to be sought after not merely by the application of any abstract rules, but, ‘like other natural objects, to be sought for and bound by the distinctive appearances it presents.’ Whether, however, worn deep by the action of the water, or following a natural depression without any marked erosion of soil or rock; whether distinguished by a difference of vegetation or otherwise rendered perceptible, a channel is necessary to the constitution of a watercourse.

. . . We can conceive that along the course of a stream there may be shallow places where the water spreads and where there is no distinct ravine or gully. Two ascending surfaces may rise from the line of meeting very gradually for an indefinite distance on each side. In

such case, if water flowed periodically at the portion of the depression, it flowed in a channel, notwithstanding the fact that, the water being withdrawn, the 'distinctive appearances' that it had ever flowed there would soon disappear." *Lux v. Haggin* (1886) 69 Cal. 255, 418 and 419.

The Delta Pool is wide where the tidal influence intersects the flow from the numerous tributaries and generally narrows as flow moves west becoming a very distinct single channel at Carquinez Strait.

Even without flow, the Delta pool is a water body to which riparian rights attach. In the case of *Turner v. James Canal Co.* (1909) 155 Cal. 82, the California Supreme Court addressed the question of riparian rights to Fresno Slough during the very considerable period of each year when there was no flow from the Kings River. At page 87, the Court states:

"The right of a riparian owner to the use of water bordering upon his land does not, as plaintiffs content, arise from the fact that the water is flowing, and that any part thereof taken from the stream is immediately replaced by water from the current above it. It comes from the situation of the land with respect to the water, the opportunity afforded thereby to divert and use the water upon the land, the natural advantages and benefits resulting from the relative positions, and the presumption that the owner of the land acquired it with a view to the use and enjoyment of those opportunities, advantages, and benefits. *Duckworth v. Watsonville, etc., Co.*, 150 Cal. 526, 89 Pac. 338. Out of regard to the equal rights of others whose lands may abut upon the same water, the law has declared, as will hereafter be more fully shown, that the use of the water for irrigation, so far as it affects the right of others similarly situated, must be reasonable, and must be confined to a reasonable share thereof; but, with this common limitation, the right to use water upon adjoining land applies as well to the water of a lake, pond, slough, or any natural body of water, by whatever name it may be called, as to a running stream."

At page 88, the Court concludes:

“As we have concluded that riparian rights do exist in a body of water not flowing, it is unnecessary to discuss the question of the things essential to a water course.”

Beginning at page 88 the court went on to include numerous citations of authority including a citation to (1 Farnham on Waters, Sec. 62, p. 278) as follows: “The principle upon which these rights are founded is equally applicable to all bodies of water, whether large or small, tidal or non-tidal.”

For the Delta, the water available for diversion from the Delta pool by pre-1914 and riparian water right holders includes water from the Bay and (in turn the Pacific Ocean) natural surface flow from the tributaries, the accretions from groundwater, artesian flows into Delta islands and channels, precipitation, return flow from upstream use of natural surface flow and below ground flow, return flow from power diversions, return flow from Delta diversions, physical solution flows, commingled water, water provided pursuant to agreements and water provided by reason of statutory entitlements.

Except perhaps in limited areas along the edges of the Delta due to siltation, the Delta channels are of sufficient depth and size that in the absence of river flow, water would always be available for diversion in sufficient quantities.

The Delta as defined in 12220 of the Water Code encompasses the tidal zone. With rising sea levels, the extent of the tidal zone is expected to increase. There are two high (flood) tides and two low (ebb) tides about every 25 hours. (See **Attachment H** - Representative reflection of tides.)

The tidal exchange in the Delta at the western edge is typically in the range of 330,000 cfs which can be contrasted to summer inflows in the range of 10,000 cfs and net Delta outflows in the range of 5,000 cfs. (See **Attachment I** page 21 from DWR 1993 Delta Atlas.)

In the June 1969 DWR Memorandum Report - the “Delta and the State Water Project” in describing the purpose and history of negotiations with Delta interests the Department explained:

“During the 1950’s the Department of Water Resources cooperated with the Bureau of Reclamation and the local Delta water users in studies to identify individual entitlements to the waters of the Sacramento River and the Delta. These studies, using the classical

approach to solution of water rights problems, considered priority of rights to quantity of water rather than quality. No resolution was reached in the Delta using this approach.

“Actually, in the Delta, the question of quantity is of little concern, since the Delta is never short of water. If flow from the tributary streams were insufficient to meet Delta use, water from the Pacific Ocean would flow through the San Francisco Bay system and fill the Delta channels.”

“Since water shortage in the Delta is not a problem, it was necessary to develop a quality “yardstick” to guide project operation in the Delta.” (Emphasis added)

(See **Attachment J**, pages 35 and 36 of excerpts from DWR Memorandum Report June 1969 titled The Delta and The State Water Project.)

The contract between the State of California Department of Water Resources and North Delta Water Agency for the Assurance of a Dependable Water Supply of Suitable Quality dated January 28, 1981, provides further confirmation of the unique physical setting of the Delta in that it has additional natural flow from the bay and ocean. The Contract provides agreement that:

“(e) Water problems within the Delta are unique within the State of California. As a result of the geographical location of the lands of the Delta and tidal influences, there is no physical shortage of water. Intrusion of saline ocean water and municipal, industrial and agricultural discharges and return flows, tend, however, to deteriorate the quality.” (See **Attachment K** - excerpt from said NDWA Contract.)

The projects fail to recognize the natural flows of water from the west which are comprised of Bay water, which is a mixture of ocean water, precipitation, fresh water from tributaries flowing into the Bays, groundwater accretions, artesian flows and flow from other sources.

The argument that absent project operations water would not be present in the Delta channels is unsupported. Similarly unsupported is the contention that absent project operation Sacramento River water would not naturally be available in south Delta channels. Even today Georgiana Slough and Three Mile Slough directly contribute to Sacramento River flow to the south Delta in addition to the

mix of Sacramento and other tributary water which enters the south Delta from the west through tidal action.

Prior to levee construction along the Sacramento River flow also appears to have entered the south Delta directly from the Sacramento River from what is now called Snodgrass Slough and what appears to have been another natural connection in the vicinity of the present Delta cross-channel. Additionally, Water Code section 12931 (Part of California Water Resources Development Bond Act) provides:

“For the purpose of this chapter the Sacramento-San Joaquin Delta shall be deemed to be within the watershed of the Sacramento River.”
(Emphasis added)

Surely there can be no debate that the Delta consumed more water in its natural swamp and overflowed land condition than is consumed by way of farming of the Delta today.

Diversion of water is critical to sustaining farming in the Delta. Farming is the engine driving the Delta economy. With few exceptions, maintenance of levees and continuous drainage of the lands relies on funding from farming.

Without such drainage, the lands would become inundated by reason of seepage and rising groundwater or would experience substantially raised groundwater. The resulting condition would be a body of water or a highly vegetated area served by a high water table.

Evaporative losses from an open body of water and from riparian vegetation are much higher than from the same area subjected to farming.

Attachment L hereto is Table A-5 from DWR Bulletin 168 - October 1978, page A-10 showing the 1976-77 Estimated Crop Et Value for the Delta Service Area. For October 1976 through September 1977 the data shows:

Alfalfa	45.8 inches
Tomatoes	34.3 inches
Field Corn	33.8 inches
Riparian Veg and Water Surface	67.8 inches

California Water Plan Update 2009, Vol. 4 Reference Guide - Topic Crop Water Use, Article 19, contains the “Historical Estimates of Agricultural and Wetland Water Use in the San Joaquin-Sacramento River Delta” by Morteza N. Orang, Richard L. Snyder, Sara Sarreshteh.

The study included both uplands and lowlands and concluded:

“For the entire Delta, the Etc for the wetlands, cattails and tules was about 16% (1998), 20% (2000) and 22% (2001) higher than the agriculture-crop land-use group, which included irrigated pasture, alfalfa, all field crops, sugar beets, irrigated grain, rice, truck crops, tomato, orchard, vineyard and non-irrigated grain (Figure 7-9).”

See **Attachment M** which is page 7 from said study.

Curtailment of water diversions in the Delta will decrease or eliminate farming thereby resulting in substantially increased water loss due to evaporation.

The Department of Water Resources Investigation of the Sacramento-San Joaquin Delta Report No. 4 Quantity and Quality of Waters Applied To And Drained From the Delta Lowlands - July 1956 concluded as follows:

“The Delta Lowlands act as a salt reservoir, storing salts obtained largely from the channels during the summer, when water quality in such channels is most critical and returning such accumulated salts to the channels during the winter when water quality there is least important. Therefore agricultural practices in that area enhanced rather than degraded the good quality Sacramento River water en route to the Tracy Pumping Plant.”

The Delta is unique. It would appear that curtailment of Delta diversions could result in salinity degradation at the export pumps thereby adding to the negative impact to the projects and others that would result from their efforts.

The water projects and their export contractors make assertions that water to which they are entitled may be unlawfully diverted by Delta diverters yet they ignore the statutory obligations of the projects, including that:

“In 1959 the State Legislature directed that water shall not be diverted from the Delta for use elsewhere unless adequate supplies for the

Delta are first provided.” (Emphasis added) (See Water Code section 12200 et seq. and December 1960 DWR Report to the Legislature Bulletin 76 Excerpt in **Attachment N.**)

The water projects and their export contractors claim water which is commingled with water to which Delta diverters are entitled yet they make no attempt to meet their burden as required by law and rather seek to shift the burden onto those users of water in the Delta. There is an outstanding factual issue of how much and under what circumstance does “Project Stored Water” make it to the Delta.

The applicable law which is most relevant is reflected in Water Code Section 7075 which provides:

“§ 7075. Reclamation of water

Water which has been appropriated may be turned into the channel of another stream, mingled with its water, and then reclaimed; but in reclaiming it the water already appropriated by another shall not be diminished. (Stats. 1943, c. 368, p. 1669, § 7075.)”

In Butte Canal & Ditch Co. v. Vaughn, 11 Cal. 143, the California Supreme Court made it clear that in cases of the commingling of water where it is difficult to determine with exactness the quantity of water which parties are entitled to divert:

“The burden of proof rests with the party causing the mixture. He must show clearly to what portion he is entitled. He can claim only such portion as is established by decisive proof. The enforcement of his right must leave the opposite party in the use of the full quantity to which he was originally entitled.”

The threshold question should be, whether or not the projects and their export water contractors have any water in the Delta to which they are entitled which is being diverted by Delta diverters?

The next question is, can such water to which the projects and their export contractors are entitled be reclaimed without diminution of the entitlement of Delta users?

The entitlement of Delta users includes statutory protections and rights as against the projects which are in addition to the traditional water rights.

Water stored or diverted in violation of the terms and conditions of permits and licenses or statutory requirements is not water to which the projects or their contractors are entitled.

Water is commingled throughout the system and exports from the Delta are surely a mix of water naturally in the Delta pool and numerous other sources, including natural flow from Suisun Bay.

In most reservoirs stored water is commingled with natural flow in the reservoir itself. Segregation of stored water from natural flow is complex. The already commingled stored water released from the originating reservoir must travel many miles to reach the Delta. As water passes down the river channels it is exposed to numerous diversions. Along the way water seeps, percolates and accretes between the river channels, adjoining lands and groundwater basins. Contributing flows occur from major and minor tributaries, from drainage systems, from precipitation and from groundwater. If the commingled water released from the originating reservoir reaches the Delta, it could go out as outflow or it may be dispersed through portions of the Delta depending greatly upon how the Delta cross channel and export pumps are being operated.

There are a number of statutes both State and Federal intended to protect and benefit Delta diverters as related to the federal Central Valley Project and State Water Project.

The Delta Protection Act of 1959 (WC 12200-12205) requires that the water needs of the Delta be given priority over exports by the SWP and CVP. The Act has been interpreted by DWR to provide: "In 1959 the State Legislature directed that water shall not be diverted from the Delta for use elsewhere unless adequate supplies for the Delta are first provided." (See **Attachment N.**) The Delta Protection Act of 1959 requires the SWP and CVP to provide salinity control and "an adequate water supply in the Delta sufficient to maintain and expand agriculture, industry, urban and recreational development in the Delta area as set forth in Section 12220, Chapter 2, of this part, and to provide a common source of fresh water for export to areas of water deficiency . . ." (See WC 12201 and 12202.) In 1959 fishing was the predominant recreational use of the Delta. Since the commencement of SWP operation in the late 1960's, fish populations in the

Delta have plummeted. The Water Quality Objectives define what is an adequate supply.

The contract between the State of California Department of Water Resources and the North Delta Water Agency For the Assurance of a Dependable Water Supply of Suitable Quality dated January 28, 1981, provides:

“(d) The construction and operation of the FCVP and SWP at times have changed and will further change the regimen of rivers tributary to the Sacramento-San Joaquin Delta (Delta) and the regimen of the Delta channels from unregulated flow to regulated flow. This regulation at times improves the quality of water in the Delta and at times diminishes the quality from that which would exist in the absence of the FCVP and SWP. The regulation at times also alters the elevation of water in some Delta channels.”

“(f) The general welfare, as well as the rights and requirements of the water users in the Delta, require that there be maintained in the Delta an adequate supply of good quality water for agricultural, municipal and industrial uses.”

“(g) The law of the State of California requires protection of the areas within which water originates and the watersheds in which water is developed. The Delta is such an area and within such a watershed. Part 4.5 of Division 6 of the California Water Code affords a first priority to provision of salinity control and maintenance of an adequate water supply in the Delta for reasonable and beneficial uses of water and relegates to lesser priority all exports of water from the Delta to other areas for any purpose.”

The Watershed Protection Act (WC 11460 et seq.) prohibits the projects from directly or indirectly depriving the Delta and other areas of origin of an adequate supply. In pertinent part the Act provides:

“§ 11460. Prior right to watershed water

In the construction and operation by the department of any project under the provisions of this part a watershed or area wherein water originates, or an area immediately adjacent thereto which can conveniently be supplied with water therefrom, shall not be deprived

by the department directly or indirectly of the prior right to all of the water reasonably required to adequately supply the beneficial needs of the watershed, area, or any of the inhabitants or property owners therein. (Added by Stats.1943, C. 370, p. 1896. Amended by Stats.1957, c. 1932, p. 3410, § 296.)

The Act also applies to the United States Department of Interior, Bureau of Reclamation. (See WC 11128.)

The interpretation of WC 11460 was explained in a letter dated February 17, 1945 to the Joint Committee on Rivers and Flood Control of the California State Legislature from the Acting Regional Director of the Bureau of Reclamation. The letter provided:

“The committee had asked the question: What is your policy in connection with the amount of water that can be diverted from one watershed to another in proposed diversions?” In stating the Bureau’s policy, Mr. Calland quoted section 11460 of the State water code, which is sometimes referred to as the county of origin act, and then he said: ‘As viewed by the Bureau, it is the intent of this statute that no water shall be diverted from any watershed which is or will be needed for beneficial uses within that watershed. The Bureau of Reclamation, in its studies for water resources development in the Central Valley, consistently has given full recognition to the policy expressed in this statute by the legislature and the people. The Bureau has attempted to estimate in these studies, and will continue to do so in future studies, what the present and future needs of each watershed will be. The Bureau will not divert from any watershed any water which is needed to satisfy the existing or potential needs within that watershed. For example, no water will be diverted which will be needed for the full development of all of the irrigable lands within the watershed, nor would there be water needed for municipal and industrial purposes or future maintenance of fish and wildlife resources. (Emphasis added) (See **Attachment O.**)

In contrast to the protections for the Delta in Water Code 12200 et seq. Water Code Section 11460 when applied to portions of the watershed outside the delta arguably does not assure an adequate water supply to the watershed area by way of compelled allocation of CVP water provided pursuant to the Tehama - Colusa Canal Authority contract but rather

precludes actions by the CVP and SWP from directly or indirectly depriving the protected area of the prior right to all of the water reasonably required to adequately supply the beneficial needs of the watershed, area, or any of the inhabitants or property owners therein.

In the Tehama-Colusa Canal Authority v. U.S. Department of Interior case, 721 F.3d 1086 (2013) the court confirmed rejection of the Authority contractor claim for preferential access to CVP contract water supply under the area of origin statutes citing the SWRCB rejection of such claim. In so doing the Court provided:

“The SWRCB interpreted CWC Section 11460 as protecting areas of origin, but with no guarantee that the water supply needs of the entire area of origin, or any particular waters users within the area of origin, would be met. Rather, CWC section 11460 protected water users within the area of origin against export appropriations. In other words, **CWC provided a guarantee that the SWRCB would not reject new applications in the area of origin due to unavailability of water for appropriation. Area of origin protection was secured by filing an application with the SWRCB and receiving a water rights permit with seniority vis a vis the state Department of Water Resources and the Federal Bureau of Reclamation as exporters.**” (Emphasis added)

The issue of area of origin use, pursuant to 11460, of already diverted and stored water subject to payment remains outstanding as to the SWP and likely still as to the CVP.

NEW APPLICATIONS TO THE SWRCB FOR WATER SOLEY TO MEET THE PRESENT AND FUTURE NEEDS WITHIN THE WATERSHEDS OF ORIGIN ARE CURRENTLY BEING OBSTRUCTED BY THE APPLICATION OF TERM 91

Such obstruction is contrary to the process cited above.

The WC11460 water whether it be natural or abandoned flow or the recapture of project water is for the purpose of meeting needs within the Watershed and should not be allowed to be directly or indirectly transferred for use outside the watershed

WATER QUALITY CONTROL PLAN OBJECTIVES INCLUDING
SALINITY CONTROL PROVIDE MINIMUM LEVELS OF
PROTECTION AND HAVE NOT BEEN PERIODICALLY UPDATED
TO AVOID DEGRAGATION

An adequate supply for the Delta is minimally provided by the Water Quality Control Plan Objectives. If exports from the Delta are to take place, especially those beyond the real needs for health and safety, then the SWP and CVP must meet the D-1641 Water Quality Objectives to satisfy their statutory obligations even if it requires stored water. Both projects have a clear purpose and obligation to provide salinity control for the Delta with project water with a clear priority over any exports. The SWP and CVP pumps induce salinity intrusion which is their obligation to mitigate. Salinity control is necessary to control salinity at the export pumps and is maintain adequate quality at the export pumps as well protect fish, wildlife and ecological values in Delta and Bays.

The SWP and CVP have failed to properly operate the projects so as to assure that water quality objectives, senior water rights and other senior obligations will be met in the expected reoccurrence of critically dry years and multiple years of drought. Instead, the projects have been operated to maximize exports from the Delta. The likely occurrence of multiple years of drought has been well documented and the basic planning for the SWP and CVP focused on the six years of drought during the period of 1929 through 1934. Climate change has for many years been predicted to increase the frequency of droughts. The reduced availability of surplus water to serve export needs has been known for many years and yet the projects have exported water knowing that the ability to meet water quality objectives would be jeopardized.

The Delta Protection Act of 1959 in WC 12200 specifically provides: "It is, therefore, hereby declared that a general law cannot be made applicable to said Delta and that the enactment of this law is necessary for the protection, conservation, development, control and use of the waters in the Delta for the public good." The emergency authority shall not be used for favoring exports over needs within the Delta and other areas of origin except to meet true health and safety needs.

The degradation of water quality in the Delta adversely impacts agricultural, industrial, urban and recreational (including fish and wildlife) uses in the Delta and

surrounding areas as well as areas served with exports from the Delta. The Delta Protection Act of 1959 was passed to prohibit the very wrongdoing which is now underway. Neither the Executive Director, the Deputy Director nor the State Water Resources Control Board has the authority to prefer export needs over those in the Bay-Delta except for true health and safety.

PL99-546 (HR3113) specifically provides:

“(b)(1) Unless the Secretary of the interior determines that operation of the Central Valley project in conformity with State water quality standards for the San Francisco Bay/Sacramento-San Joaquin Delta and Estuary is not consistent with the congressional directives applicable to the project, the Secretary is authorized and directed to operate the project, in conjunction with the State of California water project, in conformity with such standards. Should the Secretary of the Interior so determine, then the Secretary shall promptly request the Attorney General to bring an action in the court of proper jurisdiction for the purposes of determining the applicability of such standards to the project.

(2) The Secretary is further directed to operate the Central Valley project, in conjunction with the State water project, so that water supplied at the intake of the Contra Costa Canal is of a quality equal to the water quality standards contained in the Water Right Decision 1485 of the State of California Water Resources Control Board, dated August 16, 1978, except under drought emergency water conditions pursuant to a declaration by the Governor of California. Nothing in the previous sentence shall authorize or require the relocation of the Contra Costa Canal intake.”

Section (b)(1) does not allow for the Bureau of Reclamation to operate the CVP without conforming to the State water quality standards for the San Francisco Bay/Sacramento-San Joaquin Delta and Estuary even if the Executive Director and SWRCB is willing to look the other way. (See **Attachment P.**)

There are specific processes and procedures for changes to Water Quality Control Plans including review by the United States EPA, which are not a part of the emergency process previously applied by the SWRCB.

Section (b)(1) is thus applicable and requires USBR and USF&WS compliance unless the Secretary of Interior makes a determination that compliance

is inconsistent with congressional directives applicable to the project and then the Attorney General is to be requested to bring a legal action for a court determination of the applicability of the standards.

Section (b)(2) provides an additional constraint with regard to the water quality at the intake to the Contra Costa Canal. Even if the standards were determined by the court to not be applicable to the CVP, then the D-1485 water quality standards would be applicable to the intake of the Contra Costa Canal except under drought emergency water conditions pursuant to a declaration by the Governor of California.

In 2004 Congress passed another law to ensure that Delta water quality standards and objectives would be met.

PL 108-361 (HR 2828) in pertinent part provides:

“(D) Program to Meet Standards. -

- (i) In General. - Prior to increasing export limits from the Delta for the purposes of conveying water to south-of-Delta Central Valley Project contractors **or increasing deliveries through an intertie**, the Secretary shall, not later than 1 year after the date of enactment of this Act, in consultation with the Governor, develop and initiate implementation of a project to meet all existing water quality standards and objectives for which the Central Valley Project has responsibility.” (Emphasis added) (See **Attachment Q.**)

Emergency or other actions including facilitating transfers are clearly for the purpose of increasing exports from the Delta or likely result in use of the intertie which to the extent such are for serving south-of-Delta Central Valley Project contractors would be directly contrary to the direction of Congress which was to assure that all existing (October 25, 2004) water quality standards and objectives would first be met.

Water storage projects typically store natural flow in the winter and spring. The winter and spring natural flows, except in wetter years, would provide flushing of salts from the rivers flowing into the Delta and from the Delta into the Bay such that salt balance in the soil can be maintained and adequate protection can be provided to fish and wildlife and other Delta water uses. This flushing action

drives saline water farther out into the Bay thereby prolonging the availability of good water quality in the Delta pool. When the stored water is used within the watershed, the return flow is basically delayed return of natural flow. The improved summer flow is an offset or mitigation for reduced winter and spring flows. The balance is in effect a physical solution that advances the beneficial use of water.

The equity of such a physical solution is reflected in the statutory obligations of the SWP and CVP to the Delta including salinity control, and in the conditions imposed on the water rights for such projects. Such statutory obligations require both mitigation and improvement.

The adverse impacts to Delta water supply and quality from State and Federal actions were clearly recognized. The near complete re-diversion of the Upper San Joaquin River to the south by way of the Friant Dam and Friant Kern canal deprived the Delta of the late spring and summer natural flow from the high Sierra snowmelt; the reverse flows and induced Bay salinity intrusion caused by export diversions; the increased salinity entering the San Joaquin River by reason of delivery of water to the west side of the San Joaquin River without a valley drain with an outlet to the ocean; the induced salinity intrusion from the Bay caused by channel enlargement for the Stockton and Sacramento ship channels, the reduced late spring and summer natural flows resulting from the State and Federal flood control projects; inducement of salinity intrusion by reason of planned permanent flooding of areas in the Delta which increase the tidal prism and the project inducement of upstream development are examples. All of the above have the result of degradation of water quality in the Delta for which the projects are responsible.

In addition to the mitigation or physical solution aspects driving the statutory commitments of the SWP and CVP to provide stored water to the Delta was the purpose of providing such salinity control to benefit a broad range of purposes. Such purposes include protection of water quality at the CVP Tracy export pumps, the SWP export pumping facilities at Clifton Court, the Contra Costa Water District intakes, the Montezuma Slough gates to serve the Suisun Marsh, and the North Bay Aqueduct. Protection of fish and wildlife, water quality in the bays and meeting project contractual commitments are also served.

There should be no dispute that the Delta Protection Act (Water Code Section 12200 et seq.) prohibits project exports from the Delta unless the Delta is first provided an adequate supply.

DWR Bulletin 76, December 1960, report to the Legislature provided:

“In 1959 the State Legislature directed that water shall not be diverted from the Delta for use elsewhere unless adequate supplies for the Delta are first provided.” (See Attachment N)

The DWR and NDWA Contract provides:

“(f) The general welfare, as well as the rights and requirements of the water users in the Delta, require that there be maintained in the Delta an adequate supply of good quality water for agricultural, municipal and industrial uses.”

“(g) The law of the State of California requires protection of the areas within which water originates and the watersheds in which water is developed. The Delta is such an area and within such a watershed. Part 4.5 of Division 6 of the California Water Code affords a first priority to provision of salinity control and maintenance of an adequate water supply in the Delta for reasonable and beneficial uses of water and relegates to lesser priority all exports of water from the Delta to other areas for any purpose.”

In United States vs State Water Resources Control Board 182 Cal.App.3d 82 (1986) at page 139 the appellate Court provides:

“In 1959, when the SWP was authorized, the Legislature enacted the Delta Protection Act. (§§ 12200-12220.) The Legislature recognized the unique water problems in the Delta, particularly ‘salinity intrusion,’ which mandates the need for such special legislation ‘for the protection, conservation, development, control and use of the waters in the Delta for the public good.’ (§ 12200.) **The act prohibits project exports from the Delta of water necessary to provide water to which the Delta users are ‘entitled’ and water which is needed for salinity control and an adequate supply for Delta users.** (§§ 12202, 12203, 12204.)(emphasis Added)

But the crucial question left unanswered by the protective legislation is exactly what level of salinity control the projects must provide . . .”

SWRCB D-1485 at page 9 provides:

“The Delta Protection Act accords first priority to satisfaction of vested rights and public interest needs for water in the Delta and relegates to lesser priority all exports of water from the Delta to other areas for any purpose.”

The level of salinity control the projects must provide is now set by federal statute, SWRCB water quality standards and contracts such as those for export and the contract with the North Delta Water Agency.

PL-99-546 (HR 3113) October 27, 1986, put to rest the Congressional intent as to the level of salinity control obligated by the CVP and the question as to any related payment to the CVP. For meeting water quality standards in D-1485 the cost is to be allocated among the project purposes in accordance with existing reclamation law and policy - water and power contractors. The costs for complying with State water quality standards above those standards is to be non-reimbursable. (See Attachment P)

Also relevant to the matter of application of the Watershed Protection Act (Water Code 11460 et seq.) and Delta Protection Act of 1959 (Water Code 12200 et seq.) is the April 13, 1984 113-page Superior Court decision in the above referenced case of United States v State Water Resources Control Board case. Eight separate cases were coordinated into Judicial Council Coordination Proceeding No. 548. The parties fell into nine groups: (1) the Board – SWRCB, (2) Delta industries, (3) the central Delta riparians, (4) the south Delta riparians, (5) the U. S. Bureau of Reclamation (the U.S.), (6) the federal contractors, (7) the California Department of Water Resources, (8) the state contractors, and (9) the Contra Costa municipal users. The court addressed the Delta water users’ “inchoate right to ‘recapture’ water being exported by the state and federal projects” under the Watershed of Origin Statute and Delta Protection Act. The court generally concluded that perfection of the right to recapture water being exported would require a Delta user to obtain an appropriation permit and a contract to pay for the recaptured water that was “developed by the projects and that was released specifically for his benefit”. Specific to the payment issues the court provided that “Delta users need not pay for salinity control water even if they are incidentally benefited unless the water is released specifically for their benefit”, “Delta water users need not pay for the enhanced water quality that results from water released by the projects to maintain adequate water quality at the export pumping stations”, “Delta users need not pay for the enhanced water quality

resulting from the release of abandoned water”, and “Delta users need not pay for the enhanced water quality resulting from water released to preserve or enhance fish or wildlife resources”. **Attachment R** hereto are excerpts from such Superior Court decision.

THE SWP AND CVP SHOULD BE REQUIRED TO SUBMIT AN ANALYSIS OF THEIR ABILITY TO MEET THE D1641 STANDARDS WITHOUT TEMPORARY CHANGES USING THE HISTORIC HYDROLOGY of 1928/29-1934 AND LONGER PERIODS

The focus on 2022 or segments thereof alone should not be allowed to permit the export of water (whether transfer water or stored water) which may be needed to meet water quality objectives and other needs within the Delta and other watersheds of origin.

A break down for each year starting with Water Year 2020 through Water year 2026 should include September 30 carryover storage in each year, the quantity of water for contract delivery to watershed users as well export contractors and the pumping of water for all other purposes including transfer water. Such data should for each month.

A comparable analysis should be required for a more conservative climate change influenced six-year drought.

An independent review of such analysis such as by the Independent Science Group of the Delta Stewardship Council is needed. The conflicts of interest and political reality is apparent and should not be ignored. The gap between water supply and demand appears to be in the range of 8 million acre feet per year and continuing the plan and practice of temporary changes to water quality standards and water rights to facilitate exports from the Delta watershed will only increase the gap.

INDEPENDENT SCIENTIFIC REVIEW SHOULD BE REQUIRED FOR THE TEMPERATURE MANAGEMENT PLAN AND OTHER FISHERY REQUIREMENTS AS THE TRACK RECORD OF MANAGEMENT BY CONFLICTED ENTITIES AND PARTIES HAS BEEN UNACCEPTABLE. CONCURRENCE BY THE SWRCB IN THE TMP AND THE OTHER FISHERY RELATED PROTECTIONS SHOULD ALSO BE REQUIRED

Export of water from the Delta watershed is counterproductive to minimizing and fully mitigating the take of listed species. It appears, however, that in very wet periods the harm could be minimized. The export pumps and screens physically kill fish, the diversion facilities increase predation and the changes in flow and degradation of water quality have major impacts. The export of flow passing into and through the Bay-Delta Estuary by way of isolated conveyance facilities is simply not consistent with minimizing the take of listed species.

There is substantial evidence that minimizing impacts to fish would appear to require no export. Retention of water flowing into and through the Delta to the Bay helps dilute the harmful toxins and other constituents in the Delta which are harmful to human health and safety and fish.

CREATION OF HABITAT AS A SUBSTITUTE FOR REDUCING SWP AND CVP EXPORT OF WATER NEEDED TO PROVIDE ADEQUATE WATER FLOW AND QUALITY FOR FISH AND OTHER DELTA NEEDS DOES NOT APPEAR TO BE WORKING

There is strong evidence indicating that fish need water flowing into and out of the Delta to the Bay to control temperature, dilute toxins and provide other fishery needs. The timing and amounts are the subject of ongoing evaluation.

The SWP and CVP affect flow into and out of the Delta primarily through diversions to storage, direct diversions from the tributaries and diversions from locations in the Delta to areas outside the Delta. The reliability of water supply for fish at times directly conflicts with the reliability of the water supply for SWP and CVP deliveries for other purposes and in particular exports from the Delta. The priorities for providing such reliability are established by law.

Water Code Section 85086 of the Delta Reform Act of 2009 assigned to the SWRCB the task of determining instream flow needs and new flow criteria for the Delta ecosystem necessary to protect public trust resources. Such determinations have not yet been completed, but operation plans facilitating exports are moving forward.

Driving the need for ecosystem restoration is the need to address the dramatic decline in fish species and in particular those in danger of extinction. The proposition to facilitate greater exports is to substitute habitat in the Delta and other measures for flow into and through the Delta. The impact of SWP and CVP exports on the amount of flow into and through the Delta from diversion to storage and direct diversion is discounted.

The correlation between SWP and CVP exports and the decline of the fisheries has been a concern for many years. In August of 1978 the State Water Resources Control Board rendered its Water Right Decision 1485. The Decision was the culmination of 32 days of evidentiary hearing initiated on November 15, 1976 and concluded on October 7, 1977. At that time the striped bass index was considered to be the indicator of ecosystem health for the Delta and Suisun Marsh. Striped bass were in effect the “canary in the coal mine” and the focus was on maintaining favorable conditions for the null zone in Suisun

Bay. As the years passed and striped bass populations plummeted, the water exporters claimed striped bass to be invasive species, predators on endangered species and a major cause of fish declines wrongfully attributed to the export of water. The canary died and the death was ignored to facilitate greater exports. As Attachments S,T,U&V show, striped bass, steelhead, Delta smelt, fall-run Chinook salmon and winter-run Chinook salmon all co-existed at relatively high populations at lower export levels.

In 1978 the SWRCB concluded in D-1485 at page 13 that:

“To provide full mitigation of project impacts on all fishery species now would require the virtual shutting down of the project export pumps.” (See Attachment W.)

The SWRCB also concluded in D-1485 at page 14 that:

“Full protection of Suisun Marsh now could be accomplished only by requiring up to 2 million acre feet of fresh water outflow in dry and critical years in addition to that required to meet other standards.” (See Attachment W.)

Exports from the Delta were not curtailed and the additional 2 million acre feet of outflow was not provided for the marsh.

Attachments S,T,U&V show that significant declines in fish populations commenced when annual exports reached 2 million acre feet. Increased development in the watersheds and the effects of climate change would indicate that additional surplus water yield would have to be developed to provide a comparable level of fish protection for the future and maintain even the 2 million acre feet of exports much less the full amount of export contracts. Little or no export water in dry years and more in wet years would likely help but the Delta watershed cannot produce the needed water. The planners of the SWP determined that by the year 2000 no water would be available for export without major water development in the North Coast.

An examination of the fish population graphs indicates that restoration of the ecosystem for fish is not correlated with Delta wetland habitat conditions in the 1850's or at all. The likely relationship is to water conditions, including exports from the Delta. Exports remove flow from the Delta. Diversions to storage for the purpose of export remove and impact the timing of flow into and from the Delta.

The Delta was fully leveed and reclaimed by about 1930.

“By 1930 all but minor areas of the swampland had been leveed and were in production.” (See page 8 of December 1960 Bulletin 76 – Attachment X.)

The USACE completed project levee construction on the San Joaquin River in the early 1960's. There are no significant changes in leveed areas or even riverine habitat which

appear to be the cause of the decline of the fisheries. In fact, there have been increases in Delta wetland habitat, including tidal wetland, during the periods of apparent decline. Mildred Island flooded in 1983 and has not been reclaimed. Little Mandeville and Little Frank's Tract flooded in the 1980's and have not been reclaimed. Lower Liberty Island levees were not restored, and the area has been in a tidal wetland condition since at least 2002.

The focus on conversion of Delta land to habitat as a substitute for water for fish is misplaced and the result of the inappropriate commitment to increase exports. Adequate analysis has not been done to determine if development of shallow tidal and other wetland habitat in the Delta and other locations is actually detrimental to salmon and other anadromous fish. In particular, stranding and predation from otters, egrets, herons, cormorants, gulls, white pelicans and the like have been identified as a serious concern.

Water Code §85021 which provides:

“§85021. Reduction of reliance on Delta for future water supply needs

The policy of the State of California is to reduce reliance on the Delta in meeting California's future water supply needs through a statewide strategy of investing in improved regional supplies, conservation, and water use efficiency. Each region that depends on water from the Delta watershed shall improve its regional self-reliance for water through investment in water use efficiency, water recycling, advanced water technologies, local and regional water supply projects, and improved regional coordination of local and regional water supply efforts.”

The legislative intent to increase not diminish protection for the Delta and other areas of origin is made especially clear in the adoption of Water Code section 85031(a) which provides:

“(a) This division does not diminish, impair, or otherwise affect in any manner whatsoever any area of origin, watershed of origin, county of origin, or any other water rights protections, including, but not limited to, rights to water appropriated prior to December 19, 1914, provided under the law. This division does not limit or otherwise affect the application of Article 1.7 (commencing with Section 1215) of Chapter 1 of Part 2 of Division 2, Sections 10505, 10505.5, 11128, 11460, 11461, 11462, and 11463, and Sections 12200 to 12220, inclusive.” (Emphasis added.)

The obligation of the projects to provide salinity control and an adequate water supply sufficient to maintain and expand agriculture, industry, urban, and recreational development in the Delta was made clear.

Reliability of water supply for exports from the Delta must be junior to the needs and obligations requiring water in the Delta and other areas of origin including fish and

wildlife needs. The modeling and analysis should provide a clear confirmation of the types and numbers of years when no water will be available for export and provide estimates of the amounts that might be available in other years. Care should be taken to model carryover storage requirements with due consideration of meeting temperature, flow and statutory requirements to determine the firm yield available for export.

Reliability of water supply for Northern California requires that water to meet the needs of and obligations to restore and even enhance Delta fish, wildlife and agriculture not be exported.

Both State and Federal laws seek to prevent degradation of water quality but the collaboration of the State and federal water projects and the State and Federal regulating agencies at best lack enthusiasm when it relates to the SWP and CVP operations.

There has been no progress on addressing the condition of the San Joaquin River and the degraded quality of water returning to the Delta by way of the San Joaquin River from SWP and CVP operations which will deliver more water to the west side of the San Joaquin Valley. The delivery of such water to the San Luis Unit was prohibited by the San Luis Act of 1960 unless there was a Valley Drain with an outlet to the ocean. (See Attachment Y). The prohibition was circumvented. Even the promise that “A much needed drainage system and water supply will be provided in the San Joaquin Valley” included in ballot argument in favor of the California Water Resources Development Act (SWP) was not kept. (See Attachment Z). Current efforts seek to maintain and increase exports from the Delta to the west side of the San Joaquin Valley which degrade Delta water quality. Even the export of water for refuges and health and safety can add to the degradation. Water transfers from the Delta watershed, changes in places of use, increases in Project service areas, elimination of restrictions on transfers of Project contract water and allowing Project Contractors to profit from the sale of Project water have added to the problem. Adding water with salts to an already saline degraded basin without a real drainage solution is unreasonable, not in the public interest and in violation of the public trust.

EXPORT OF WATER FROM THE DELTA EVEN FOR SOCALLED HEALTH AND SAFETY IS NOT JUSTIFIABLE WHEN WATER QUALITY STANDARDS FOR PROTECTION OF THE DELTA INCLUDING HEALTH AND SAFETY ARE NOT BEING MET

Water pumped from the Delta by the SWP and CVP pumps goes into a series of reservoirs and canals serving multiple purposes where it is commingled. Adding 55 gallons per day per person of exports to any particular service area is not a reasonable approach justifying reduction of health and safety protection by violating Delta water quality standards.

There are programs already in place for funding and assistance to those communities lacking safe water supplies. Such efforts are focused on the particular need

and do not create a health and safety for others. Many of such efforts may be in agricultural areas where better agricultural surface or groundwater can be supplied by reducing irrigation of a relatively small number of acres. Municipal and other developed areas may be able to reduce water supply to nonessential uses such as water features in parks, golf courses and in some cases even water supplied to cannabis growing warehouses. In all cases a local solution using local supplies is a more reasonable solution.

The Governor's May 10, 2021 specifically provides in Order 10:
"To proactively prevent situations where a community runs out of drinking water, the Water Board, the Department of Water Resources, the Office of Emergency Services, and the Office of Planning and Research shall assist local agencies in identifying acute drinking water shortages in domestic water supplies, and shall work with local agencies in implementing solutions to those water shortages."

It is our understanding that such a process is already being implemented.

THERE IS NO JUSTIFICATION IN LAW OR LOGIC TO FAVOR THE NEEDS FOR WATER EXPORTED FROM THE DELTA OVER THE NEEDS WITHIN THE DELTA AND ITS WATERSHED. THE LIMITATION OF EXPORTS TO WATER WHICH IS TRULY SURPLUS TO THE PRESENT AND FUTURE NEEDS WITHIN THE DELTA WATERSHED

Harming one area of the State to facilitate economic development in another part is not reasonable. The needs served by exported water are not more important than the needs in the Delta watershed. Whether the need is for agriculture, waterfowl, health and safety or otherwise. The policy and law are clear that needs in the Delta and its watershed which naturally have water have priority. As cited above:

"California Water code affords a first priority to provision of salinity control and maintenance of an adequate water supply in the Delta for reasonable and beneficial uses of water and relegates to lessor priority all exports of water from the Delta for any purpose".

Water exported from the Delta whether stored in San Luis Reservoir or other containments or water banks which was previously delivered without regard to meeting Delta water quality standards in future years should, if necessary, be recaptured by the SWP and CVP to meet salinity control and other needs in the Delta and its watershed.

The reduction in salinity control from 4,000 cubic feet per second to 3,000 cubic feet per while at the same time allowing exports of 1,500 cubic feet per second or more is clearly wrong and should not be repeated. There was water exported from the Delta in San Luis Reservoir that could have been used to meet any export needs as well as salinity control needs in the Delta.

The SWP and CVP facilities and water deliveries affecting flows into and from the Delta Watershed must be included in addressing the need to mitigate the impacts of and meet the obligations of the SWP and CVP for salinity control and preservation and enhancement of fish and wildlife in the Delta Watershed.

WATER TRANSFERS AND CHANGES TO WATER RIGHTS INCLUDING TEMPORARY CHANGES SHOULD NOT BE ALLOWED IF SUCH DIRECTLY OR INDIRECTLY RESULT IN EXPORTS FROM THE DELTA WHILE WATER QUALITY AND SALINITY CONTROL STANDARDS WITHOUT RELAXATION ARE NOT BEING MET OR IF SUCH ADVERSELY IMPACT THE SWP and CVP ABILITY TO MEET SUCH STANDARDS IN FUTURE YEARS

Water transfers and most changes are motivated by the opportunity for profit. The urgent need of the Permittee is typically to take advantage of trading water for money. The water involved is typically not surplus water legally stored and available without impacts in transport and export. Those which involve fallowing and direct or indirect groundwater substitution could adversely impact the quality timing and quantity of flow entering the Delta. Transfers and changes in the export service areas could affect the amount and timing of degradation of the quality of the San Joaquin River and the availability San Luis Reservoir Water needed to meet SWP and CVP obligations in the Delta.

Settlement Contract Water based on riparian rights should be limited to use on the riparian land and not be transferrable. Its use should be similar to what the riparian use would have been or incorporated into a physical solution mitigating all downstream adverse impacts including water quality, river and stream losses and accretions.

Until such time as we know whether or not the SWP and CVP can provide Salinity Control there should be a moratorium on exports of transfer or any water by way of the SWP or CVP facilities.

Yours very truly,

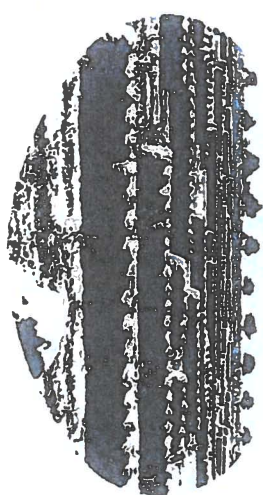
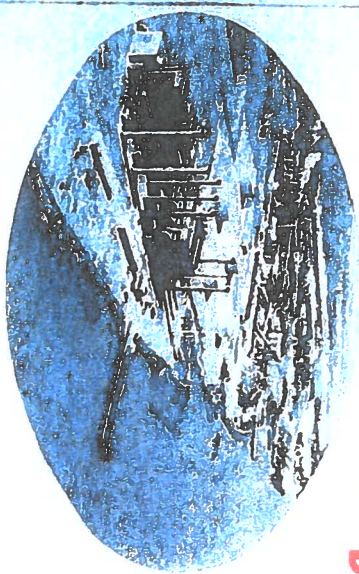


DANTE JOHN NOMELLINI, SR.
Secretary and Co-counsel

Preliminary Edition

Bulletin No. 76

DELTA WATER FACILITIES



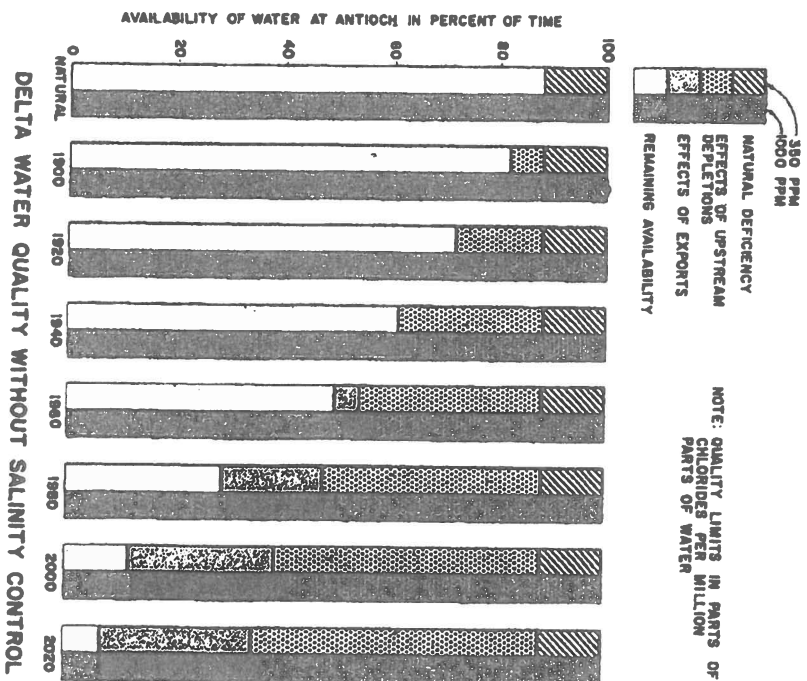
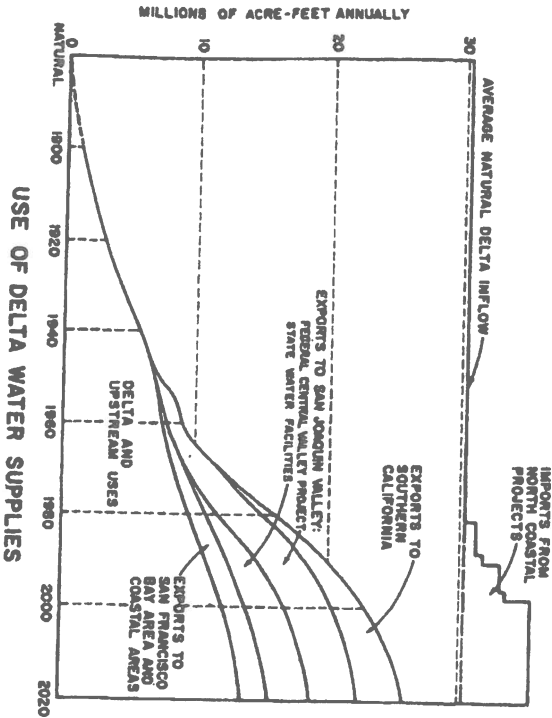
EDMUND G. BROWN
Governor
State of California



December, 1960

HARVEY O. BANKS
Director
Department of Water Resources

The natural availability of good quality water in the Delta is directly related to the amount of surplus water which flows to the ocean. The graph to the right indicates the historic and projected availability of water in the San Joaquin River at Antioch containing less than 350 and 1,000 parts chlorides per million parts water, under long-term average runoff and *without* specific releases for salinity control. It may be noted that even under natural conditions, before any significant upstream water developments, there was a deficiency of water supplies within the specified quality limits. It is anticipated that, without salinity control releases, upstream depletions by the year 2020 will have reduced the availability of water containing less than 1,000 ppm chlorides by about 60 percent, and that exports will have caused an additional 30 percent reduction.



The magnitude of the past and anticipated future uses of water in areas tributary to the Delta, except the Tulare Lake Basin, is indicated in the diagram to the left. It may be noted that, while the present upstream use accounts for reduction of natural inflow to the Delta by almost 25 percent, upstream development during the next 60 years will deplete the inflow by an additional 20 percent. By that date about 22 percent of the natural water supply reaching the Delta will be exported to areas of deficiency by local, state, and federal projects. In addition, economical development of water supplies will necessitate importation of about 5,000,000 acre-feet of water seasonally to the Delta from north coastal streams for transfer to areas of deficiency.

CHAPTER 2: HYDROCLIMATE BACKGROUND ON DROUGHT IN CALIFORNIA

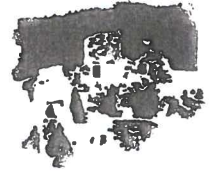
Table 2.1: Dry Periods in Combined Reconstructed and Instrumental Periods

Klamath River at Kesop		Sacramento River at Yuba City		San Joaquin River at Yuba City	
Years	Length, years	Years	Length, years	Years	Length, years
1515-1522	8	921-924	4	946-950	5
1540-1543	4	945-950	6	977-981	5
1547-1552	6	975-981	7	1072-1075	4
1578-1582	5	1072-1075	4	1143-1148	6
1592-1597	6	1130-1136	7	1155-1158	4
1642-1646	5	1143-1148	6	1172-1177	6
1648-1668	21	1150-1158	9	1210-1213	4
1738-1744	7	1170-1177	8	1233-1239	7
1756-1761	6	1233-1239	7	1294-1301	8
1764-1767	4	1292-1301	10	1395-1402	8
1775-1779	5	1390-1393	4	1407-1410	4
1783-1787	5	1395-1400	6	1425-1428	4
1792-1798	7	1407-1410	4	1450-1461	12
1843-1846	4	1425-1432	8	1463-1466	4
1848-1852	5	1451-1457	7	1471-1483	13
1873-1876	4	1475-1483	9	1505-1508	4
1880-1884	5	1515-1521	7	1518-1523	6
1912-1915	4	1540-1543	4	1540-1545	6
1917-1920	4	1569-1572	4	1569-1572	4
1924-1935	12	1578-1582	5	1578-1582	5
1987-1992	6	1592-1595	4	1592-1595	4
		1636-1639	4	1629-1632	4
		1645-1648	4	1645-1648	4
		1652-1655	4	1652-1655	4
		1753-1760	8	1688-1691	4
		1780-1783	4	1753-1757	5
		1783-1846	4	1780-1783	4
		1856-1859	4	1793-1796	4
		1917-1922	6	1843-1846	4
		1926-1935	10	1855-1859	5
		1946-1951	6	1928-1931	4
		1959-1962	4	1946-1950	5
		1987-1992	6	1959-1962	4
				1987-1992	6
				2000-2004	5

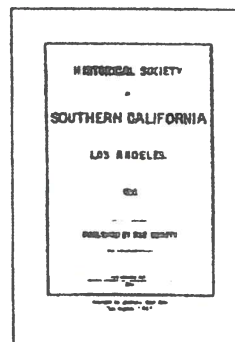
Data courtesy of Dave Meko, University of Arizona

The Medieval Climate Anomaly

The Medieval Climate Anomaly in North America (sometimes called the medieval warm period or medieval climate optimum) is considered to span from as early as about 800 AD to as late as 1300



AD depending on the specific location. The warmer (and in some places, drier, climate) has been linked with historical events such as Norse settlement of Greenland and Iceland and changing settlement patterns in some Southwestern ancestral Pueblo communities whose agricultural production may have been affected by drought conditions. This time period is associated with severe droughts in the Southwest and California. Paleodimate data and climate modeling suggest that this period was characterized by cool surface waters in the eastern Pacific Ocean, or La Niña-like conditions (e.g., Seager et al. 2007).



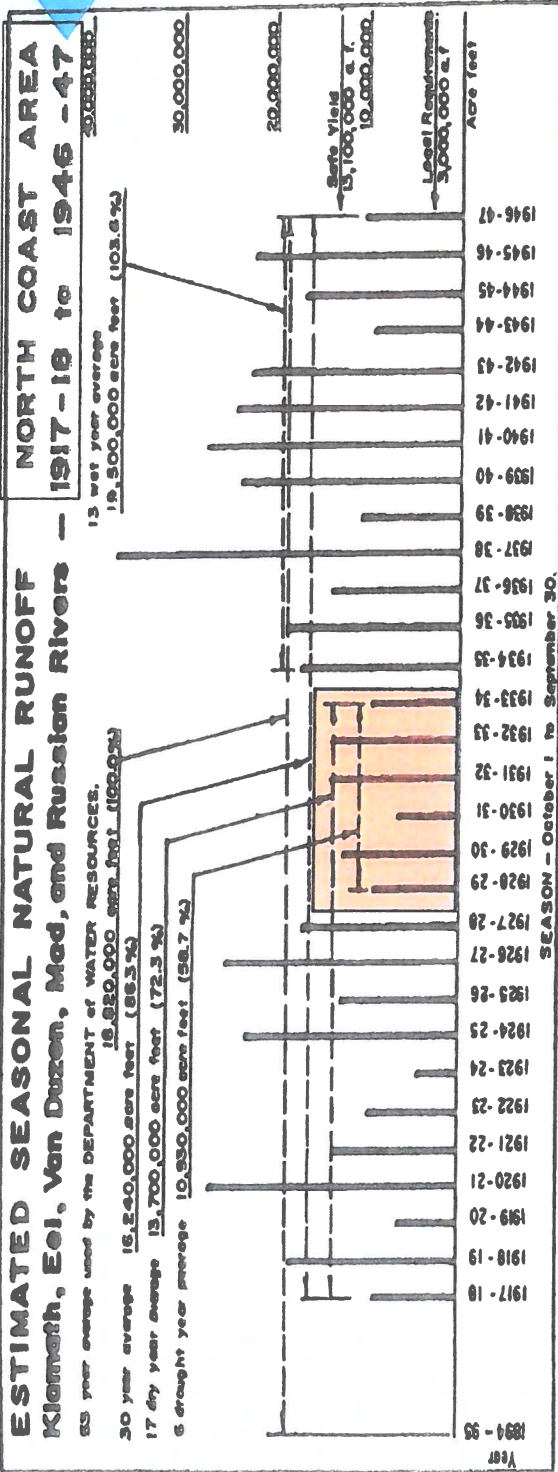
The Great Drought of 1863-64

An excerpt from
Exceptional Years: A History of California Floods and Droughts
J.M. Guinn, 1890

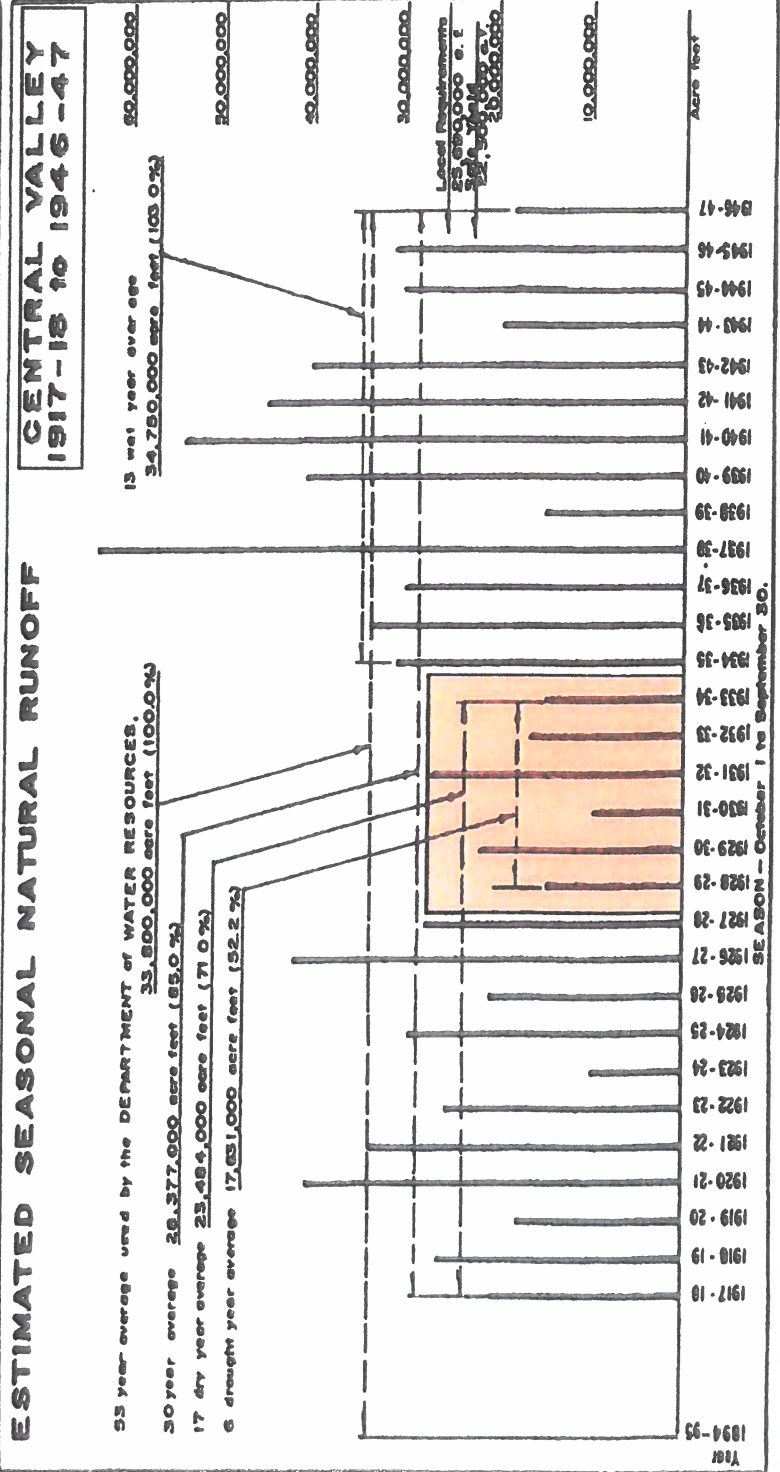
1862-63 did not exceed four inches, and that of 1863-64 was even less. In

the fall of 1863 a few showers fell, but not enough to start the grass. No more fell until March. The cattle were dying of starvation. . . . The loss of cattle was fearful. The plains were strewn with their carcasses. In marshy places and around the cienegas, where there was a vestige of green, the ground was covered with their skeletons, and the traveler for years afterward was often startled by coming suddenly on a veritable Golgotha – a place of skulls – the long horns standing out in defiant attitude, as if protecting the fleshless bones.

WEBER FOUNDATION STUDIES



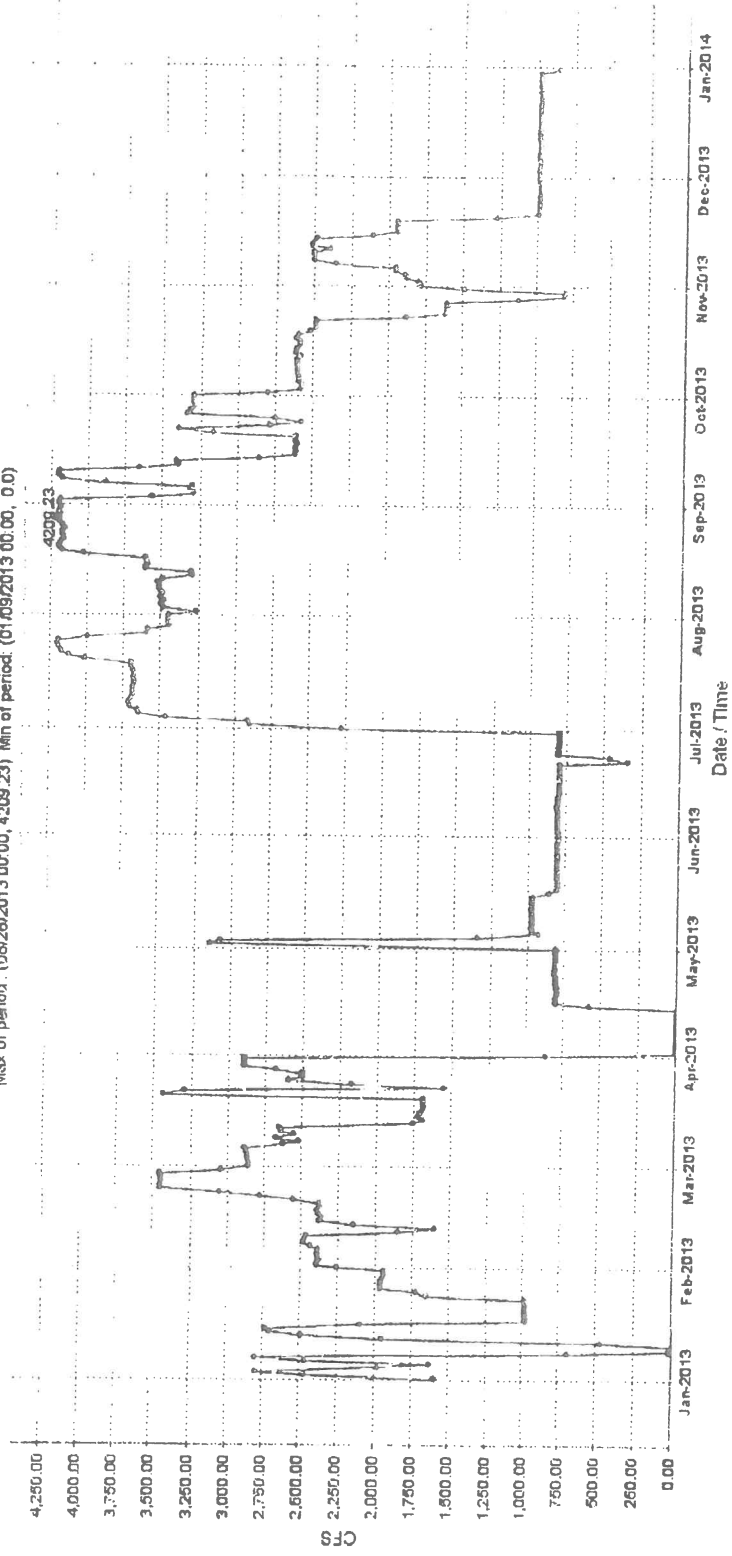
Surplus
7,930,000 AF/YF



SHORTAGE
8,049,000 AF/Y

TRACY PUMPING PLANT (TRP)

Date from 12/31/2012 13:45 through 12/31/2013 13:45 Duration : 365 days
Max of period : (08/29/2013 00:00, 4309.23) Min of period: (01/09/2013 00:00, 0.0)

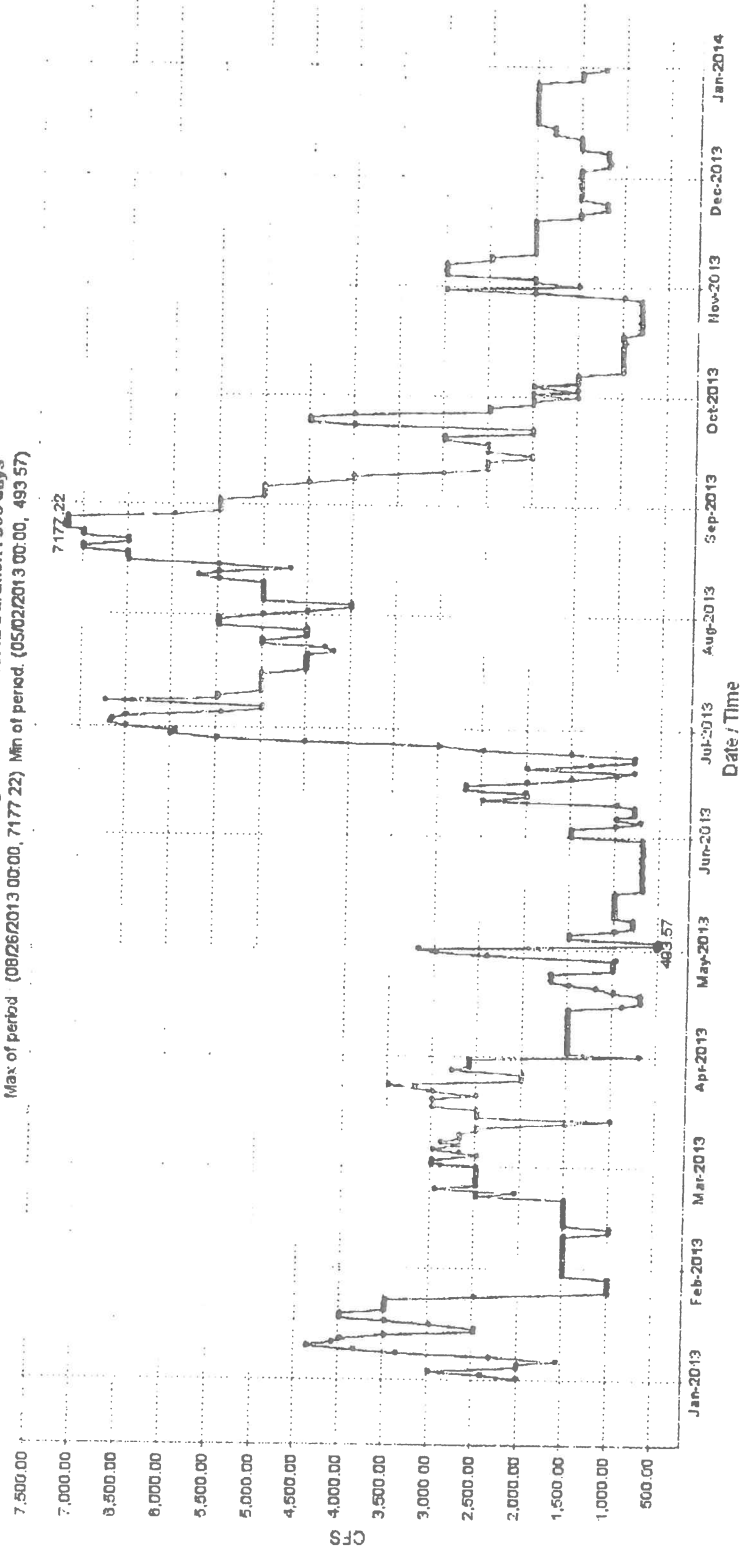


Generated on Tue Aug 30 13:49:59 PDT 2016

Plot all TRP Sensors | Real-Time TRP Data | TRP Data | Daily TRP Data | Show TRP Map | TRP Info

CLIFTON COURT (CLC)

Date from 12/31/2012 13:42 through 12/31/2013 13:42 Duration: 365 days
Max of period: (08/26/2013 00:00, 7177.22) Min of period: (05/02/2013 00:00, 493.57)



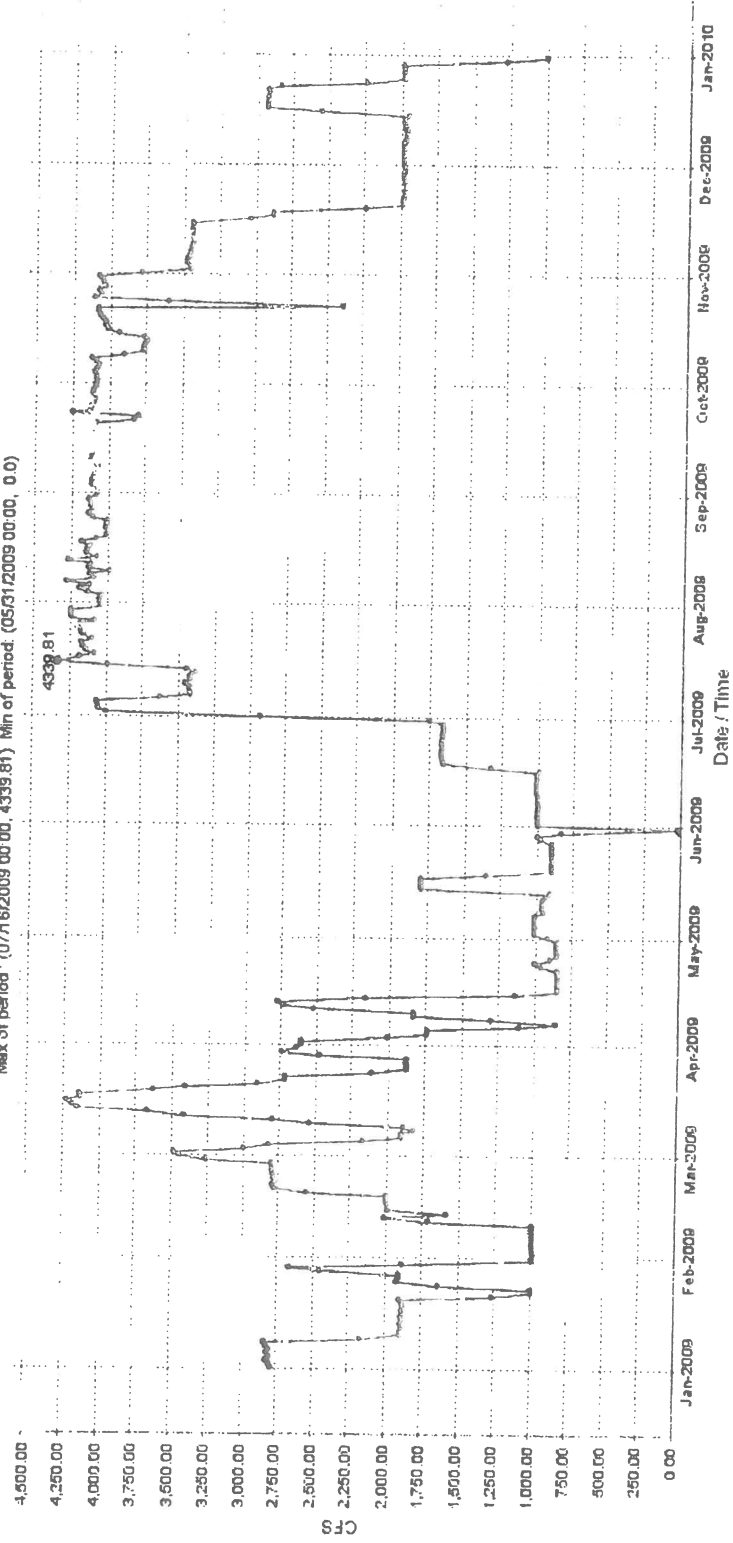
RESERVOIR INFLOW - CFS (16520)

Generated on Tue Aug 30 13:43:16 PDT 2016

Plot all CLC Sensors | Real-Time CLC Data | CLC Data | Daily CLC Data | Show CLC Map | CLC Info

TRACY PUMPING PLANT (TRP)

Date from 12/31/2008 13:45 through 12/31/2009 13:45 Duration: 365 days
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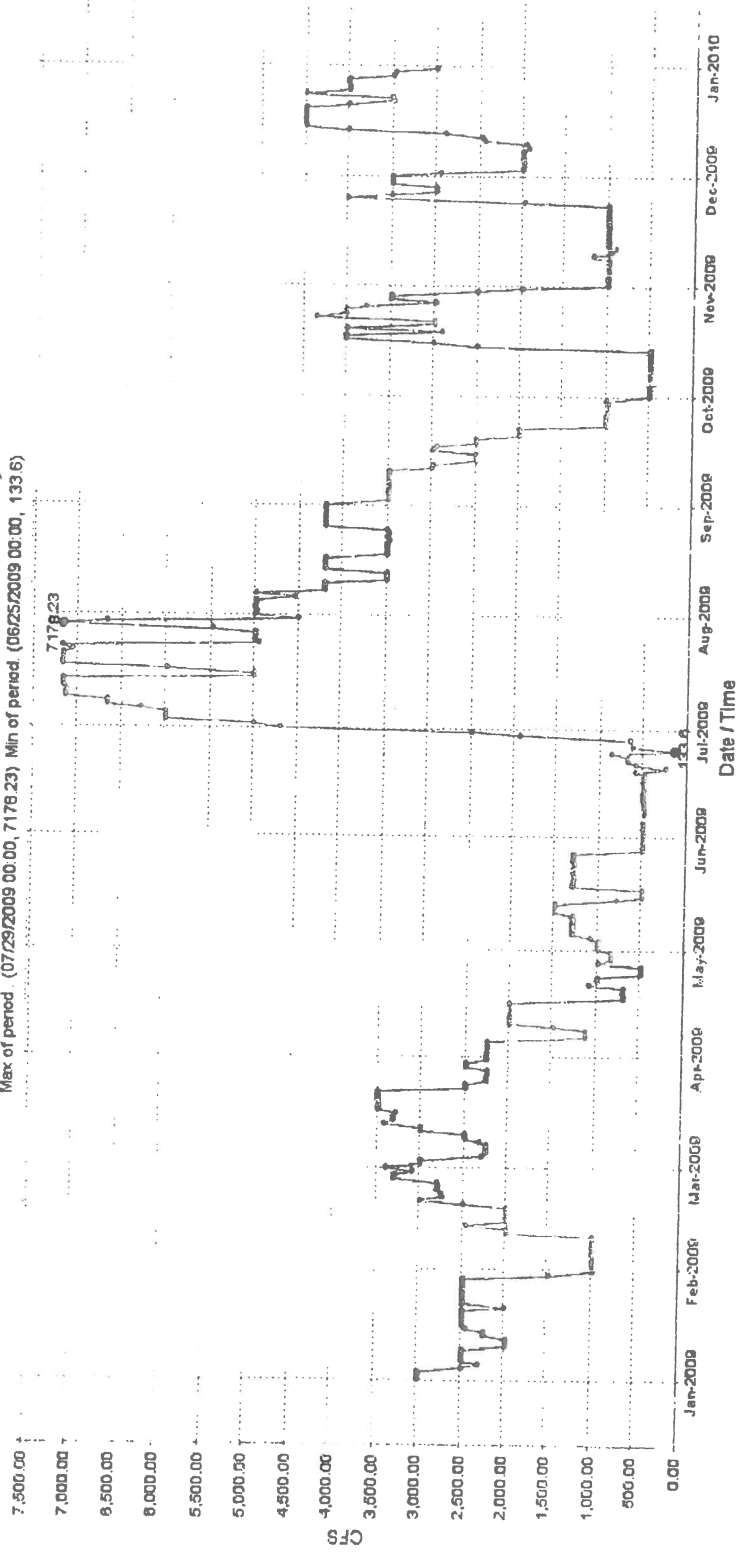
← DISCHARGE PUMPING - CFS (4448)

Generated on Tue Aug 30 13:46:20 PDT 2016

Plot all TRP Sensors | Real-Time TRP Data | TRP Data | Daily TRP Data | Show TRP Map | TRP Info

CLIFTON COURT (CLC)

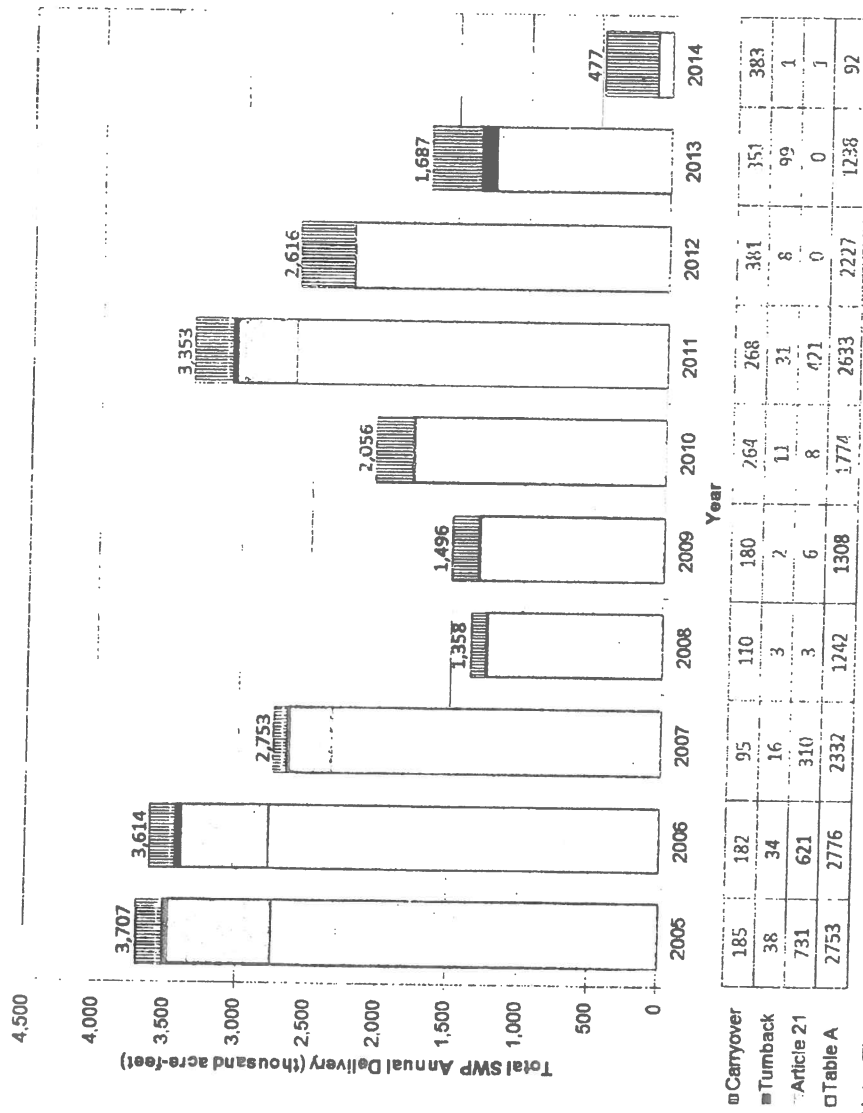
Date from 12/31/2008 13:42 through 12/31/2009 13:42 Duration : 365 days
Max of period : (07/29/2009 00:00, 7176.23) Min of period : (06/25/2009 00:00, 133.6)



RESERVOIR INFLOW - CFS (16520)

Generated on Tue Aug 30 13:44:51 PDT 2016

Plot all CLC Sensors | Real-Time CLC Data | CLC Data | Daily CLC Data | Show CLC Map | CLC Info



Note: The differences in historical deliveries from the State Water Project Delivery Reliability Report 2013 are due to reclassification of the various components of water delivered to SWP contractors

Figure 5-2. Total Historical SWP Deliveries, 2005–2014 (by Delivery Type)



State Water Resources Control Board

Ronald Milligan, Operations Manager
Central Valley Operations Office
U.S. Bureau of Reclamation
3310 El Camino Avenue, Suite 300
Sacramento, CA 95821

David H. Roose, Chief
SWP Operations Control Office
California Department of Water Resources
Division of Operations and Maintenance
3310 El Camino Avenue, Suite 300
Sacramento, CA 95821

Dear Messrs. Milligan and Roose:

ACTIONS TO CONSERVE COLD WATER POOL IN SHASTA RESERVOIR FOR FISHERY RESOURCES

This letter responds to your May 24, 2013 letter to Thomas Howard, Executive Director for the State Water Resources Control Board (State Water Board) regarding unprecedented dry conditions in the Sacramento Valley and needed actions to protect cold water pool (CWP) resources for fisheries purposes. In your letter you request that the State Water Board acknowledge that the water year classification for the Sacramento Valley contained in State Water Board Decision 1641 (D-1641, Figure 1, page 188) does not accurately reflect the unprecedented dry conditions that have occurred since January of this year, which are characteristic of a critically dry year determination. Specifically, you propose that the Bureau and Department comply with critically dry water year requirements for certain Delta water quality objectives instead of dry year requirements in order to conserve CWP resources in Shasta Reservoir needed to protect Chinook salmon this season.

Background

The State Water Board was first contacted regarding this matter on May 17, 2013, by Maria Rea, Supervisor of the Central Valley Office of the National Marine Fisheries Service (NOAA Fisheries). Ms. Rea emailed Mr. Howard expressing concerns that planned Shasta Reservoir releases to meet Delta water quality objectives required by D-1641 would impact winter-run Chinook salmon by depleting already low Shasta Reservoir CWP resources. Ms. Rea requested that the agencies meet as soon as possible to discuss this matter.

In the midst of these discussions, on May 20, 2013, Governor Edmund G. Brown Jr. issued an Executive Order (B-21-13) outlining California's exceptionally dry water year conditions and ordering that the Department and the State Water Board expedite the review of water transfers to address the dry conditions and water delivery limitations. As outlined in Executive Order B-21-13:

- much of California experienced record dry conditions in January through March 2013, registering historic lows on the Northern Sierra and the San Joaquin precipitation indices; and

FELICIA MARCUS, CHAIR | THOMAS HOWARD, EXECUTIVE DIRECTOR

1001 I Street, Sacramento, CA 95814 | Mailing Address: P.O. Box 100, Sacramento, Ca 95812-0100 | www.waterboards.ca.gov

Mr. Ronald Milligan
Mr. David H. Roose

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- record dry and warm conditions resulted in a snowpack substantially below average, with estimated May water content in the statewide snowpack being only 17 percent of average and with the spring snowmelt season now being well underway.

On May 22, 2013, State Water Board staff met with staff from the Bureau and Department to discuss possible Shasta Reservoir CWP actions. On May 24, 2013, State Water Board staff again met with staff from the Department and Bureau as well as staff from NOAA Fisheries, the U.S. Fish and Wildlife Service (USFWS), and the California Department of Fish and Wildlife (CDFW) (collectively fisheries agencies) to discuss Shasta Reservoir CWP actions. The fisheries agencies agreed on the need to take actions to conserve CWP resources in Shasta Reservoir and concurred with a proposal that the Department and Bureau operate to meet critically dry year requirements for the Western and Interior Delta water quality objectives for the protection of agriculture included in Table 2 of D-1641 (page 182), which include the following stations:

- Sacramento River at Emmaton, Station D-22;
- San Joaquin River at Jersey Point, Station D-15;
- South Fork Mokelumne River at Terminus, Station C-13; and
- San Joaquin River at San Andreas Landing, Station C-4.

The fisheries agencies requested additional time and discussion to consider any further actions related to Delta outflow or other requirements due to potential fisheries related impacts. On May 24, 2013, Carl Wilcox of the CDFW and Maria Rea of NOAA Fisheries sent emails to State Water Board staff in support of the proposal that the Bureau and Department operate to meet critically dry year conditions for the above mentioned Western and Interior Delta compliance stations through August 15, 2013 (attached). On May 28, 2013, Michael Chotkowski with the USFWS also submitted an email of support for the changes mentioned above (attached).

Prior to receipt of your letter on May 24, 2013, Mr. Howard sent an initial response regarding this matter indicating that, in the interest of making the best use of limited water supplies and maintaining cold water pool storage in Shasta Reservoir, the State Water Board staff will not recommend taking any action if the projects operate to meet the critically dry year objectives for the Western and Interior Delta agricultural objectives, instead of operating to meet dry year objectives through August 15, 2013. Mr. Howard indicated that the intent to not take any action was conditioned on submittal of a temperature management plan pursuant to State Water Board Order 90-5 within one week of May 28, 2013, and operation in accordance with the plan, and any further conditions determined by the Executive Director of the State Water Board. Mr. Howard also indicated that the Bureau and Department will be required to include a water accounting under the change in operations. Mr. Howard indicated that we would follow up after receipt of a specific request from the Bureau and Department.

Proposal

In your letter you propose to meet critically dry year requirements pursuant to D-1641 for the Sacramento Valley, including requirements included in Table 3 for the protection of fish and wildlife, in order to conserve CWP resources. In your letter, you state that, although the January through April period during 2013 was the driest on record, the November and December

Mr. Ronald Milligan
Mr. David H. Roose

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precipitation was sufficient to result in a Sacramento Valley classification of "dry" for water year 2013. Your letter further states that nearly 80 percent of this water year's precipitation occurred in October, November and December 2012, and an abnormally large portion of this fell as rain rather than snow as a result of warmer than normal conditions for that time of year. This combined with critically dry conditions in the months since the first of the year has resulted in minimal snow pack in the Sierra Nevada in the critical spring months. As of May 1, 2013, the Northern Sierra snowpack was only about 48 percent of the historical April 1 value and about 17 percent of normal. Further, you point out that unusually high stream depletions in the Sacramento Valley have also contributed to reduced storage levels.

Your letter explains that meeting dry year objectives could jeopardize the Bureau and Department's ability to meet objectives designed to protect fisheries later in the year. In particular, the Bureau has expressed concern that it may not be able meet the temperature requirement necessary to protect salmon present in the Sacramento River during the summer and fall if the CWP in Shasta Reservoir continues to be depleted. You state that operating to meet critically dry water year requirements for the Western and Interior Delta from May through August 15 of this year could result in a gain of approximately 115 thousand acre-feet (TAF) of water in upstream reservoirs at the end of September. You indicate that including the Delta outflow requirement (included in Table 3 of D-1641) for the same period would increase the gain in reservoir carryover storage to approximately 185 TAF. You further indicate that compliance with critically dry conditions will result in water quality conditions in the North Delta that are consistent with the current hydrology.

Response to Proposal

Article X, section 2 of the California Constitution sets forth a directive to maximize the reasonable and beneficial use of the State's waters. As such, this constitutional mandate provides an important consideration where statutory water rights provisions vest discretion in the State Water Board. We have reviewed the unique factors of your request and the recommendations of the fisheries agencies. As the person delegated by the State Water Board to act on water right permit terms that apply to conditions in the Delta, I will not object or take any action if the Bureau and Department operate to meet critically dry year objectives for Western and Interior Delta agricultural beneficial uses included in Table 2 of D-1641 instead of operating to meet dry year objectives through August 15, 2013. This conclusion is conditioned as specified in the above mentioned email from the State Water Board's Executive Director Thomas Howard. Specifically, the Bureau and Department shall submit a temperature management plan pursuant to State Water Board Order 90-5 by June 4, 2013, and shall operate in accordance with the approved plan to maximize temperature benefits to fisheries resources. The Bureau and Department shall consult with the fisheries agencies concerning temperature management decisions and shall immediately inform the State Water Board regarding any fisheries agencies concerns and proposed resolution of those concerns. The Bureau and Department shall implement additional actions as determined by me or the Executive Director of the State Water Board. The Bureau and Department shall also submit a water accounting to the State Water Board under the change in operations by August 22, 2013.

I understand that Delta outflow requirements are not currently controlling operational decisions related to releases from Shasta Reservoir, but likely will be in the next several weeks. In order to determine whether any additional changes to operations to meet Delta outflow or other objectives required by D-1641 should be made to protect CWP resources, the Bureau and Department should immediately consult with the fisheries agencies and State Water Board staff.

Mr. Ronald Milligan
Mr. David H. Roose

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I will consider additional actions to conserve CWP resources upon receipt of input from the fisheries agencies on those matters.

In the future, the State Water Board staff and I expect discussions regarding compliance matters to begin as soon as potential issues are identified in order to allow the greatest flexibility to address these issues. The State Water Board will consider whether appropriate coordination took place in a timely manner when considering future enforcement action.

If you have any questions, please contact me at cwilson@waterboards.ca.gov or 916-445-5962. Written correspondence should be addressed as follows:

State Water Resources Control Board
Office of Delta Watermaster
Attn: Craig Wilson
P.O. Box 100
Sacramento, CA 95812

Sincerely,



Craig Wilson, Delta Watermaster
State Water Resources Control Board

Enclosures

cc: Thomas Howard, Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, CA 95812

Maria Rea, Central Valley Office Supervisor
National Marine Fisheries Service
650 Capitol Mall, Suite 5-100
Sacramento, CA 95814

Carl Wilcox
California Department of Fish and Wildlife
1416 9th Street
Sacramento, CA 95814

Kim Turner, Assistant Field Supervisor
U.S. Fish & Wildlife Service
650 Capitol Mall, Suite 8-300
Sacramento, CA 95814

cc: Continues on next page.

Mr. Ronald Milligan
Mr. David H. Roose

- 5 -

cc: Erin Foresman
USEPA Region 9
C/O NMFS 650 Capitol Mall
Sacramento, CA 95814

Melinda Terry, Manager
North Delta Water Agency
910 K Street, Suite 310
Sacramento, CA 95814

Dante Nomellini Jr.
Central Delta Water Agency
P.O. Box 1461
Stockton, CA 95201

Paul Fujitani
U.S. Bureau of Reclamation
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

John Leahigh
California Department of Water Resources
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

From: Wilcox, Carl@Wildlife [mailto:Carl.Wilcox@wildlife.ca.gov]
Sent: Friday, May 24, 2013 4:04 PM
To: Marcus, Felicia@Waterboards; Howard, Tom@Waterboards; Wilson, Craig@Waterboards; Grober, Les@Waterboards
Cc: Riddle, Diane@Waterboards; Leahigh, John@DWR; pfujitani@usbr.gov; Dibble, Chad@Wildlife; Maria Rea - NOAA Federal; Garwin.Yip@noaa.gov; Jennifer.norris@fws.gov; Kim.S.Turner@fws.gov
Subject: CDFW concurrence with proposed changes to Delta WQ standards requested by DWR and Reclamation

Board Chair Marcus,

This e-mail is to provide California Department of Fish & Wildlife (CDFW) support/concurrence regarding the U.S. Bureau of Reclamation's (Reclamation) and California Department of Water Resources' (DWR) proposal that the SWRCB change the Sacramento Valley Water Year Hydrologic Classification Index (40-30-30) water year type from "dry" to "critical" as it pertains to the Water Quality Objectives for Agricultural Beneficial Uses under D-1641 at the following Western Delta and Interior Delta monitoring stations:

- * Sacramento River at Emmaton, Station D-22;
- * San Joaquin River at Jersey Point, Station D-15;
- * South Fork Mokelumne River at Terminus, Station C-13; and
- * San Joaquin River at San Andreas Landing, Station C-4.

This request is to support applying the new water year classification as soon as possible, through August 15, 2013. The biggest benefit to changing the water year type for the specific water quality stations is increased storage in (or conversely, reducing the rate of drawdown of) Shasta Reservoir. This will likely benefit the life history needs of the 2013 cohorts of Chinook salmon, in addition to providing higher carryover storage (than otherwise would be realized) to begin water year 2014.

The proposal was discussed on a conference call today, Friday, May 24, among members of the SWRCB, Reclamation, DWR, U.S. Fish and Wildlife Service (USFWS), CDFW, and National Marine Fisheries Service (NMFS). In addition, the fish agencies conferred on the proposal and concur. The USFWS and NMFS will send separate e-mails expressing their support for the proposal. It is our understanding that a letter making the subject request will be forthcoming this afternoon. CDFW is providing this email concurrence to allow for a timely decision to maximize protection of Shasta storage to protect Chinook salmon. Any change in the formal submission by DWR and Reclamation to the SWRCB this afternoon from what is described above, will require re-evaluation by the CDFW before we could provide our concurrence.

Carl Wilcox
Policy Advisor to the Director for the Delta California Department of Fish and Wildlife
7329 Silverado Trail
Napa, CA 94558
Cell 707-738-4134
Office 707-944-5584
Carl.Wilcox@wildlife.ca.gov

From: Maria Rea - NOAA Federal [mailto:maria.rea@noaa.gov]

Sent: Friday, May 24, 2013 4:50 PM

To: Marcus, Felicia@Waterboards; Howard, Tom@Waterboards; Wilson, Craig@Waterboards; Grober, Les@Waterboards; Riddle, Diane@Waterboards

Cc: Garwin.Yip@noaa.gov; RMILLIGAN@usbr.gov; dfutilani@usbr.gov; Leahigh, John@DWR; Dan_Castleberry@r1. Gov; Wilcox, Carl@Wildlife

Subject: NMFS support for change petition to D-1641

Dear Felicia and Tom:

This e-mail is to provide NOAA's National Marine Fisheries Service's (NMFS) support/concurrence regarding the U.S. Bureau of Reclamation's (Reclamation) and California Department of Water Resources' (DWR) proposal. As I understand it, and as discussed on a conference call this morning among members of the SWRCB, Reclamation, DWR, U.S. Fish and Wildlife Service (USFWS), California Department of Fish and Wildlife (CDFW), and NMFS, Reclamation and DWR will request that the SWRCB change the Sacramento Valley Water Year Hydrologic Classification Index (40-30-30) water year type from "dry" to "critical" as it pertains to the Water Quality Objectives for Agricultural Beneficial Uses under D-1641 at the following Western Delta and Interior Delta monitoring stations:

- Sacramento River at Emmaton, Station D-22;
- San Joaquin River at Jersey Point, Station D-15;
- South Fork Mokelumne River at Terminus, Station C-13; and
- San Joaquin River at San Andreas Landing, Station C-4.

This request is to support applying the new water year classification as soon as possible, through August 15, 2013. The biggest benefit to changing the water year type for the specific water quality stations is increased storage in (or conversely, reducing the rate of drawdown of) Shasta Reservoir. This will likely benefit the life history needs of the 2013 cohorts of Chinook salmon, in addition to providing higher carryover storage (than otherwise would be realized) to begin water year 2014. For example, Reclamation is currently releasing 13,000 cfs from Keswick Dam partly as a result of the Delta Cross Channel being open over the Memorial Day weekend and partly because of the spring tide, but largely to maintain compliance with the Emmaton water quality standard. In addition, the May forecast at the 90% exceedance hydrology indicates that the projected end of September (EOS) carryover storage at Shasta Reservoir is 1.527 million acre feet (MAF). The NMFS biological opinion on the long-term operations of the Central Valley Project and State Water Project does not have a minimum EOS carryover storage requirement in Shasta Reservoir. However, although the requirements in Action 1.2.3.C pertain to the February forecast, it does acknowledge and provide for drought exception procedures if a Clear Creek Temperature Compliance Point or 1.9 MAF EOS storage is not achievable, indicating that the forecasted carryover storage of 1.527 MAF is very low.

In addition, the fish agencies conferred on the proposal as discussed this morning, and also concur. The USFWS and CDFW will send separate e-mails expressing their support for the proposal.

Please let me know if you have any questions or need more information. My cell phone number is (916) 799-2359.

- Maria

Marla Rea

Supervisor, Central Valley Office, NOAA Fisheries

From: "Chotkowski, Michael" <michael_chotkowski@fws.gov>
Date: May 28, 2013 6:21:50 PM PDT
To: <Felicia.Marcus@waterboards.ca.gov>, <Tom.Howard@waterboards.ca.gov>, <Craig.Wilson@waterboards.ca.gov>, <Les.Grober@waterboards.ca.gov>
Cc: <Diane.Riddle@waterboards.ca.gov>, "Leahigh, John@DWR" <John.Leahigh@water.ca.gov>, PAUL FUJITANI <PFujitani@usbr.gov>, "Dibble, Chad@Wildlife" <Chad.Dibble@wildlife.ca.gov>, Maria Rea - NOAA Federal <maria.rea@noaa.gov>, Garwin Yip - NOAA Federal <garwin.yip@noaa.gov>, "Jen Norris" <jennifer_norris@fws.gov>, Kim <kim_s_turner@fws.gov>, Roger Guinee <roger_guinee@fws.gov>
Subject: Update to: FWS concurrence with proposed changes to Delta WQ standards, as requested by Reclamation and DWR

Board Chair Marcus,

Note: This email supersedes one I sent earlier today, which reflected a misunderstanding on my part. Apologies. Please discard the earlier email and substitute this one.

This email expresses the U.S. Fish and Wildlife Service's (Service) support for the State Water Board's proposal to implement the U.S. Bureau of Reclamation (Reclamation) and California Department of Water Resources (DWR) request to change the 40-30-30 Sacramento Valley water year type from "dry" to "critical," specifically as it pertains to relaxing the D-1641 water quality objectives for agricultural beneficial uses at four stations in the western Delta:

- * Sacramento River at Emmaton, Station D-22;
- * San Joaquin River at Jersey Point, Station D-15;
- * South Fork Mokelumne River at Terminus, Station C-13; and
- * San Joaquin River at San Andreas Landing, Station C-4.

The proposed change to the water year type for the specific water quality stations would reduce drawdown of Shasta Reservoir. This will likely benefit the early life history needs of the 2013 cohorts of Chinook salmon, in addition to providing higher carryover storage (than otherwise would be realized) to begin water year 2014.

The change in EC standard at these stations would occur immediately and last through August 15, 2013. The Service supports implementation of the proposal on a one-time basis, so long as implementation does not affect management of OMR flow to protect juvenile delta smelt in accordance with the Service's 2008 OCAP Biological Opinion.

It is our understanding that some discussions related to possible changes in Delta outflow have yet to occur. We will evaluate proposals related to deviations from the D-1641 Delta outflow standards when/if they are proposed.

The Service will continue to work cooperatively with its Federal and State partners to ensure that the CVP and SWP operations provide adequate protection for Threatened and Endangered species while delivering water that benefits 25 million agricultural and urban water users throughout California.

—
Mike Chotkowski
Field Supervisor, Bay-Delta Fish and Wildlife Office
650 Capitol Mall, Suite 8-300
Sacramento CA 95814
(916) 930-5632 Office
(916) 812-0155 Cell



BUREAU OF RECLAMATION
Central Valley Operation Office
3310 El Camino Avenue, Suite 300
Sacramento, California 95821



DEPARTMENT OF WATER RESOURCES
Division of Operations and Maintenance
3310 El Camino Avenue, Suite 300
Sacramento, California 95821

IN REPLY REFER TO
CVO-100
WTR-4.10

MAY 24 2013

Thomas Howard
Executive Director
State Water Resources Control Board
1001 I Street
Sacramento, California 95814

Subject: State Water Resources Control Board Water Right Decision 1641 Water Year
Classification

Dear Mr. Howard:

The Department of Water Resources (DWR) and the United States Bureau of Reclamation (Reclamation) request that the State Water Resources Control Board (SWRCB) acknowledge that the water year classification for the Sacramento Valley based on the equation provided in Attachment 1, page 188 of Revised Water Rights Decision 1641 (D-1641) does not accurately reflect the unprecedented dry conditions experienced in 2013. Instead, the hydrologic conditions experienced between January and the present are characteristic of a "Critical" water year type. The current miscategorization in water year classification is projected to affect the storage of cold water pool for fisheries purposes due to controlling D-1641 Delta objectives in the May through August period. These objectives are:

- 1) EC parameters for Sacramento River at Emmaton (Interagency Station Number D-22), San Joaquin River at Jersey Point (Interagency Station Number D-15), South Fork Mokelumne River at Terminous (Interagency Station Number C-13), and San Joaquin River at San Andreas (interagency Station Number C-4) as defined in Table 2 on page 182
- 2) Delta Outflow, as defined on Table 3 on Page 184.

Water year classification also affects other objectives listed in D-1641 to a lesser degree, but it is not anticipated that those objectives will significantly control Delta operations in 2013.

Summary of Relevant Facts:

D-1641 imposes water quality objectives on the Central Valley Project (CVP) and State Water Project (SWP). Several of the objectives are dependent on the water year type as determined by the May 1, Sacramento Valley Index and the San Joaquin Valley Index. Although the January through April period during 2013 was the driest on record, the November and December precipitation was sufficient to result in a Sacramento Valley classification of "Dry" for water year 2013. The "Dry" water year classification is not representative of the extreme hydrological conditions in Northern California this calendar year and the water quality objectives based on this water year type could result in significant adverse impacts to the cold water pool operations at Shasta Reservoir. In fact, Governor Brown's recent executive order B-21-13 recognizes that, "much of California experienced record dry conditions in January through March 2013, registering historic lows on the Northern Sierra" and "record dry and warm conditions resulted in a snowpack substantially below average, with estimated May water content in the statewide snowpack being only 17 percent of average."

The 2013 water year has been particularly challenging with double the normal precipitation in November and December and historically low values from January into May. The current Northern Sierra 8 Station Precipitation Index from January 1, 2013 through May 15 is about 8.8 inches. Without additional measurable precipitation in May, this figure will represent the driest Northern Sierra 8-Station Precipitation Index for the January through May period on record. Attachment 1 shows the accumulated 8-station precipitation values from January through May for some of the extremely dry years including 1924, 1976, and 1977. The nearly 80 percent of this year's precipitation occurred in the first three months of the water year, and an abnormally large portion of this fell as rain rather than snow as a result of warmer than normal conditions for that time of year. This combined with critically dry conditions in the months since the first of the year has resulted in minimal snow pack in the Sierra Nevada in the critical spring months. The Northern Sierra snowpack was only about 48% of the historical April 1 value and about 17% of normal as of May 1, 2013. Creek and small stream flows that enter the Sacramento River system below major reservoirs are running at historically low levels in response to the extended dry period. DWR's May 1, 2013 Bulletin 120 forecasts an April to July runoff 48% of normal for the Sacramento Valley. Hydrological conditions are not likely to improve and the National Oceanic and Atmospheric Administration has indicated that California is in severe to extreme drought that is likely to persist or intensify into the summer (Attachment 2).

Additionally, unusually high depletions in the Sacramento Valley are adding to the operational challenges the CVP and SWP (collectively, Projects) are facing in meeting the 2013 water year type requirements. Typically, extremely dry years with low Northern Sierra 8-Station Precipitation Index values trigger the Shasta inflow shortage criteria included in water rights settlement contracts that would reduce water supplies for the senior water rights diverters in the Sacramento Valley. Yet, this year the wetter conditions in the fall months were sufficient to require full allocations to the Sacramento Valley and Feather River settlement contractors,

increasing demands on Shasta and Oroville storage. Therefore, it is expected that depletions will continue to run at a high rate into the summer. DWR and Reclamation are required to make releases in order to satisfy the senior water rights of the Sacramento River and Feather River settlement contractors, and the Exchange Contractors. These contracts specify the amount of water the Projects must deliver – for the Sacramento River and Exchange Contractors, Reclamation is required to deliver 100% of the contract total in any year where the forecasted inflow to Shasta Reservoir exceeds 3.2 million acre feet (af). This target was met in 2013 – thus Reclamation is mandated to deliver 100% of the contract total, and has no discretion under the contract to reduce these deliveries.

The unusually high stream depletions (Attachment 3) were a major cause of the exceedence of the Emmaton objective that occurred in April and May. This is described in further detail in DWR and Reclamation's letter to SWRCB dated May 24, 2013. The CVP and SWP reservoir systems were in a near normal condition in January, but Reclamation and DWR have drawn heavily on the storage since then due to the extended dry period, low unregulated flow entering the system, and high depletions in the Central Valley. Reservoir releases are currently well above average for this date.

In order to meet the Dry year water quality objectives rather than the Critical objectives, DWR and Reclamation have released significant volumes of water from Oroville, Shasta, and Folsom Reservoirs. The low reservoir inflow and increased storage withdrawal is depleting the cold water pool in the reservoirs that is important to provide adequate instream fishery habitat for anadromous fish in the rivers through the summer and fall.

SWRCB Water Rights Order 90-05 requires that Reclamation operate Shasta Reservoir to meet a daily average temperature of 56 degrees Fahrenheit in the Sacramento River at a location and through periods when higher temperatures will be detrimental to the fishery. Typically, through coordination with the Sacramento River Temperature Task Group (SRTTG), the location selected is between Balls Ferry and Bend Bridge on the Sacramento River. Without recognition of the Sacramento Valley water year type actually experienced in 2013, the projected low reservoir storage and limited cold water pool this year may result in the objective occurring well upstream of Balls Ferry and Reclamation is concerned whether the 56 degree objective can be maintained at any location in the Sacramento River through the fall. The cold water pool is vital to providing adequate habitat to salmon present in the Sacramento River through the summer and into the fall for both the winter-run Chinook salmon and fall-run Chinook salmon. The SRTTG has recommended an initial temperature compliance point of Airport Road located upstream of Balls Ferry due to the limited cold water resources this year.

Due to the unprecedented hydrologic conditions discussed above including the record dry January through May period, extremely low snowpack, and unusually high Sacramento valley depletions, conditions continue to deteriorate and it is clear that meeting the dry year objectives could jeopardize the ability to meet other fisheries objectives later in the year. The reservoir storage that accumulated in the wet fall, which was originally projected to be sufficient to meet the dry year objectives, is falling rapidly due to the abnormally large valley demands and

Reclamation is projecting CVP September carryover storages only about 63% of average.

There is a significant difference between the volume of Delta inflow needed to achieve the Dry and Critical water quality objectives for Jersey Point and Emmaton through June 15. If Reclamation and DWR are able to begin operating to the Critical year water quality objectives in May it may be possible to achieve 100,000 to 200,000 af, of cold water benefits in the upstream reservoirs. This savings in cold water storage would improve the chances of meeting the temperature objective at Airport Road. This cold water benefit will help avoid temperature related fish losses in the Sacramento River.

The greatest benefits to the Project's reservoir storage would occur in the May to August 15 period. The compliance locations in the Western Delta and Interior Delta shown in Table 3 on Page 182 (Sacramento River at Emmaton (Interagency Station Number D-22), San Joaquin River at Jersey Point (Interagency Station Number D-15), South Fork Mokelumne River at Terminous (Interagency Station Number C-13), and San Joaquin River at San Andreas Landing (Interagency Station Number C-4) would most likely be the objectives controlling the Project operations during the May to June 15 period and changes at these locations would have the greatest impact on improving upstream storage in the immediate future. The objectives of the Delta outflow compliance location in Table 3 on page 184 often can control Project operations through the summer and operating to a critical year with respect to Delta outflow will also assist in preserving cold water pool.

Currently, DWR and Reclamation are maintaining a Net Delta Outflow well over 9,000 cubic feet per second (cfs) in order to achieve the Dry year objectives for Jersey Point and Emmaton. If the Dry classification is changed to Critical, the controlling D-1641 objective through June would be the Net Delta Outflow Index of at least 7,100 cfs in Table 3, or the export to inflow ratio of 35% in Table 3. From July through August 15, the controlling criteria for either water year classification would most likely shift among the minimum Net Delta Outflow objectives in Table 3, the salinity objectives for Jersey Point and Emmaton in Table 2, the Export to Inflow ratio of 65% in Table 3, or the Contra Costa 250 chloride objective in Table 1.

Table 2 of D-1641 requires an electrical conductivity (EC) no greater than 0.45 mmhos/cm for both Emmaton and Jersey point locations from April 1 to June 15, and 1.67 mmhos/cm for Emmaton and 1.35 mmhos/cm for Jersey Point from June 15 to August 15 under a Dry Year classification. For a Critical year these objectives are 2.78 mmhos/cm from April 1 to August 15 for Jersey Point and Emmaton. Since the X2 outflow objective of 7,100 cfs, which is not linked to the year type designation would probably control in May, and June, there would only be a gradual increase in salinity at Jersey Point and Emmaton through June that is reflective of a Critical year. Water quality at Jersey Point and Emmaton would fluctuate with the tidal and meteorological conditions potentially moving towards a 1.0 to 2.0 mmhos/cm EC range in July. Compliance with the water quality objectives at the Jersey Point and Emmaton locations typically achieves the objectives at Terminous and San Andreas Landing. This gradual increase in salinity levels would be commensurate with those experienced in years with similar hydrologic conditions as those observed in recent months.

Reclamation estimates that from May through August 15 a change in the water year classification from Dry to Critical in the Western Delta and Interior Delta locations in Table 2 could result in a gain of about 115,000 af, in upstream reservoir carryover storage at the end of September. Including the Delta outflow compliance in Table 3 for the same period would increase the gain in reservoir carryover storage to about 185,000 af. There could be reductions in the release from Keswick Reservoir up to about 1,000 cubic feet second in late May and June under a Critical year classification.

D-1641 requires that the number of days less than or equal to 150 mg/l chloride at Contra Costa Pumping Plant be greater than 165 days for a Dry year and 155 days for a Critical year. DWR and Reclamation do not anticipate that this objective would be a controlling criteria for the Projects under either year classification and both objectives would be met. The minimum Net Delta Outflow required from February through June (Collinsville X2 at 7,100 cfs) should be adequate to achieve the Contra Costa objective under either the Dry or Critical classification.

SWRCB recognition of the change in water year type is in the public interest. The change will provide for a water year classification reflective of the extremely dry hydrologic conditions in 2013 and allow the projects to operate in a manner that will provide the maximum benefit to critical beneficial users without unreasonably affecting other designated beneficial uses. As noted above there will be no significant impacts to agricultural or municipal uses, and the change will provide significant benefit to fisheries resources. State and federal agencies have been focused on the protection and improvement of fishery conditions in the Delta watershed, and are in the process of analyzing options for balancing project operations for the numerous different beneficial uses. Approval of the following request would result in water quality conditions in the North Delta that are consistent with the hydrology we are currently experiencing, while preserving cold water storage critical to salmon survival.

Requested Action:

Reclamation and DWR request that the SWRCB recognize the change in year classification need and act immediately. Delaying such recognition to even June 1 will significantly impair Reclamation's ability to meet cold water temperature objectives on the Sacramento River. At present, the controlling D-1641 Delta water quality objectives for the Projects that are linked to the Sacramento Valley Index are Jersey Point in Table 2, Emmaton in Table 2. In addition, Delta Outflow in Table 3, may become a controlling standard and will also impact cold water pool storage starting in the middle of June.

We believe the SWRCB may balance protection of the beneficial uses in light of the critical water year type experienced on the Sacramento River in 2013. Immediate benefits to cold water pool storage can be achieved through the Projects meeting critical water year standards for the Interior and Western Delta salinity standards in Table 2. The compliance points at issue are Sacramento River at Emmaton (Interagency Station Number D-22), San Joaquin River at Jersey

Subject: SWRCB Water Right Decision 1641 Water Year Classification

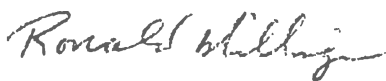
6

Point (Interagency Station Number D-15), South Fork Mokelumne River at Terminous (Interagency Station Number C-13), and San Joaquin River at San Andreas Landing (Interagency Station Number C-4).

Additional cold water pool benefits can be achieved in July through September with recognition of the critical water year type in Table 3, Water Quality Objectives for Fish and Wildlife Beneficial Uses. As noted above; Delta outflow objectives will likely control project operations in July through September, where agricultural objectives are met under a critical water year designation. A Delta outflow standard reflective of the critical water year type may produce an additional 70,000 af of cold water pool storage.

If you have any questions or would like more information regarding this notification, please contact Mr. Paul Fujitani of Reclamation at 916-979-2197 or Mr. John Leahigh at 916-574-2722.

Sincerely,



Ronald Milligan, Operations Manager
Central Valley Operations Office
U.S. Bureau of Reclamation



David H. Roose, Chief
SWP Operations Control Office
Department of Water Resources

Attachment -4

cc: Mr. Craig M. Wilson, Delta Watermaster
State Water Resources Control Board
1001 I Street
Sacramento, California 95812

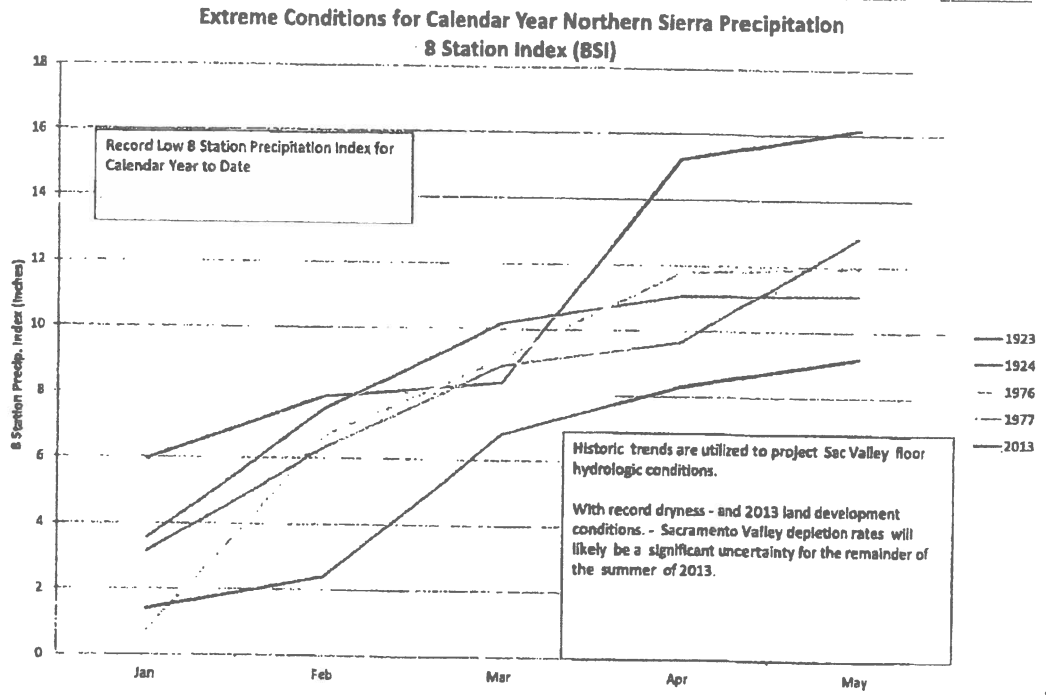
Carl Wilcox
California Department of Fish and Wildlife
1416 9th Street
Sacramento, California 95814

Ms. Maria Rae
Central Valley Office Supervisor
National Marine Fisheries Service
650 Capitol Mall, Suite 5-100
Sacramento, California 95814

Ms. Kim Turner
Assistant Field Supervisor
Bay-Delta Fish & Wildlife Office
U.S. Fish & Wildlife Service
650 Capitol Mall, Suite 8-300
Sacramento, California 95814

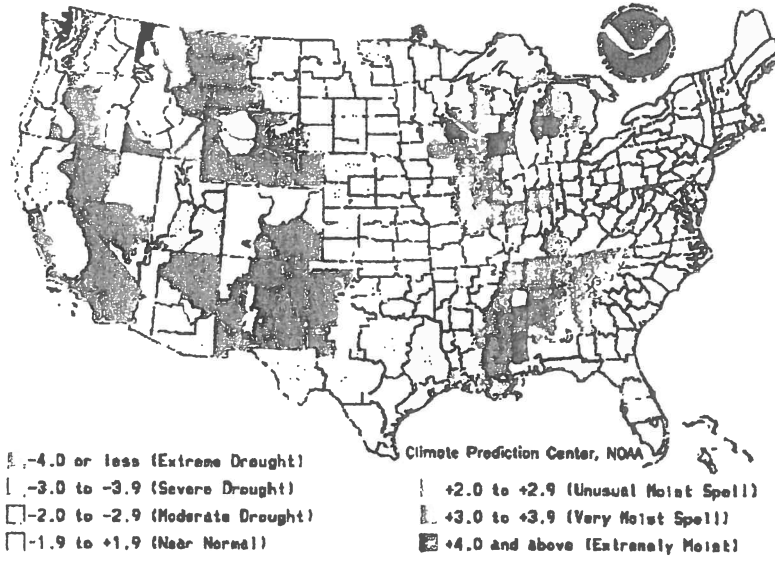
Mr. Les Grober
State Water Resources Control Board
Division of Water Rights
1001 I Street
Sacramento, California 95812
(w/encl to each)

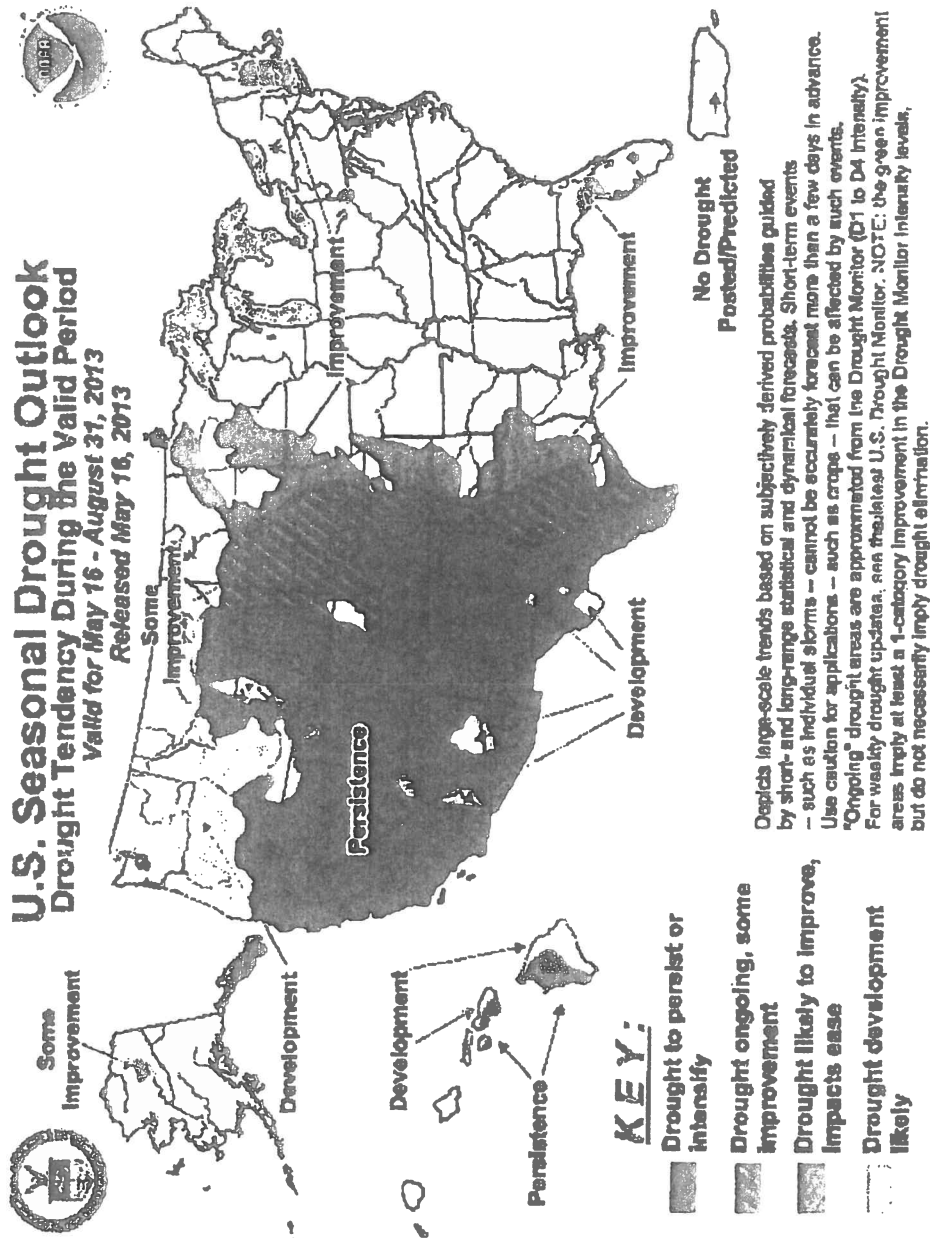
Attachment 1



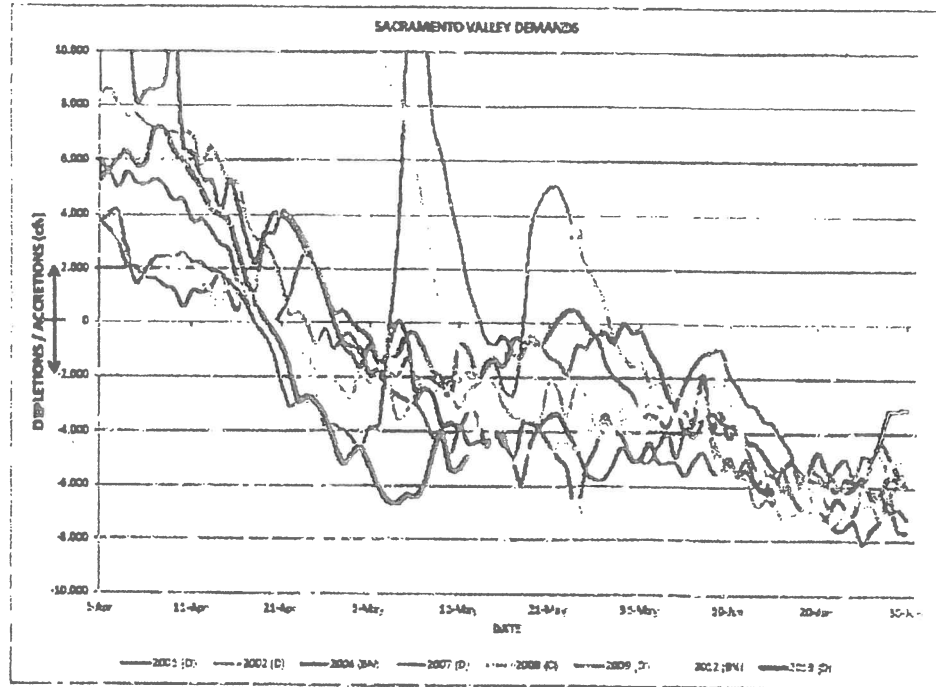
Attachment 2

Drought Severity Index by Division
Weekly Value for Period Ending MAY 18, 2013
Long Term Palmer





Attachment 4



drought on record was the 1929–1934 drought, although the brief drought of 1976–1977 was more intensely dry.

The results of modeling existing conditions under historical drought scenarios indicate that SWP Table A water deliveries during dry years can be estimated to range between yearly averages of 454 and 1,356 taf.

On average, the dry-period deliveries of Table A water are higher in this 2015 Report than in the 2013 Report because of model refinements (discussed in detail in Appendix B).

Table 6-4. Estimated Average and Dry-Period Deliveries of SWP Table A Water (Existing Conditions, in taf/year) and Percent of Maximum SWP Table A Amount, 4,132 taf/year

	Long-term Average (1921-2003)		Single Dry Year (1977)		Dry Periods							
					2-Year Drought (1976-1977)		4-Year Drought (1931-1934)		6-Year Drought (1987-1992)		6-Year Drought (1929-1934)	
2013 Report	2,553	62%	495	12%	1,269	31%	1,263	31%	1,176	28%	1,260	30%
2015 Report	2,550	62%	454	11%	1,165	28%	1,356	33%	1,182	29%	1,349	33%

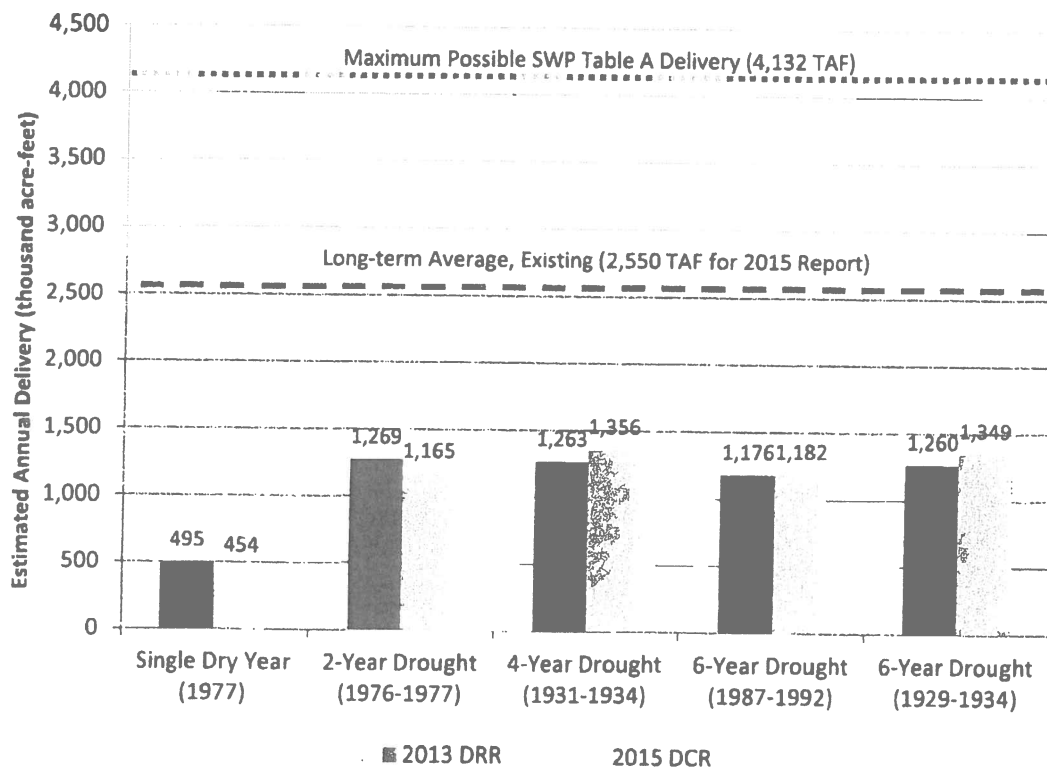


Figure 6-4. Estimated Dry-Period SWP Table A Water Deliveries (Existing Conditions)

Chapter 5 Conclusions

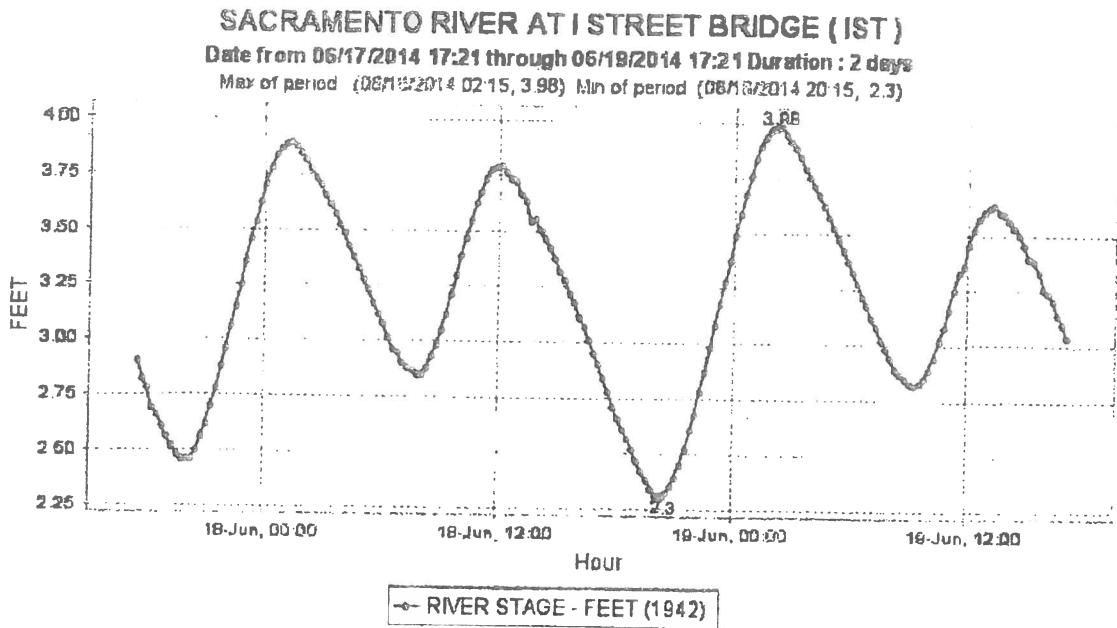
This study concludes that evapotranspiration estimates of applied water for crops in the Delta using ITRC-based spreadsheet methods is close to estimates using remote sensing and SEBAL. Conversely, the Cal-SIMETAW customized model proves to be overall closer to SEBAL than the ITRC-based spreadsheet method. However, periodic updates of climatic data to better account for reference evapotranspiration in crops are necessary for Cal-SIMETAW. SEBAL can replace current methods accurately without reference to ET crop signatures. In addition, the SEBAL method can be used to measure water efficiency, crop stress, water balances and differences in management and technology as reflected in ET.

Remotely-sensed evapotranspiration measurements provide an independent and detailed record of actual water use, and as such can provide timely and consistent data sources for a wide range of water management problems. While the system setup costs are not trivial, the system has substantial economies of scale that make a statewide interagency approach attractive.

Future work recommended for the Delta Protection Commission is to complete a comparison for the entire Legal Delta. To improve this comparison more, the use of other models to estimate evapotranspiration in crops, such as DETAW and IDC/IWFM that have a finer resolution than CalSIMETAW and ITRC, would be helpful. Data programs to support land use and irrigation efficiency surveys as well as remote-sensing information in partnership with other state and federal agencies is also encouraged.

Acknowledgements

This research was funded by the Delta Protection Commission. Data including land use, SIMETAW, Cal-SIMETAW, DETAW, IWFM, SEBAL datasets and technical support from the Delta Modeling Office of the California Department of Water Resources and other departments was appreciated. In particular, we thank Tariq Kadir, Lan Liang, Tara Smith, Orang Morteza and Can Dogrul for their invaluable inputs. We also thank Davids Engineering and SEBAL of America for providing technical assistance in interpreting SEBAL estimates provided to us by DWR. Research support from Andrew Bell and Paula Torres from the Center for Watershed Sciences of UC Davis for preparing this report is also acknowledged.

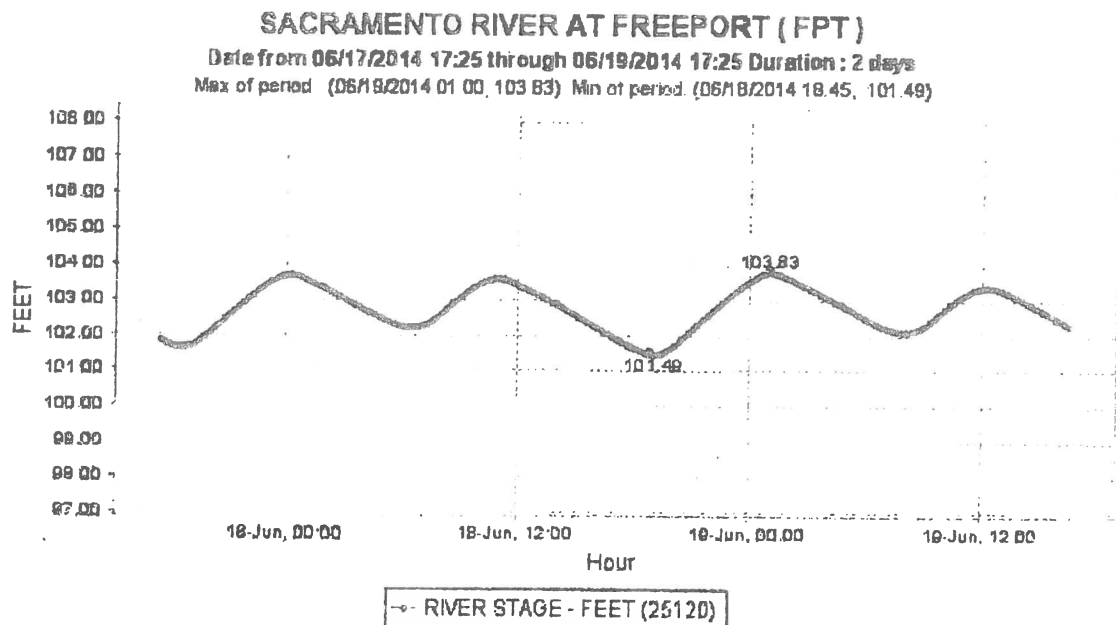


Generated on Thu Jun 19 17:21:46 PDT 2014

[Plot all IST Sensors](#) | [Real-Time IST Data](#) | [IST Data](#) | [Daily IST Data](#) | [Show IST Map](#) | [IST Info](#)

Plot from ending date: 06/19/2014 17:21 Span: 2 days

Attachment H



Generated on Thu Jun 19 17:25:15 PDT 2014

[Plot all FPT Sensors](#) | [Real-Time FPT Data](#) | [FPT Data](#) | [Daily FPT Data](#) | [Show FPT Map](#) | [FPT Info](#)

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Station Comments:

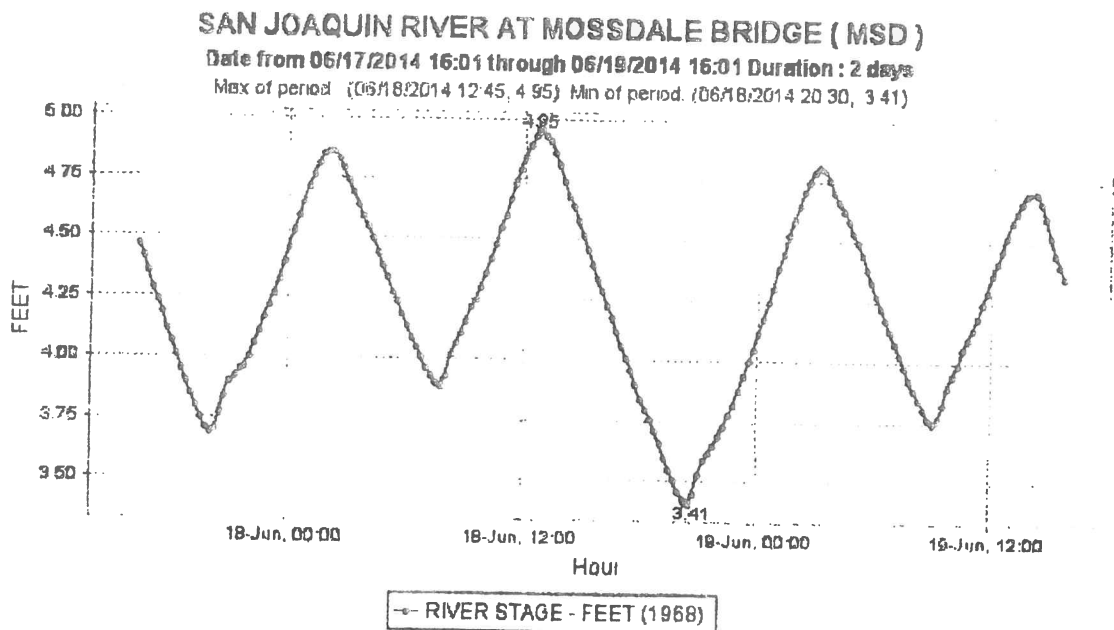
09/06/2005 Freeport data back on-line as of 8/31/2005.

06/01/2005 Daily streamflow is estimate by USGS. From 5/4/2005 to present

05/06/2005 New equipment is being installed. Data not valid. At this time, we do not have an estimated return to sen

11/01/2004 Data is now valid. Data is transmitted via satellite instead of modem.

10/05/2004 Freeport data is not valid since 9-24-04. A new station will be coming on-line soon.



Generated on Thu Jun 19 16:01:35 PDT 2014

Plot all MSD Sensors | Real-Time MSD Data | MSD Data | Daily MSD Data | Show MSD Map | MSD Info

Plot from ending date: 06/19/2014 16:01 Span: 2 days

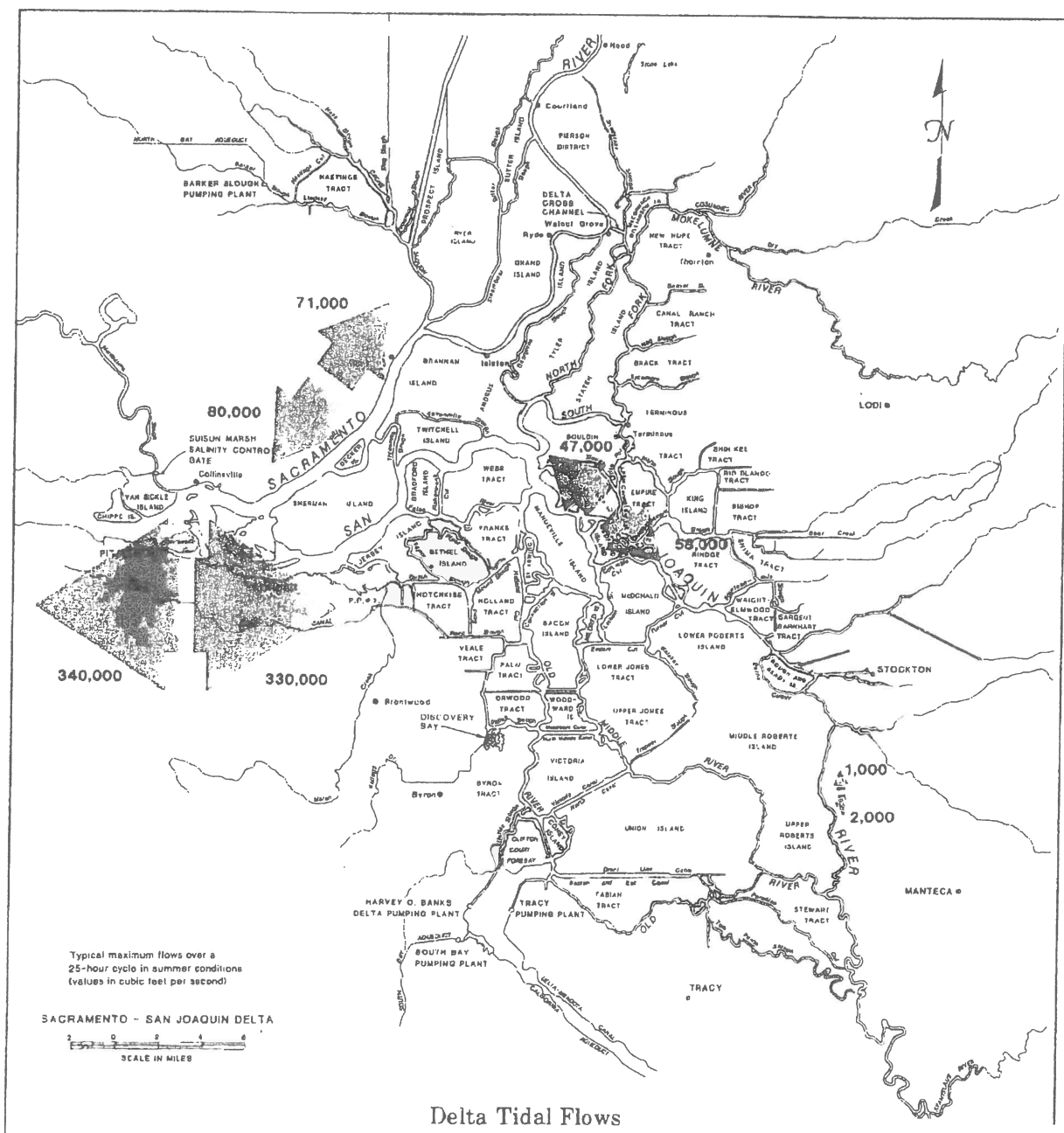
Station Comments:

- 11/05/2013 QC'd flow and velocity data are available on the Water Data Library (WDL) at:
<http://www.water.ca.gov/waterdatalibrary/docs/Hydstra/index.cfm>. Select "Surface Water" for the Data Type, station's WDL code: B95820Q. Contact Dave Huston of the North Central Region Office for further inquiries (Dave.Huston@water.ca.gov).
- 01/01/2013 For QA/QC'd data, contact the Division of Environmental Services (Karen.Gehrts@water.ca.gov).
- 12/16/2011 ADCP unit replaced with bubbler gage December 13, 2011
- 10/22/2008 Data collection for these sensors 1 (stage), 20 (flow) and 21 (w velocity) have been switched from satellite from DWR DES in October 2008. The rest of the hourly sensors were switched as well.
- 02/05/2007 Power to the station was vandalized Saturday night (2/3/07) and will be repaired ASAP
- 09/30/2006 The vertical datum has changed for this station as of October 1, 2006. Please see [Datum Change 2006]
- 01/09/2006 Modified stage correction value to -2.38 to account for the datum change.
- 06/01/2005 Stage datum set to NAD 88 (new staff at bridge).

Delta Tidal Flows and Levels

The Sacramento-San Joaquin Delta is at sea level. Water levels vary greatly during each tidal cycle, from less than a foot on the San Joaquin River near Interstate 5 to more than five feet near Pittsburg. During the tidal cycle, flows can also vary in direction and amount. For example and as shown on the map below, the

flow near Pittsburg during a typical summer tidal cycle can vary from 330,000 cfs upstream to 340,000 cfs downstream. The "net" summer Delta outflow is a very small amount of the total water movement, generally 5,000 to 10,000 cfs.



Delta Tidal Flows

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STATE OF CALIFORNIA
The Resources Agency
Department of Water Resources

THE DELTA
AND THE STATE WATER PROJECT

Memorandum Report
JUNE 1969

Attachment J

DELTA WATER ENTITLEMENT NEGOTIATIONS

Water entitlements in the Delta have been the subject of intense study and discussion for several years. Considerable progress has been made toward agreements to protect these entitlements.

With construction and operation of the State Water Project under way, and with works being proposed for the Delta Water Facilities, considerable concern is being expressed by some Delta interests over the effects of this development on Delta water rights, water supplies, and environment.

The Delta and Delta water users are protected by law. Provisions in the California Water Code governing the construction and operation of the State Water Project are quite explicit. Protection is based upon the fundamental law of riparian and appropriative water rights, the County of Origin Act, the Area of Origin Law (sometimes referred to as the Watershed Protection Act), the Delta Protection Act, and the Burns-Porter Act. Such protection, however, is limited to the reasonable and beneficial use of water.

Purpose and History of Negotiations

The Department is negotiating with Delta interests for two basic reasons:

- (1) To meet department responsibilities pursuant to the California Constitution and various laws protecting the Delta; and
- (2) To avoid a complete, costly, and time-consuming adjudication of water rights of the entire Central Valley.

During the 1950's the Department of Water Resources cooperated with the Bureau of Reclamation and the local Delta water users in studies to identify individual entitlements to the waters of the Sacramento River and the Delta. These studies, using the classical approach to solution of water rights problems, considered priority of rights to quantity of water rather than quality. No resolution was reached in the Delta using this approach. Actually, in the Delta, the question of quantity is of little concern, since the Delta is never short of water. If flow from the tributary streams were insufficient to meet Delta use, water from the Pacific Ocean would flow through the San Francisco Bay system and fill the Delta channels.

Beginning in 1963, the Department of Water Resources, the Bureau of Reclamation, and representatives of two local Delta water users' organizations began negotiations specifically to resolve the Delta water entitlement problem. The local organizations are:

(1) The Sacramento River and Delta Water Association (SRDWA), representing Delta water users in Sacramento, Yolo, and Solano Counties, and parts of Contra Costa and San Joaquin Counties.

(2) The Delta Water Users Association (DWUA), acting as the San Joaquin Water Rights Committee (SJWRC) and representing water users in San Joaquin County and part of Contra Costa County.

Together, these 2 Associations represent about 90 percent of the Delta agricultural area, including about 40 percent of the agricultural lands in Contra Costa County.

In 1964, separate negotiations among the Bureau of Reclamation, the Department of Water Resources, and the Negotiating Committee for Contra Costa County's Water Requirements (NCCCCWR) were initiated. This Committee attempted to include representation of all water users in Contra Costa County interested in offshore quality -- municipal, industrial, agricultural, recreational, fish and wildlife, esthetics, etc. In the many months of discussions that followed, little progress was made with this Committee due primarily to its large size (about 50 people), and to the complex and diverse requirements and problems of the many interests involved. Consequently, at the request of individual interests within the group and with committee concurrence, some of those represented on the Committee began independent negotiations with the Department.

In essence, negotiations fall into two areas -- the main Delta, that area that will be protected by the November 19, 1965 Delta Water Quality Criteria and thereby provide irrigators an inchannel water supply of acceptable quality through such protection; and the western Delta, that area where overland water conveyance facilities or other alternative solutions will be required to provide an adequate water supply.

Main Delta Negotiations

Since water shortage in the Delta is not a problem, it was necessary to develop a quality "yardstick" to guide project operation in the Delta. This "yardstick" was established on November 19, 1965, when negotiations among the Sacramento River and Delta Water Association, the Delta Water Users Association, the Bureau of Reclamation, and the Department of Water Resources reached the first concrete achievement with agreement to the "Delta Water Quality Criteria". These criteria, summarized earlier and contained in full in Appendix A, set forth quality limits for inchannel Delta waters and specify the locations of stations to monitor conformance. Under provisions of the criteria, saltwater intrusion will continue to be repelled to approximately the same point as it has been in the summertime by the Federal Central Valley Project.

**CONTRACT BETWEEN THE STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES
AND THE NORTH DELTA WATER AGENCY
FOR THE ASSURANCE OF A DEPENDABLE WATER SUPPLY OF SUITABLE QUALITY**

THIS CONTRACT, made this 28th day of Jan, 1981, between the STATE OF CALIFORNIA, acting by and through its DEPARTMENT OF WATER RESOURCES (State), and the NORTH DELTA WATER AGENCY (Agency), a political subdivision of the State of California, duly organized and existing pursuant to the laws thereof, with its principal place of business in Sacramento, California.

RECITALS

(a) The purpose of this contract is to assure that the State will maintain within the Agency a dependable water supply of adequate quantity and quality for agricultural uses and, consistent with the water quality standards of Attachment A, for municipal and industrial uses, that the State will recognize the right to the use of water for agricultural, municipal, and industrial uses within the Agency, and that the Agency will pay compensation for any reimbursable benefits allocated to water users within the Agency resulting from the Federal Central Valley Project and the State Water Project, and offset by any detriments caused thereby.

(b) The United States, acting through its Department of the Interior, has under construction and is operating the Federal Central Valley Project (FCVP).

(c) The State has under construction and is operating the State Water Project (SWP).

(d) The construction and operation of the FCVP and SWP at times have changed and will further change the regimen of rivers tributary to the Sacramento-San Joaquin Delta (Delta) and the regimen of the Delta channels from unregulated flow to regulated flow. This regulation at times improves the quality of water in the Delta and at times diminishes the quality from that which would exist in the absence of the FCVP and SWP. The regulation at times also alters the elevation of water in some Delta channels.

(e) Water problems within the Delta are unique within the State of California. As a result of the geographical location of the lands of the Delta and tidal influences, there is no physical shortage of water. Intrusion of saline ocean water and municipal, industrial and agricultural discharges and return flows, tend, however, to deteriorate the quality.

(f) The general welfare, as well as the rights and requirements of the water users in the Delta, require that there be maintained in the Delta an adequate supply of good quality water for agricultural, municipal and industrial uses.

(g) The law of the State of California requires protection of the areas within which water originates and the watersheds in which water is developed. The Delta is such an area and within such a watershed. Part 4.5 of Division 6 of the California Water Code affords a first priority to provision of salinity control and maintenance of an adequate water supply in the Delta for reasonable and beneficial uses of water and delegates to lesser priority all exports of water from the Delta to other areas for any purpose.

(h) The Agency asserts that water users within the Agency have the right to divert, are diverting, and will continue to divert, for reasonable beneficial use, water from the Delta that would have been available therein if the FCVP and SWP were not in existence, together with the right to enjoy or acquire such benefits to which the water users may be entitled as a result of the FCVP and SWP.

(i) Section 4.4 of the North Delta Water Agency Act, Chapter 283, Statutes of 1973, as amended, provides that the Agency has no authority or power to affect, bind, prejudice, impair, restrict, or limit vested water rights within the Agency.

(j) The State asserts that it has the right to divert, is diverting, and will continue to divert water from the Delta in connection with the operation of the SWP.

(k) Operation of SWP to provide the water quality and quantity described in this contract constitutes a reasonable and beneficial use of water.

(l) The Delta has an existing gradient or relationship in quality between the westerly portion most seriously affected by ocean salinity intrusion and the interior portions of the Delta where the effect of ocean salinity intrusion is diminished. The water quality criteria set forth in this contract establishes minimum water qualities at various monitoring locations. Although the water quality criteria at upstream locations is shown as equal in some periods of some years to the water quality at the downstream locations, a better quality will in fact exist at the upstream locations at almost all times. Similarly, a better water quality than that shown for any given monitoring location will also exist at interior points upstream from that location at almost all times.

(m) It is not the intention of the State to acquire by purchase or by proceeding in eminent domain or by any other manner the water rights of water users within the Agency, including rights acquired under this contract.

(n) The parties desire that the United States become an additional party to this contract.

AGREEMENTS

1. **Definitions.** When used herein, the term:

(a) "Agency" shall mean the North Delta Water Agency and shall include all of the lands within the boundaries at the time the contract is executed as described in Section 9.1 of the North Delta Water Agency Act, Chapter 283, Statutes of 1973, as amended.

(b) "Calendar year" shall mean the period January 1 through December 31.

(c) "Delta" shall mean the Sacramento-San Joaquin Delta as defined in Section 12220 of the California Water Code as of the date of the execution of the contract.

(d) "Electrical Conductivity" (EC) shall mean the electrical conductivity of a water sample measured in millimhos per centimeter per square centimeter corrected to a standard temperature of 25° Celsius determined in accordance with procedures set forth in the publication entitled "Standard Methods of Examination of Water and Waste Water", published jointly by the American Public Health Association, the American Water Works Association, and the Water Pollution Control Federation, 13th Edition, 1971, including such revisions thereof as may be made subsequent to the date of this contract which are approved in writing by the State and the Agency.

(e) "Federal Central Valley Project" (FCVP) shall mean the Central Valley Project of the United States.

(f) "Four-River Basin Index" shall mean the most current forecast of Sacramento Valley unimpaired runoff as presently published in the California Department of Water Resources Bulletin 120 for the sum of the flows of the following: Sacramento River above Bend Bridge near Red Bluff; Feather River, total inflow to Oroville Reservoir; Yuba River at Smartville; American River, total inflow to Folsom Reservoir. The May 1 forecast shall continue in effect until the February 1 forecast of the next succeeding year.

(g) "State Water Project" (SWP) shall mean the State Water Resources Development System as defined in Section 12931 of the Water Code of the State of California.

(h) "SWRCB" shall mean the State Water Resources Control Board.

(i) "Water year" shall mean t

Attachment K

TABLE A-5
1976-77 Estimated Crop Et Values
Delta Service Area
(in inches)

Land Use Category	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Total
Sacramento-San Joaquin Delta																
Irrigated Pasture	3.2	1.5	1.0	0.7	1.5	3.6	5.4	4.8	6.9	7.7	6.4	4.7	47.4	3.4	47.6	
Alfalfa	3.2	1.5	1.0	0.7	1.5	3.2	4.9	4.4	6.5	7.5	6.5	4.9	45.8	3.4	46.0	
Deciduous Orchard (Fruits & Nuts)	2.6	1.5	1.0	0.7	1.5	2.7	3.8	4.0	6.1	7.4	6.1	4.3	41.7	2.6	41.7	
Tomatoes	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.6	4.0	8.2	6.0	2.3	34.3	1.9	33.8	
Sugar Beets	2.4	1.5	1.0	0.7	1.5	1.9	2.2	3.7	7.6	8.3	6.4	4.4	41.6	2.4	41.6	
Grain Sorghum (Milo)	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.3	5.9	7.3	4.3	2.5	33.2	1.9	32.7	
Field Corn	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.3	5.7	6.9	5.1	2.6	33.8	1.9	33.3	
Dry Beans	2.4	1.5	1.0	0.7	1.5	1.9	2.2	1.7	5.7	6.2	2.7	2.5	30.0	1.9	29.5	
Safflower	2.4	1.5	1.0	0.7	1.5	1.9	2.2	4.8	8.7	7.7	4.4	2.5	39.6	1.9	39.1	
Asparagus	2.4	1.5	1.0	0.7	1.5	1.9	2.2	1.0	3.5	7.7	6.4	4.7	34.5	1.9	34.5	
Potatoes	2.4	1.5	1.0	0.7	1.5	1.9	2.2	1.7	4.3	7.4	5.5	2.8	32.9	1.9	32.4	
Irrigated Grain	2.4	1.5	1.0	0.7	1.5	1.9	2.2	3.1	1.8	1.0	1.0	1.6	26.1	1.6	24.7	
Vineyard	2.4	1.5	1.0	0.7	1.5	1.9	2.2	5.7	3.1	6.5	5.3	3.4	34.5	2.4	34.5	
Rice	3.2	1.5	1.0	0.7	1.5	1.9	2.8	5.6	8.8	9.8	8.1	5.5	50.4	3.4	50.6	
Sudan	2.4	1.5	1.0	0.7	1.5	4.3	5.7	4.8	6.9	7.7	4.9	4.7	46.6	2.4	46.6	
Misc. Truck	2.4	1.5	1.0	0.7	1.5	1.9	3.2	4.6	6.7	7.4	5.2	3.7	39.8	1.9	39.3	
Misc. Field	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.4	6.1	7.4	5.0	1.9	34.0	1.9	33.5	
Double Cropped with Grain	2.4	1.5	1.0	0.7	1.5	1.9	2.2	2.4	6.1	7.4	5.0	1.9	34.0	1.9	33.5	
Sugar Beets	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	1.8	4.2	5.2	5.8	37.7	3.4	38.7	
Field Corn	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	1.8	4.3	6.3	6.1	39.2	2.7	39.5	
Grain Sorghum (Milo)	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	1.8	2.7	6.1	5.2	36.5	1.9	36.0	
Sudan	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	3.6	7.7	4.9	4.7	41.6	1.9	41.1	
Dry Beans	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	3.1	7.6	3.5	1.5	36.4	1.9	35.9	
Tomatoes	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	2.3	6.6	6.0	5.2	40.8	1.9	40.3	
Lettuce	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	4.1	7.4	5.3	4.9	42.4	2.4	42.4	
Misc. Truck	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	2.3	6.6	6.0	5.2	40.8	2.4	40.8	
Misc. Field	2.4	1.5	1.0	0.7	1.5	4.3	5.7	3.1	4.1	7.4	5.3	4.9	42.4	3.4	43.4	
Fallow Lands 1/	2.4	1.5	1.0	0.7	1.4	1.0	1.0	1.0	1.0	1.0	1.0	1.0	14.0	1.0	12.6	
Native Vegetation 2/	2.4	1.5	1.0	0.7	1.4	3.7	3.8	2.1	2.3	2.6	2.3	2.0	25.8	1.6	25.0	
Riparian Veg. & Water Surface	4.6	2.4	1.4	0.8	1.9	4.5	7.4	6.6	9.7	11.8	9.7	7.0	67.8	4.3	67.5	
Urban	1.6	0.8	0.6	0.7	1.0	1.0	1.9	2.4	2.4	2.5	2.4	1.9	19.2	1.6	19.2	

1/ Applies also to nonirrigated grain.

2/ Applies also to nonirrigated orchards and vineyards
Metric conversion: inches times 25.4 equals millimetres.

**Historical Estimates of Agricultural and Wetland Water Use in the San Joaquin-
Sacramento River Delta**

By

Morteza N. Orang, Richard L. Snyder, Sara Sarreshteh

This report presents the results of a study comparing the water requirements (ET_c) of irrigated crops and wetland vegetation (tules and cattails) in the San Joaquin-Sacramento River Delta for different water years 1998 (wet), 2000 (average), and 2001 (dry). These are the most recent dry, normal, and wet years, which were used in the California Water Plan Update 2005. The main purpose of this project was to specifically customize the daily water balance program "Delta Evapotranspiration of Applied Water" or "DETAW" to analyze historical climate data to compute the water requirements of wetland vegetation that change from year-to-year. To do the analysis, DETAW was modified to sum the number of hectares of irrigated land for each of the 168 sub-areas within the Delta from 1921 to 2003. DETAW uses the product of reference evapotranspiration (ET_o) and a crop coefficient (K_c) factor to estimate well-watered evapotranspiration ($ET_c = ET_o \times K_c$). Using the surface areas, volumes of water corresponding to ET_c were computed for wetland vegetation on each the sub-areas over the period of record. The K_c values, crop type, and the percentages of the season to identifiable growth dates b, c, and d were changed to K_c factors and dates for tules and cattails to estimate daily and monthly ET data for wetland vegetation. The growth dates were b (10% ground cover), c (75% ground cover), and d (the onset of senescence). The model K_c values for tules and cattails, grown in standing water, were reported by Drexler et al. (2006). Since it is unlikely that the entire Delta area would have standing water for a full season, and the K_c factors are likely to be lower without the water, the standing-water K_c values provide an upper-limit boundary for estimating ET_c , and lower values are likely in most years. In drought years, the soil may dry out sufficiently to cause evapotranspiration (ET) reducing water stress, and a stress (K_s) coefficient might be needed to reduce the actual ET (ET_a) to a level lower than ET_c .

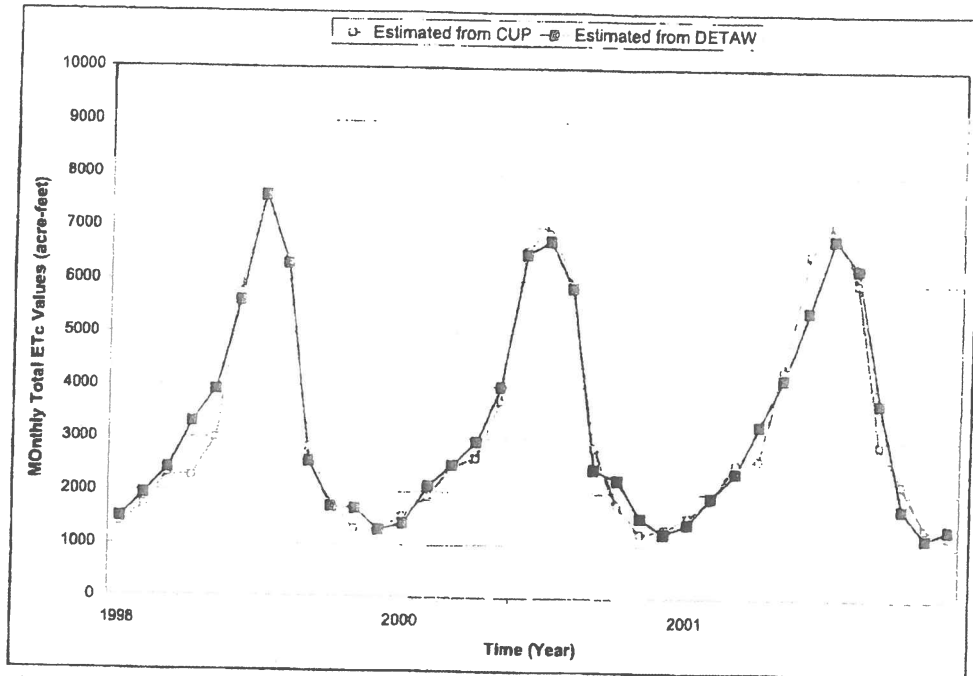
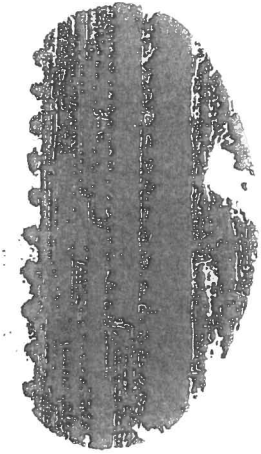


Figure 3- Comparison of monthly total estimates of evapotranspiration for agriculture from CUP and DETAW in sub-area 1 in the Delta during 1998 (wet), 2000 (average), and 2001 (dry) periods.

Results and Discussion:

The monthly cumulative values of agricultural and wetland ET_c estimated by DETAW were plotted against time (months) for 1998, 2000, and 2001 in Figures 4-6 for the Lowlands, in Figures 7-9 for the Uplands, and in Figures 10-12 for the entire Delta. For the entire Delta, the ET_c for the wetland cattails and tules was about 16% (1998), 20% (2000), and 22% (2001) higher than the agriculture-crop land-use group, which included irrigated pasture, alfalfa, all field crops, sugar beets, irrigated grain, rice, truck crops, tomato, orchard, vineyard, and non-irrigated grain (Figures 10-12). The results were similar for the Lowlands (Figures 4-6) and for the Uplands (Figures 7-9). When irrigated winter cereal and grapevine cropped areas are not converted to wetland vegetation in the Delta, the cattails and tules could increase evapotranspiration (ET_c) by about 13% in 1988 and 16% in 2000 and 2001, respectively.

Preliminary Edition



Bulletin No. 76

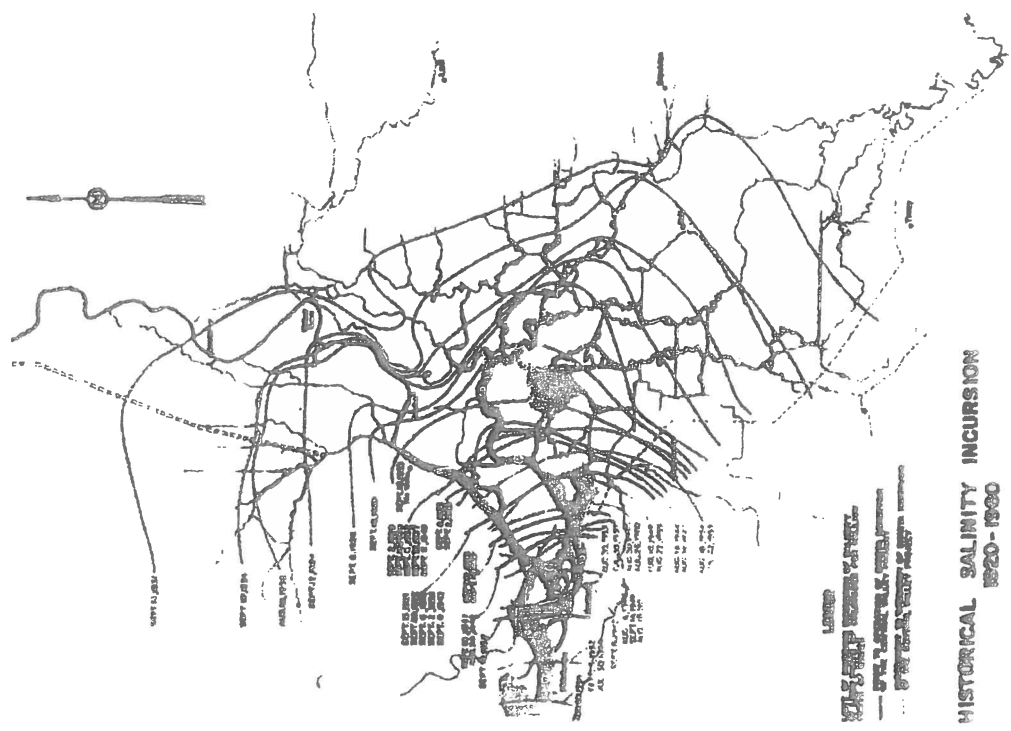
DELTA WATER FACILITIES



Delta Problems - Salinity Incursion

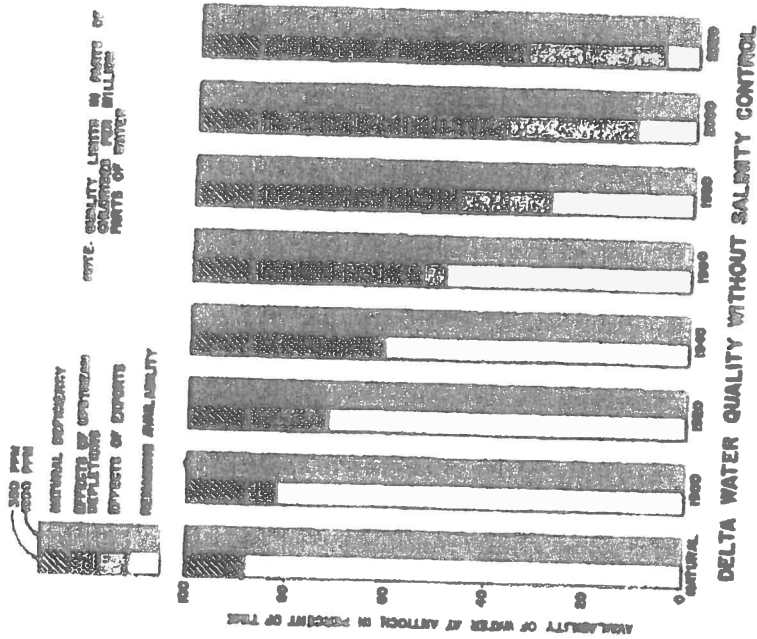
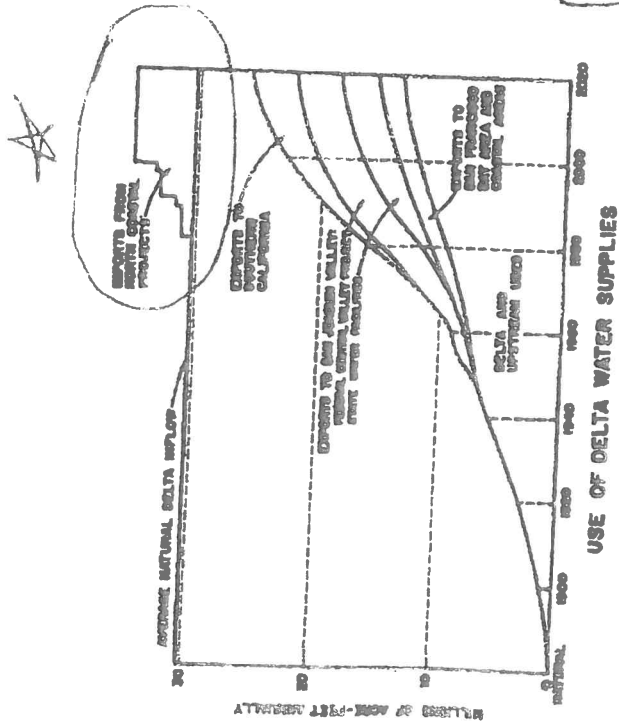
Salinity incursion into the Delta results from the flooding and ebbing of ocean tides through the San Francisco Bay and Delta system during periods when the fresh water outflow from the Delta is insufficient to repel the saline water. The natural fresh water outflow from the Central Valley was historically inadequate to repel salinity during summer months of some years. The first known record of salinity encroachment into the Delta was reported by Cmdr. Ringgold, U. S. Navy, in August 1841, whose party found the water at the site of the present city of Antioch very brackish and unfit for drinking. Since that time, and particularly after the turn of the century, with expanding upstream water use salinity incursion has become an increasingly greater problem in Delta water supplies. The maximum recorded extent of salinity incursion happened in 1931, when ocean salts reached Stockton. Since 1944 excessive incursion has been repeated much of the time by fresh water releases from Central Valley Project storage in Shasta and Folsom Reservoirs. Without such releases, saline water would have spread through about 90 percent of the Delta channels in 1955 and 1959. Although upstream uses might not have reached present levels in the absence of the Central Valley Project, salinity problems would still have been very serious during most years.

Further increase in water use in areas tributary to the Delta will worsen the salinity incursion problem and complicate the already complex water rights situation. To maintain and expand the economy of the Delta, it will be necessary to provide an adequate supply of good quality water and protect the lands from the effects of salinity incursion. In 1959 the State Legislature directed that water shall not be diverted from the Delta for use elsewhere unless adequate supplies for the Delta are first provided.



A

The natural availability of good quality water in the Delta is directly related to the amount of surplus water which flows to the ocean. The graph to the right indicates the historic and projected availability of water in the San Joaquin River at Antioch containing less than 350 and 1,000 parts chlorides per million parts water, under long-term average runoff and *existing* specific releases for salinity control. It may be noted that even under natural conditions, before any significant upstream water developments, there was a deficiency of water supplies within the specified quality limits. It is anticipated that, without salinity control releases, upstream depletions by the year 2020 will have reduced the availability of water containing less than 1,000 ppm chlorides by about 60 percent, and that exports will have caused an additional 30 percent reduction.



The magnitude of the past and anticipated future uses of water in areas tributary to the Delta, except the Tulare Lake Basin, is indicated in the diagram to the left. It may be noted that, while the present upstream use accounts for reduction of natural inflow to the Delta by almost 25 percent, upstream development during the next 60 years will deplete the inflow by an additional 20 percent. By that date about 22 percent of the natural water supply reaching the Delta will be exported to areas of deficiency by local, state, and federal projects. In addition, economical development of water supplies will necessitate impoundment of about 5,000,000 acre-feet of water seasonally to the Delta from north coastal streams for transfer to areas of deficiency.



DEPARTMENT OF THE INTERIOR,
BUREAU OF RECLAMATION,
Sacramento, Calif., November 16, 1949.

HON. CLARE ENGLE,
Red Bluff, Calif.

MY DEAR MR. ENGLE: In response to your request to Mr. Carr, we have assembled excerpts from various statements by Bureau and Department officials relating to the subject of diversion of water from the Sacramento Valley to the San Joaquin Valley through the operation of the Central Valley project.

A factual review of available water supplies over a period of more than 40 years of record and the estimates of future water requirements made by State and Federal agencies makes it clear that there is no reason for concern about the problem at this time.

For your convenience, I have summarized policy statements that have been made by Bureau of Reclamation and Department of the Interior officials. These excerpts are in the following paragraphs:

On February 20, 1942, in announcing the capacity for the Delta-Mendota Canal, Commissioner John C. Page said, as a part of his Washington, D. C., press release:

"The capacity of 4,800 cubic feet per second was approved, with the understanding that the quantity in excess of basic requirements mainly for replacement at Mendota Pool, will not be used to serve new lands in the San Joaquin Valley if the water is necessary for development in the Sacramento Valley below Shasta Dam and in the counties of origin of such waters."

On July 18, 1944, Regional Director Charles E. Carey wrote a letter to Mr. Harry Barnes, chairman of a committee of the Irrigation Districts Association of California. In that letter, speaking on the Bureau's recognition and respect for State laws, he said:

"They [Bureau officials] are proud of the historic fact that the reclamation program includes as one of its basic tenets that the irrigation development in the West by the Federal Government under the Federal reclamation laws is carried forward in conformity with State water laws."

On February 17, 1945, a more direct answer was made to the question of diversion of water in a letter by Acting Regional Director R. C. Calland, of the Bureau, to the Joint Committee on Rivers and Flood Control of the California State Legislature. The committee had asked the question, "What is your policy in connection with the amount

of water that can be diverted from one watershed to another in proposed diversions?" In stating the Bureau's policy, Mr. Calland quoted section 11460 of the State water code, which is sometimes referred to as the county of origin act, and then he said:

"As viewed by the Bureau, it is the intent of this statute that no water shall be diverted from any watershed which is or will be needed for beneficial uses within that watershed. The Bureau of Reclamation, in its studies for water resources development in the Central Valley, consistently has given full recognition to the policy expressed in this statute by the legislature and the people. The Bureau has attempted to estimate in these studies, and will continue to do so in future studies, what the present and future needs of each watershed will be. The Bureau will not divert from any watershed any water which is needed to satisfy the existing or potential needs within that watershed. For example, no water will be diverted which will be needed for the full development of all of the irrigable lands within the watershed, nor would there be water needed for municipal and industrial purposes or future maintenance of fish and wildlife resources."

On February 12, 1948, Acting Commissioner Wesley R. Nelson sent a letter to Representative Clarence F. Lea, in which he said:

"You asked whether section 10505 of the California Water Code, also sometimes referred to as the county of origin law, would be applicable to the Department of the Interior, Bureau of Reclamation. The answer to this question is: No, except insofar as the Bureau of Reclamation has taken or may take assignments of applications which have been filed for the appropriation of water under the California Statutes of 1927, chapter 286, in which assignments reservations have been made in favor of the county of origin.

The policy of the Department of the Interior, Bureau of Reclamation, is evidenced in its proposed report on a Comprehensive Plan for Water Resources Development—Central Valley Basin, Calif., wherein the Department of the Interior takes the position that "In addition to respecting all existing water rights, the Bureau has complied with California's 'county of origin' legislation, which requires that water shall be reserved for the presently unirrigated lands of the areas in which the water originates, to the end that only surplus water will be exported elsewhere."

On March 1, 1948, Regional Director Richard L. Boke wrote to Mr. A. L. Burkholder, secretary of the Live Oak Subordinate Grange No. 494, Live Oak, Calif., on the same subject, and said:

"I can agree fully with the statement in your letter that it would be grossly unjust to 'take water from the watersheds of one region to supply another region until all present and all possible future needs of the first region have been fully determined and completely and adequately provided for.' That is established Bureau of Reclamation policy and, I believe, it is consistent with the water laws of the State of California under which we must operate."

On May 17, 1948, Assistant Secretary of the Interior William E. Warne wrote a letter to Representative Lea on the same subject, in which he said:

"The excess water made available by Shasta Reservoir would go first to such Sacramento Valley lands as now have no rights to water."

Assistant Secretary Warne goes on to say, in the same letter:

"As you know, the Sacramento Valley water rights are protected by: (1) Reclamation law which recognizes State water law and rights thereunder; (2) the State's counties of origin act, which is recognized by the Bureau in principle; and (3) the fact that Bureau filings on water are subject to State approval. I can assure you that the Bureau will determine the amounts of water required in the Sacramento Valley drainage basin to the best of its ability so that only surplus waters would be exported to the San Joaquin. We are proceeding toward a determination and settlement of Sacramento Valley waters which will fully protect the rights of present users; we are determining the water needs of the Sacramento Valley; and it will be the Bureau's policy to export from that valley only such waters as are in excess of its needs."

On October 12, 1948, Secretary of the Interior Krug substantiated former statements of policy in a speech given at Oroville, Calif. Secretary Krug said, with respect to diversion of water:

"Let me state, clearly and finally, the Interior Department is fully and completely committed to the policy that no water which is needed in the Sacramento Valley will be sent out of it."

He added:

"There is no intent on the part of the Bureau of Reclamation ever to divert from the Sacramento Valley a single acre-foot of water which might be used in the valley now or later."

We believe the foregoing is a summary of the main policy statements by Government officials on the subject of importation of Sacramento Valley water to the San Joaquin Valley. Please inform me if you wish additional information.

Sincerely yours,

RICHARD L. BOLE,
Regional Director.

EXHIBIT No. 12

STATEMENT BY DONALD M. SMITH, SECRETARY, SACRAMENTO VALLEY IRRIGATION COMMITTEE, BEFORE THE JOINT HEARINGS OF SUBCOMMITTEE ON IRRIGATION AND RECLAMATION, HOUSE OF REPRESENTATIVES, AND THE JOINT INTERIM COMMITTEE ON WATER PROBLEMS, CALIFORNIA LEGISLATURE, OCTOBER 30, 1951, SACRAMENTO, CALIF.

Members of Congress, members of the State legislature, the Sacramento Valley Irrigation Committee is a four-county organization of

PL 99-546, October 27, 1986, 100 Stat 3050

UNITED STATES PUBLIC LAWS
99th Congress - Second Session
Convening January 21, 1986

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DATA SUPPLIED BY THE U.S. DEPARTMENT OF JUSTICE. (SEE SCOPE)
Additions and Deletions are not identified in this document.

PL 99-546 (HR 3113)
October 27, 1986

An Act to implement the Coordinated Operations Agreement, the Suisun Marsh Preservation Agreement, and to amend the Small Reclamation Projects Act of 1956, as amended, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

TITLE I -- COORDINATED OPERATIONS
PROJECT OPERATION POLICY

SEC. 101. Section 2 of the Act of August 26, 1937 (50 Stat. 850) is amended by --

(a) inserting at the beginning "(a)"; and

(b) inserting the following new subsection:

"(b)(1) Unless the Secretary of the Interior determines that operation of the Central Valley project in conformity with State water quality standards for the San Francisco Bay/Sacramento-San Joaquin Delta and Estuary is not consistent with the congressional directives applicable to the project, the Secretary is authorized and directed to operate the project, in conjunction with the State of California water project, in conformity with such standards. Should the Secretary of the Interior so determine, then the Secretary shall promptly request the Attorney General to bring an action in the court of proper jurisdiction for the purposes of determining the applicability of such standards to the project.

"(2) The Secretary is further directed to operate the Central Valley project, in conjunction with the State water project, so that water supplied at the intake of the Contra Costa Canal is of a quality equal to the water quality standards contained in the Water Right Decision 1485 of the State of California Water Resources Control Board, dated August 16, 1978, except under drought emergency water conditions pursuant to a declaration by the Governor of California. Nothing in the previous sentence shall authorize or require the relocation of the Contra Costa Canal intake."

REIMBURSABLE COSTS

SEC. 102. Section 2 of the Act of August 26, 1937 (50 Stat. 850) is amended by inserting the following new subsection:

"(c)(1) The costs associated with providing Central Valley project water supplies for the purpose of salinity control and for complying with State water quality standards identified in exhibit A of the 'Agreement Between the United States of America and the Department of Water Resources of the State of California for Coordinated Operation of the Central Valley Project and the State Water Project' dated May 20, 1985, shall be allocated among the project purposes and shall be reimbursed in accordance with existing Reclamation law and policy. The costs of providing water for salinity control and for complying with State water quality standards above those standards identified in the previous sentence shall be nonreimbursable.

"(2) The Secretary of the Interior is authorized and directed to undertake a cost allocation study of the Central Valley project, including the provisions of this Act, and to implement such allocations no later than January 1, 1988."

COORDINATED OPERATIONS AGREEMENT

(iii) evaluation of lower Mokelumne River floodway improvements.

(C) INTERTIES.—Activities under this subparagraph consist of—

(i) evaluation and construction of an intertie between the State Water Project California Aqueduct and the Central Valley Project Delta Mendota Canal, near the City of Tracy, as an operation and maintenance activity, except that the Secretary shall design and construct the intertie in a manner consistent with a possible future expansion of the intertie capacity (as described in subsection (f)(1)(B)); and

(ii) assessment of a connection of the Central Valley Project to the Clifton Court Forebay of the State Water Project, with a corresponding increase in the screened intake of the Forebay.

(D) PROGRAM TO MEET STANDARDS.—

(i) IN GENERAL.—Prior to increasing export limits from the Delta for the purposes of conveying water to south-of-Delta Central Valley Project contractors or increasing deliveries through an intertie, the Secretary shall, not later than 1 year after the date of enactment of this Act, in consultation with the Governor, develop and initiate implementation of a program to meet all existing water quality standards and objectives for which the Central Valley Project has responsibility.

(ii) MEASURES.—In developing and implementing the program, the Secretary shall include, to the maximum extent feasible, the measures described in clauses (iii) through (vii).

(iii) RECIRCULATION PROGRAM.—The Secretary shall incorporate into the program a recirculation program to provide flow, reduce salinity concentrations in the San Joaquin River, and reduce the reliance on the New Melones Reservoir for meeting water quality and fishery flow objectives through the use of excess capacity in export pumping and conveyance facilities.

(iv) BEST MANAGEMENT PRACTICES PLAN.—

(I) IN GENERAL.—The Secretary shall develop and implement, in coordination with the State's programs to improve water quality in the San Joaquin River, a best management practices plan to reduce the water quality impacts of the discharges from wildlife refuges that receive water from the Federal Government and discharge salt or other constituents into the San Joaquin River.

(II) COORDINATION WITH INTERESTED PARTIES.—The plan shall be developed in coordination with interested parties in the San Joaquin Valley and the Delta.

(III) COORDINATION WITH ENTITIES THAT DISCHARGE WATER.—The Secretary shall also coordinate activities under this clause with other entities that discharge water into the San Joaquin River to reduce salinity concentrations discharged into

Deadline.



the River, including the timing of discharges to optimize their assimilation.

(v) ACQUISITION OF WATER.—The Secretary shall incorporate into the program the acquisition from willing sellers of water from streams tributary to the San Joaquin River or other sources to provide flow, dilute discharges of salt or other constituents, and to improve water quality in the San Joaquin River below the confluence of the Merced and San Joaquin Rivers, and to reduce the reliance on New Melones Reservoir for meeting water quality and fishery flow objectives.

(vi) PURPOSE.—The purpose of the authority and direction provided to the Secretary under this subparagraph is to provide greater flexibility in meeting the existing water quality standards and objectives for which the Central Valley Project has responsibility so as to reduce the demand on water from New Melones Reservoir used for that purpose and to assist the Secretary in meeting any obligations to Central Valley Project contractors from the New Melones Project.

(vii) UPDATING OF NEW MELONES OPERATING PLAN.—The Secretary shall update the New Melones operating plan to take into account, among other things, the actions described in this title that are designed to reduce the reliance on New Melones Reservoir for meeting water quality and fishery flow objectives, and to ensure that actions to enhance fisheries in the Stanislaus River are based on the best available science.

(3) WATER USE EFFICIENCY.—

(A) WATER CONSERVATION PROJECTS.—Activities under this paragraph include water conservation projects that provide water supply reliability, water quality, and ecosystem benefits to the California Bay-Delta system.

(B) TECHNICAL ASSISTANCE.—Activities under this paragraph include technical assistance for urban and agricultural water conservation projects.

(C) WATER RECYCLING AND DESALINATION PROJECTS.—Activities under this paragraph include water recycling and desalination projects, including groundwater remediation projects and projects identified in the Bay Area Water Plan and the Southern California Comprehensive Water Reclamation and Reuse Study and other projects, giving priority to projects that include regional solutions to benefit regional water supply and reliability needs.

(D) WATER MEASUREMENT AND TRANSFER ACTIONS.—Activities under this paragraph include water measurement and transfer actions.

(E) URBAN WATER CONSERVATION.—Activities under this paragraph include implementation of best management practices for urban water conservation.

(F) RECLAMATION AND RECYCLING PROJECTS.—

(i) PROJECTS.—This subparagraph applies to—

(I) projects identified in the Southern California Comprehensive Water Reclamation and Reuse Study, dated April 2001 and authorized by

Applicability.

FILED
San Francisco County Superior Court

APR 13 1984

DONALD W. DICKINSON, Clerk

[Signature]
Clerk

CALIFORNIA SUPERIOR COURT
CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT NUMBER SEVENTEEN

UNITED STATES OF AMERICA,
Petitioner,

vs.

STATE WATER RESOURCES CONTROL
BOARD,
Respondent.

Nos. 759239, 759266,
759540, 759547, 759558,
759586, 759240, & 759611

JUDICIAL COUNCIL
COORDINATION PROCEEDING
NO. 548

STATEMENT OF DECISION

DELTA WATER CASES

I. INTRODUCTION

The Sacramento-San Joaquin Delta is the hub of two massive water projects that extend nearly the full length of California. One is run by the U.S. Bureau of Reclamation, the other by the California Department of Water Resources. The projects store water in reservoirs, release it into rivers that flow into the Delta, and pump it south from the Delta. The water pumped south is used by farmers and municipalities in the Central Valley and southern California. The water not pumped is used by Delta

1 12203 is best construed as dealing with the water to which
2 Delta users are entitled under either their riparian or
3 appropriative rights or rights under the Watershed of Origin
4 statutes that have been properly perfected. 42/

5 In summary, this court concludes the following. The
6 Delta Protection Act creates an inchoate prior right to an
7 "adequate water supply" in favor of Delta users. The water
8 supply can only be adequate if salinity intrusion is
9 controlled. The right comprises water for direct use and for
10 controlling salinity intrusion. In order to perfect a right to
11 water in excess of that to which they are entitled under
12 appropriative and riparian rights, Delta users must obtain an
13 appropriative permit 43/ and execute a repayment contract.
14 Because the inchoate rights of Delta users have not been
15 perfected, the Board did not err by setting water quality
16 standards that did not reflect the enhanced water quality
17 anticipated by the act. Of course, if any such rights are
18 perfected, the Board will be obligated to protect them.

19
20 3. Repayment Contracts

21 The Delta petitioners argue that they need not pay
22 for water released, pursuant to the Delta Protection Act, for
23 salinity control purposes. However, this court holds that
24 Delta users must pay for water provided under either the
25 Watershed of Origin statute or the Delta Protection Act,
26 regardless of whether the water is used directly by Delta users
27 or to repel saltwater intrusion. This court further holds that
28 repayment contracts must be executed before the projects can be

1 required to provide water the projects have developed.

2 The parties agree that water put to direct use in the
3 Delta must be paid for if it is made available by the projects,
4 i.e., if water has been stored during periods of high flow and
5 released during periods of low flow specifically for a user's
6 benefit. However, the parties disagree about whether users
7 must pay for water released for salinity control. The Delta
8 petitioners point out that there is no express payment
9 requirement in the section of the Delta Protection Act that
10 governs the provision of salinity control (Wat. Code sec.
11 12202), or in any other section of that act. However, a pay-
12 ment requirement appears in the Watershed of Origin statute
13 (Wat. Code sec. 11462), which is incorporated into the Delta
14 Protection Act (Wat. Code sec. 12201). 44/ Therefore, this
15 court concludes that salinity control water made available
16 under the Watershed of Origin statute or the Delta Protection
17 Act specifically for a Delta user's benefit must be paid for by
18 that user.

19 However, Delta users need not pay for salinity control
20 water even if they are incidentally benefited unless the water
21 is released specifically for their benefit. Delta users need
22 not pay for these incidental benefits because the water would
23 be released anyway. 45/ Three instances follow.

24 First, Delta water users need not pay for the enhanced
25 water quality that results from water released by the projects
26 to maintain adequate water quality at the export pumping
27 stations; this water has been alternatively characterized as
28 salinity control water, delivery water, or carriage water.

1 Because the contracts between the project operators and their
2 export contractors provide for water of a specific water
3 quality, this salinity control water is furnished as part of
4 the quid pro quo of the contracts. Therefore, the costs should
5 be borne by those who have entered into such contracts.

6 Similarly, the export contractors should bear the full cost of
7 any enhanced water quality that results from the release of
8 water that is actually delivered to them.

9 Second, Delta users need not pay for the enhanced water
10 quality resulting from the release of abandoned water.

11 Abandoned water may include irrigation return flows, water used
12 to generate electricity, and water released from reservoirs to
13 create sufficient storage capacity to capture subsequent
14 floodwaters. These releases of water are already paid for.
15 Water released for improving navigation, which may not actually
16 be abandoned, also has been paid for and, therefore, need not
17 be paid for by Delta users.

18 Third, Delta users need not pay for the enhanced water
19 quality resulting from water released to preserve or enhance
20 fish and wildlife resources. Nowhere in Water Code section
21 1243, which empowers the Board to protect and enhance fish and
22 wildlife when acting upon permits, is there any indication that
23 anyone would have to pay for this protection. Any benefit the
24 Delta users receive by virtue of their location in a protected
25 area is incidental and need not be paid for. Furthermore, the
26 Davis-Dolwig Act provides for payment for water used to
27 preserve and enhance fish and wildlife: Water Code section
28 11912 provides that state contractors are to bear the cost of

1 fish and wildlife preservation and sections 11913 and 11900
2 provide that expenses for fish and wildlife enhancement are to
3 be borne by the state's General Fund. 46/

4 In summary, Delta users must pay for water made available
5 by the projects under the Watershed of Origin statute or the
6 Delta Protection Act specifically for their use, but they need
7 not pay for incidental benefits from water released for other
8 purposes.

9 Whether a repayment contract must be executed to perfect
10 a right to water under the Watershed of Origin statute or the
11 Delta Protection Act is an issue that must now be addressed.
12 There are no provisions explicitly requiring contracts within
13 either the Delta Protection Act or the Watershed of Origin
14 statute. However, the statutes governing the operation of the
15 two projects require contracts before water is provided.

16 Federal reclamation law requires contracts when a
17 reclamation project provides water for irrigation use (43
18 U.S.C. sec. 423e, sec. 485h, subds. (d)-(e)), and for
19 municipal or other uses (43 U.S.C. sec. 521, sec. 485h, subd.
20 (c)). 47/ Contracts must be executed prior to the delivery of
21 water. (43 U.S.C. secs. 423e, 521, sec. 485h, subd. (h).)

22 State law requires contracts when the state project provides
23 water for users. (Wat. Code secs. 12937, 12931 (incorporating
24 Wat. Code secs. 11455, 11625).) Although the state sections
25 apparently do not require that contracts be executed prior to
26 the delivery of water, the state project permits before the
27 Board in D. 1485 all contain a term that requires the prior
28 execution of contracts for water delivery in the Sacramento

1 River watershed and the Delta. 48/

2 Requiring contracts to be executed before providing water
3 under the Watershed of Origin statute of the Delta Protection
4 Act poses certain complications. First, fish and wildlife
5 obviously lack the capacity to contract. Because provision has
6 been made in the Davis-Dolwig Act for payment for water used to
7 preserve or enhance fish and wildlife, there is no reason that
8 contracts should be required for water used for this purpose.

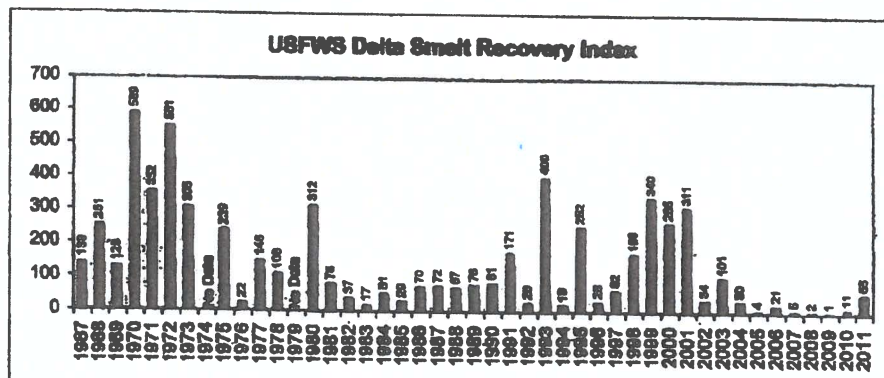
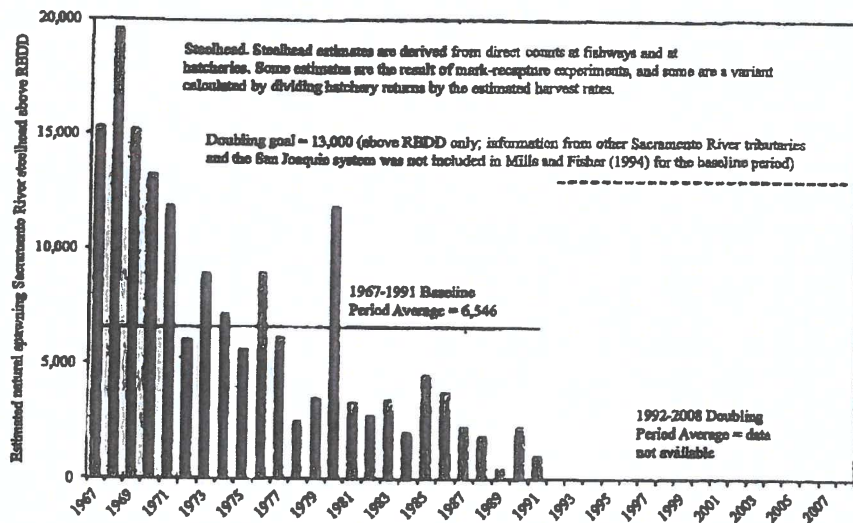
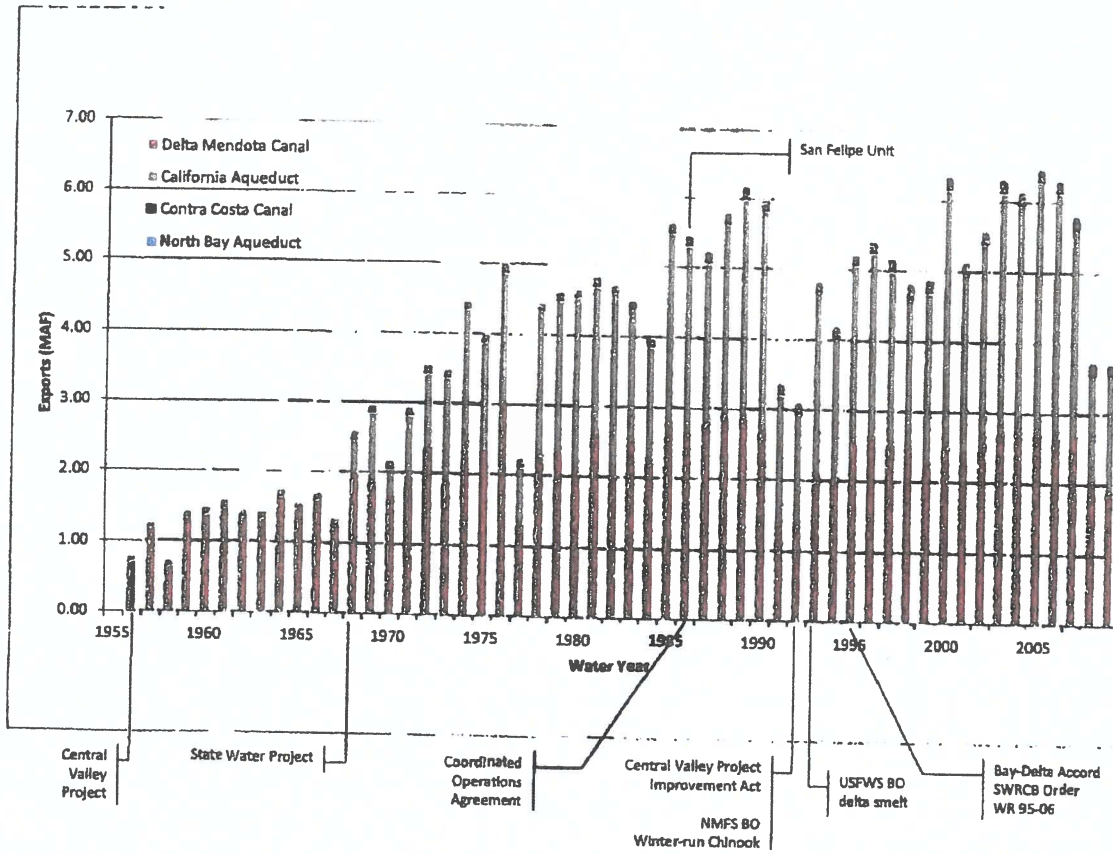
9 Second, the Delta petitioners argue that a satisfactory
10 contract for salinity control water could not be executed
11 because it is impossible to determine in advance the exact
12 amount of water required to be released for this purpose.
13 Obviously, this is due to fluctuations in precipitation and
14 uncertainty as to actual future water quality conditions.
15 However, satisfactory contracts can be executed. One solution
16 could be a carefully negotiated contract in which the
17 contracting project would agree to release sufficient water to
18 ensure the predetermined water quality in return for annual
19 payment of the average annual cost of providing such water.
20 The amount of water that would need to be released specifically
21 for the contractor in excess of water released for other
22 purposes could be calculated with reference to long-term
23 historical records of Delta inflow using sophisticated models
24 developed by the projects. Such a contract has already been
25 executed by the North Delta Water Agency. (See The Cal. State
26 Water Project--Current Activities and Future Management Plans,
27 Dept. Water Resources Bull. No. 132-81 (Nov. 1981) pp.
28 70-71.)

1 In summary, contracts are required prior to the delivery
2 of water under the Watershed of Origin statute or the Delta
3 Protection Act -- whether for direct use or for salinity
4 control. Because no one has contracted for enhanced water
5 quality under these statutes, the Board need not have
6 established water quality standards to protect Delta users'
7 inchoate rights under these statutes.

8
9 E. Protection of Fish and Wildlife

10 Beneficial uses, as defined by the Porter-Cologne
11 Act, include "preservation and enhancement of fish, wildlife,
12 and other aquatic resources." (Wat. Code sec. 13050(f).) To
13 protect fish and wildlife in the Delta, the Board set water
14 quality standards designed to ensure that a sufficient amount
15 of freshwater flows out of the Delta and into San Francisco
16 Bay. (Plan, pp. VI-31 to VI-33; Decision, pp. 38-39.) The
17 abundance of fish in the Delta apparently depends on the
18 magnitude of the freshwater outflow and of the saltwater
19 intrusion. (See Plan, p. III-3.)

20 Fish do not have water rights, and two California Courts
21 of Appeal have held that one cannot obtain an appropriative
22 permit to protect fish. (California Trout, Inc. v. State Water
23 Resources Control Board (1979) 90 Cal.App.3d 816, 820;
24 Fullerton v. State Water Resources Control Board (1979) 90
25 Cal.App.3d 590, 603.) However, as explained below, the Board
26 has powers that enable it to protect fish. If it properly
27 employs these powers, the Board can prevent water users from
28 taking the water allocated to fish. It can also establish



2-1-13

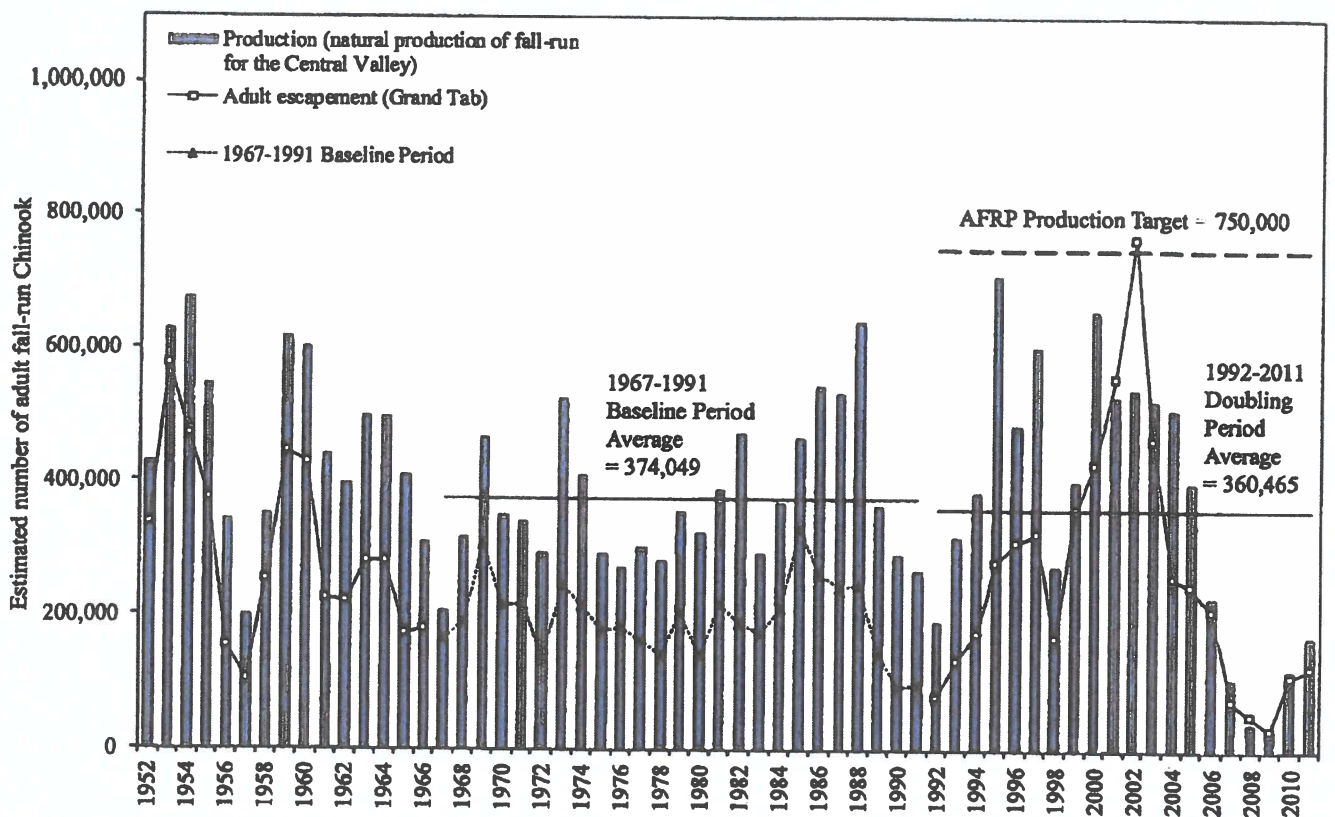


Figure 2. Estimated yearly natural production and in-river escapement of adult fall-run Chinook salmon in the Central Valley rivers and streams. 1952 - 1966 and 1992 - 2011 numbers are from CDFG Grand Tab (Apr 24, 2012). 1967-1991 Baseline Period numbers are from Mills and Fisher (CDFG, 1994).

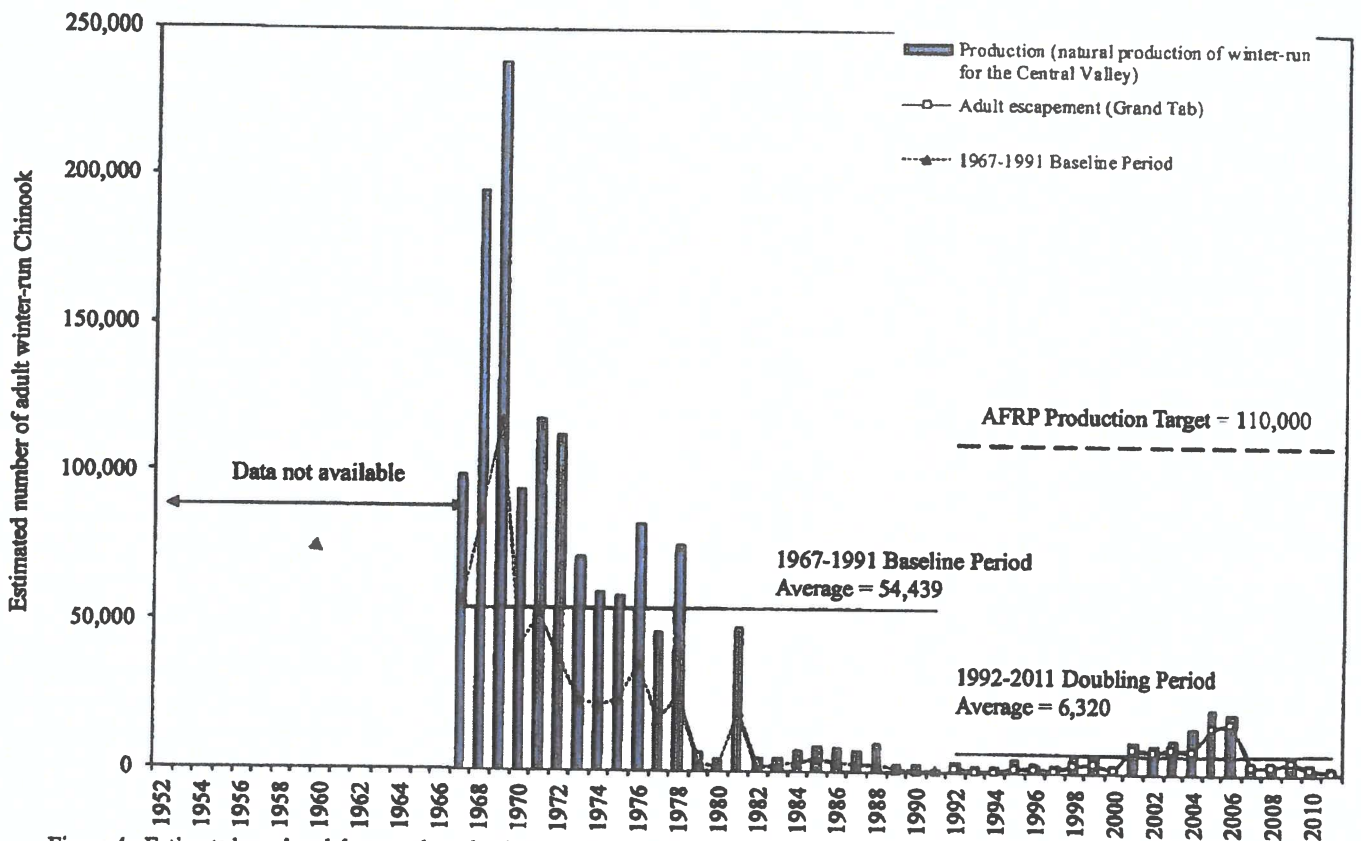


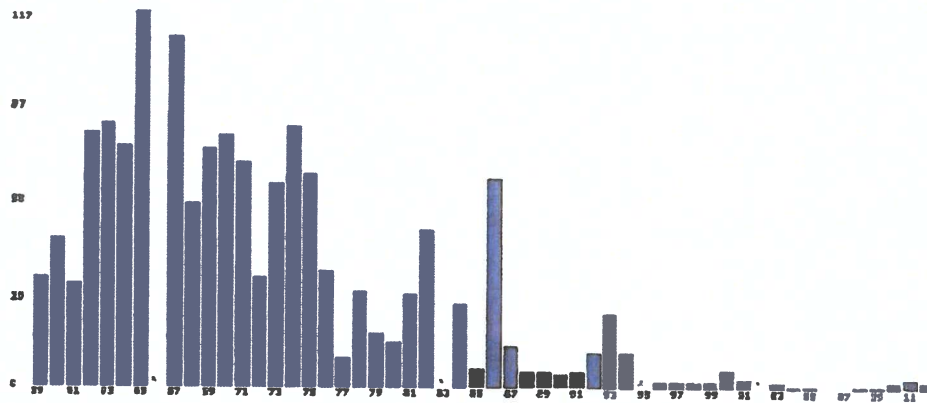
Figure 4. Estimated yearly adult natural production, and in river adult escapements of winter-run Chinook salmon in the Central Valley rivers and streams. 1992 - 2011 numbers are from CDFG Grand Tab (Apr 24, 2012). 1967-1991 Baseline Period numbers are from Mills and Fisher (CDFG, 1994).

CALIFORNIA DEPARTMENT OF FISH and WILDLIFE



[Home](#) → [Regions](#) → [Bay Delta Region](#) → [Studies and Surveys](#) → [Summer Towntnet Survey](#) → [Striped Bass Indices](#)

Striped Bass Indices



Striped Bass Indices

YEAR	INDEXDATE	DELTA INDEX	SUISUN BAY INDEX	TOTAL INDEX
1959	12-Jul	30.7	3.0	33.7
1960	16-Jul	32.0	13.6	45.6
1961	21-Jul	25.2	6.4	31.6
1962	26-Jul	46.8	32.1	78.9
1963	3-Aug	38.2	43.5	81.7
1964	1-Aug	54.7	20.7	75.4

Attachment V

<http://www.dfg.ca.gov/delta/data/towntnet/indices.asp?species=0>

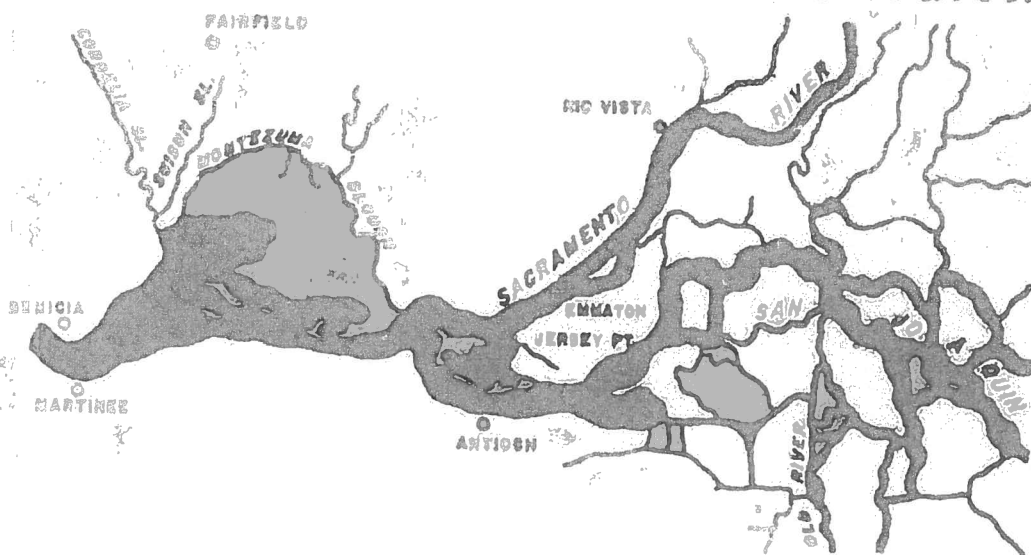
9/24/2013

water right decision 1485

In the Matter of Permit 12720 (Application 5925) and Other Permits of United States Bureau of Reclamation for the Federal Central Valley Project and of California Department of Water Resources for the State Water Project.

DECISION IN FURTHERANCE OF JURISDICTION RESERVED IN DECISIONS D 893, D 909, D 1020, D 1260, D 1275, D 1291, D 1303, D 1356, and PERMIT ORDER 124

Sacramento-San Joaquin Delta and Suisun Marsh



August 1978
STATE WATER RESOURCES CONTROL BOARD

executed. The criteria in the draft agreement were recommended by Fish and Game and endorsed by the Department, and were extensively analyzed by the Board staff. Based on our most current assessment, the fishery standards provide significantly higher protection than existing basin plans. The Striped Bass Index is a measure of young bass survival through their first summer. The Striped Bass Index would be 71 under without project conditions (i.e., theoretical conditions which would exist today in the Delta and Marsh in the absence of the CVP and SWP), 63 under the existing basin plans, and about 79^{3/} under this decision.

While the standards in this decision approach without project levels of protection for striped bass, there are many other species, such as white catfish, shad and salmon, which would not be protected to this level. To provide full mitigation of project impacts on all fishery species now would require the virtual shutting down of the project export pumps. The level of protection provided under this decision is nonetheless a reasonable level of protection until final determinations are made concerning a cross-Delta transfer facility or other means to mitigate project impacts.

D 1485
1978

NO SHUT DOWN
INSTEAD
INCREASED EXPORT

^{3/} There is some indication that factors other than those considered in the Board's analysis of without project levels may also affect striped bass survival. The effects of these factors are such that the without project levels would be greater than 71. However, the magnitude of this impact is unknown and cannot be quantified at this time.

D 1485
1978

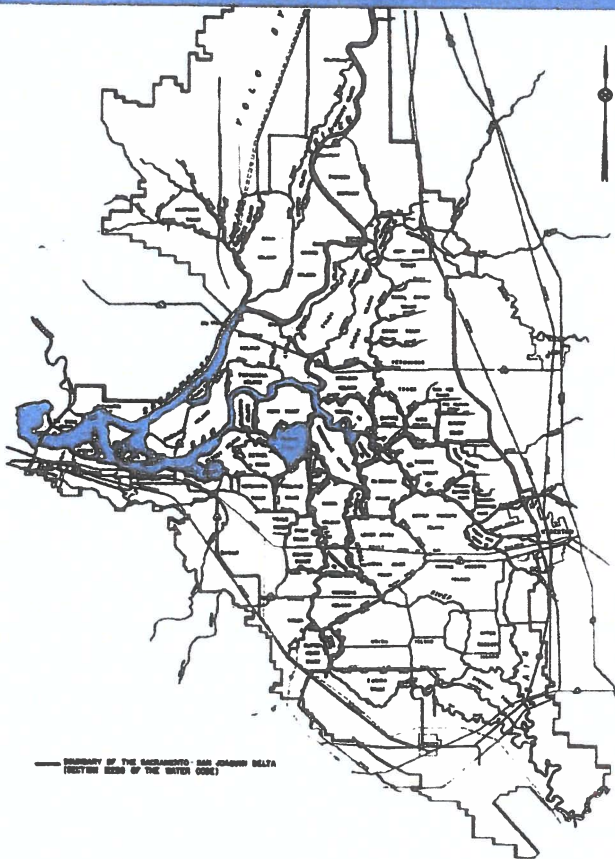
051837

Suisun Marsh. Full protection of Suisun Marsh now could be accomplished only by requiring up to 2 million acre-feet of freshwater outflow in dry and critical years in addition to that required to meet other standards. This requirement would result in a one-third reduction in combined firm exportable yield of State and federal projects. In theory, the existing Basin 5B Plan supports to provide full protection to the Marsh. However, during the 1976-77 drought when the basin plan was in effect, the Marsh received little if any protection because the system almost ran out of water and emergency regulations had to be imposed. This decision balances the limitations of available water supplies against the mitigation responsibility of the projects. This balance is based on the constitutional mandate "...that the water resources of the State be put to beneficial use to the fullest extent of which they are capable..." and that unreasonable use and unreasonable diversion be prevented (Article 10, Section 2, California Constitution).

The Bureau, the Department, Fish and Game, and U. S. Fish and Wildlife Service are working together to develop alternative water supplies for the Marsh. Such alternative supplies appear to represent a feasible and reasonable method for protection of the Marsh and mitigation of the adverse impacts of the projects. Under this decision the Department and Bureau are required, in cooperation with other agencies, to develop a plan for Suisun Marsh by July 1, 1979. The Suisun Marsh plan should ensure that the

NOT PROVIDED

The Delta—its geography and economy

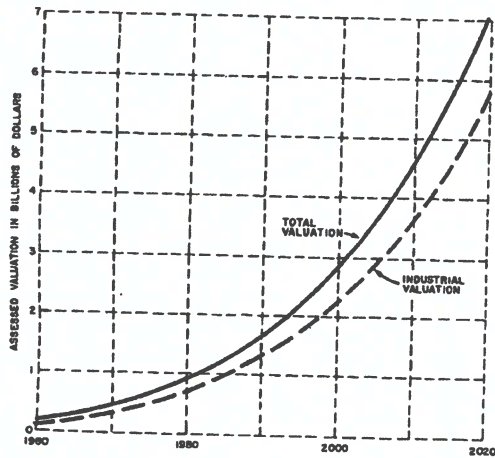


The Delta, located at the confluence of the Sacramento and San Joaquin Rivers system, is a unique feature of the California landscape. The Delta encompasses some 738,000 acres, interlaced with 700 miles of meandering waterways covering 50,000 acres. About 415,000 acres of land, referred to as Delta Lowlands, lie between elevations of 5 feet above and 20 feet below sea level. This area is composed of peat, organic sediments, and alluvium, and is protected from flood water and high tides by man-made levees. The extensive waterways afford opportunity for shipping and provide a wonderland for boating and water sports. These same waterways must safely discharge flood waters of the Central Valley.

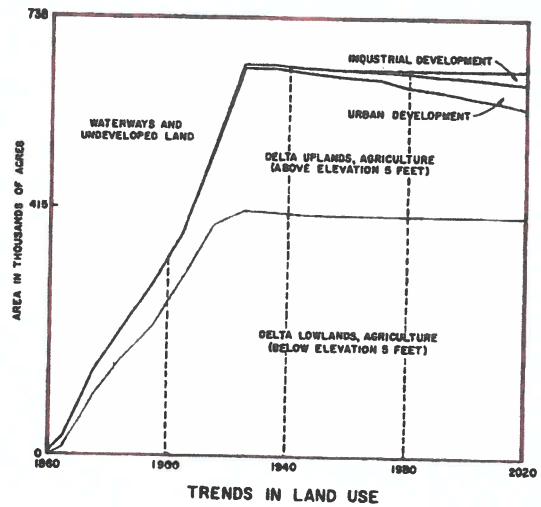
The fortunate combination of fertile soils, convenient water supplies, and shallow-draft shipping to central California markets led to development of an intensified agricultural economy in the Delta. Initial reclamation of the marshlands began slowly in the 1850's, but rapidly expanded after state assistance was provided by a swampland act in 1861. By 1930, all but minor areas of the swamplands had been leveed and were in production.

The Delta has historically been noted for its asparagus, potatoes, celery, and varied truck crops. Recently, greater emphasis has been placed on field corn, milo, grain, and hay, although the Delta still produces most of the nation's canned asparagus. The Delta's agricultural economy for many years was dependent upon repulsion of ocean salinity by fresh water outflow, which fluctuated widely, but during the past sixteen years has been protected largely by releases from upstream reservoirs of the Federal Central Valley Project during summer months.

Several towns and cities are located in the upland areas and an industrial complex is expanding in the western part of the Delta. Early industrial development centered around food and kindred products, steel production, fibreboard, lumber, and ship-building activity. Large water-using industries, such as steel, paper products, and chemicals, have developed in the western area where water, rail, and highway transportation, coupled with water supplies, has stimulated growth. The manufacturing employment in this area was about 10,000 people in 1960.



PROJECTED ASSESSED VALUATIONS WITHIN THE WESTERN DELTA STUDY AREA



A deep-draft ship channel serving commercial and military installations terminates at Stockton, and another is being constructed to Sacramento. Water-borne shipments in the Delta amounted to about 6,000,000 tons annually in recent years.

The Delta encompasses one of California's most important high quality natural gas fields. Since 1941 the field has produced about 300,000,000 cubic feet of methane gas for use in the San Francisco Bay area.

With the growing significance of recreation, the Delta has blossomed into a major recreation area at the doorsteps of metropolitan development in the San Francisco Bay area, Sacramento, and Stockton. In 1960, nearly 2,800,000 recreation-days were enjoyed in this boating wonderland.

Public Law 86-488

June 3, 1960
[S. 44]

AN ACT

To authorize the Secretary of the Interior to construct the San Luis unit of the Central Valley project, California, to enter into an agreement with the State of California with respect to the construction and operation of such unit, and for other purposes.

Central Valley
Project, Calif.
San Luis unit.
Construction.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That (a) for the principal purpose of furnishing water for the irrigation of approximately five hundred thousand acres of land in Merced, Fresno, and Kings Counties, California, hereinafter referred to as the Federal San Luis unit service area, and as incidents thereto of furnishing water for municipal and domestic use and providing recreation and fish and wildlife benefits, the Secretary of the Interior (hereinafter referred to as the Secretary) is authorized to construct, operate, and maintain the San Luis unit as an integral part of the Central Valley project. The principal engineering features of said unit shall be a dam and reservoir at or near the San Luis site, a forebay and afterbay, the San Luis Canal, the Pleasant Valley Canal, and necessary pumping plants, distribution systems, drains, channels, levees, flood works, and related facilities, but no facilities shall be constructed for electric transmission or distribution service which the Secretary determines, on the basis of an offer of a firm fifty-year contract from a local public or private agency, can through such contract be obtained at less cost to the Federal Government than by construction and operation of Government facilities. The works (hereinafter referred to as joint-use facilities) for joint use with the State of California (hereinafter referred to as the State) shall be the dam and reservoir at or near the San Luis site, forebay and afterbay, pumping plants, and the San Luis Canal. The joint-use facilities consisting of the dam and reservoir shall be constructed, and other joint-use facilities may be constructed, so as to permit future expansion; or the joint-use facilities shall be constructed initially to the capacities necessary to serve both the Federal San Luis unit service area and the State's service area, as hereinafter provided. In constructing, operating, and maintaining the San Luis unit, the Secretary shall be governed by the Federal reclamation laws (Act of June 17, 1902 (32 Stat. 388), and Acts amendatory thereof or supplementary thereto). Construction of the San Luis unit shall not be commenced until the Secretary has (1) secured, or has satisfactory assurance of his ability to secure, all rights to the use of water which are necessary to carry out the purposes of the unit and the terms and conditions of this Act, and (2) received satisfactory assurance from the State of California that it will make provision for a master drainage outlet and disposal channel for the San Joaquin Valley, as generally outlined in the California water plan, Bulletin Numbered 3, of the California Department of Water Resources, which will adequately serve, by connection therewith, the drainage system for the San Luis unit or has made provision for constructing the San Luis interceptor drain to the delta designed to meet the drainage requirements of the San Luis unit as generally outlined in the report of the Department of the Interior, entitled "San Luis Unit, Central Valley Project," dated December 17, 1956.

(b) No water provided by the Federal San Luis unit shall be delivered in the Federal San Luis service area to any water user for the production on newly irrigated lands of any basic agricultural commodity, as defined in the Agricultural Act of 1949, or any amendment thereof, if the total supply of such commodity as estimated by the Secretary of Agriculture for the marketing year in which the bulk

43 USC 371 and
note.
Preliminary
measures.

Conditions.

63 Stat. 1051.
7 USC 1421 note.

Title THE CALIFORNIA WATER RESOURCES DEVELOPMENT BOND ACT

Year/Election 1960 general

Proposition type bond (lsg)

Popular vote Yes: 3,008,328 (51.5%); No: 2,834,384 (48.5%)

Pass/Fail Pass

Summary This act provides for a bond issue of one billion, seven hundred fifty million dollars (\$1,750,000,000) to be used by the Department of Water Resources for the development of the water resources of the State.

For Argument in Favor of California Water Resources Development Bond Act

Your vote on this measure will decide whether California will continue to prosper.

This Act, if approved, will launch the statewide water development program which will meet present and future demands of all areas of California. **The program will not be a burden on the taxpayer; no new state taxes are involved; the bonds are repaid from project revenues, through the sale of water and power. In other words, it will pay for itself.** The bonds will be used over a period of many years and will involve an approximate annual expenditure averaging only \$75 million, as compared, for example with \$600 million a year we spend on highways.

Existing facilities for furnishing water for California's needs will soon be exhausted because of our rapid population growth and industrial and agricultural expansion. We now face a further critical loss in the Colorado River supply. Without the projects made possible by this Act, we face a major water crisis. We can stand no more delay.

If we fail to act now to provide new sources of water, land development in the great San Joaquin Valley will slow to a halt by 1965 and the return of cultivated areas to wasteland will begin. In southern California, the existing sources of water which have nourished its tremendous expansion will reach capacity by 1970 and further development must wholly cease. In northern California desperately needed flood control and water supplies for many local areas will be denied.

This Act will assure construction funds for new water development facilities to meet California's requirements now and in the future. **No area will be deprived of water to meet the needs of another. Nor will any area be asked to pay for water delivered to another.**

To meet questions which concerned, southern California, the bonds will finance completion of all facilities needed, as described in the Act. Contracts for delivery of water may not be altered by the Legislature. The tap will be open, and no amount of political maneuvering can shut it off.

Under this Act the water rights of northern California will remain securely protected. In addition, sufficient money is provided for construction of local projects to meet the pressing needs for flood control, recreation and water deliveries in the north.

A much needed drainage system and water supply will be provided in the San Joaquin Valley.

Construction here authorized will provide thousands of jobs. And the program will nourish tremendous industrial and farm and urban expansion which will develop an ever-growing source of employment and economic prosperity for Californians.

Our Legislature has appropriated millions of dollars for work in preparation, and construction is now underway. It would be tragic if this impressive start toward solution of our water problems were now abandoned.

If we fail to act now to insure completion of this constructive program, serious existing water shortages will only get worse. The success of our State is at stake. Vote "Yes" for water for people, for progress, for prosperity!