

**AGRICULTURAL WATER
QUALITY ISSUES FOR DELTA
SOURCE WATER**

**PERSPECTIVES OF STATE AND
FEDERAL AGENCIES**

STATE WATER RESOURCES CONTROL BOARD

THE USE OF

DELTA WATER FOR AGRICULTURE

The principal problems associated with the use of Delta water for agricultural purposes are salinity intrusion in the western and interior Delta and elevated salt concentrations in the San Joaquin River.

The State Water Resources Control Board (State Water Board) has developed water quality objectives for agricultural use of Delta water. The objectives are based on the crops grown in the area to be protected. They are specific for the western and interior Delta, southern Delta, and export area.

In Decision 1485 the State Water Board concluded that to reasonably protect crops in the western and interior Delta, water quality objectives for protection of agricultural productivity should be based principally on modified "without project" conditions. The objectives for the western and interior Delta ranged from 0.45 to 2.78 mmhos/cm depending on year type and time of year. The 1978 Water Quality Control Plan specified that a study of the salt tolerance of corn, a representative agricultural product in the area, be conducted. The results of this study indicated that salinities of up to 1.5 mmhos/cm could be allowed during the irrigation season without affecting crop yield if improved leaching practices are used. However, The State Water Board does not intend to adjust western and interior Delta agricultural objectives until more economic information is available on the costs of leaching and the ability of farmers to pay these costs. The State Water Board and other agencies are funding the necessary studies to develop the required information, but the final reports has not been completed. Therefore, the D-1485 objectives are to be retained until the additional information is available.

The existing water quality objective of 500 ppm TDS for the south Delta originated from the July 2, 1969 "Memorandum of Agreement for the Protection and Enhancement of the Water Quality of the Stanislaus and San Joaquin Rivers as Affected by the New Melones Project". The 1978 Water Quality Control Plan recommended an objective based on using beans and alfalfa as representative salt-sensitive crops. An objective of 0.7 mmhos/cm in the southern Delta protects beans during the summer irrigation season (April 1 to August 31) and an objective of 1.0 mmhos/cm protects

alfalfa during the winter irrigation season (September 1 to March 31). Decision 1485 deferred implementation of these objectives either until a three-party contract could be agreed upon or until at least January 1, 1980. To date there has been no contract agreement. Therefore the State Water Board developed a three stage program of implementation in the 1991 Water Quality Control Plan. The three stages implementation program call for increasingly stringent objectives over time. As an alternative, if a three-party contract is implemented between the DWR, USBR and the South Delta Water Agency, the State Water Board may revise its implementation program and objectives. In addition, in order to improve south Delta water quality the State Water Board has directed the Central Valley Regional Water Quality Control Board to develop and adopt a 10 percent salt-load reduction program for the San Joaquin River.

Within the export areas the State Water Board found that the existing (D-1485) objective of 1.0 mmhos/cm was adequate to protect agricultural beneficial uses.

Department of Water Resources Perspective

For protection of crops grown in the organic soil areas of the Delta, the Department believes that the Corn Study provides adequate data and should be used as a basis for setting new, less-restrictive salinity objectives.

There is a salinity gradient in the Delta, with higher salinities occurring in western Delta channels (Emmaton and Jersey Point) due to their proximity to brackish waters, and lower salinities occurring in the interior Delta (San Andreas Landing and Terminous) due to their proximity to fresh water inflow sources.

Because there are greater water supply costs to upstream or Delta diverters associated with meeting western Delta objectives, it is reasonable to distinguish between the western Delta and the interior Delta when setting objectives. Therefore, to make the most effective use of Delta water supplies, it is reasonable to expect western Delta agricultural water users to employ more effective or frequent leaching practices to manage the salinity of their fields.

In addition, a water quality standard at Threemile Slough (eastern side of Sherman Island) should be provided as an alternative to the Emmaton standard. This standard would become effective when DWR has satisfied the pertinent conditions of the 1981 North Delta Water Agency contract, which include building an overland water supply facility to transport good quality water from Threemile Slough onto Sherman Island.

For the southern Delta, the Department has consistently maintained the position that the needs of southern Delta agricultural users are being reasonably met through provisions of the successfully negotiated three-party (DWR, USBR, SDWA) South Delta Agreement, along with establishing a salinity objective at Vernalis (San Joaquin River inflow station). The main provisions of the agreement include construction and operation of flow control facilities in certain channels, interim releases from New Melones Reservoir (USBR), and the framework for a future, permanent settlement regarding the quantity and quality of San Joaquin River water entering the south Delta.

The State Water Resource Control Board's proposed Water Quality Control Plan objectives at three locations downstream of Vernalis (Brandt Bridge, Old River near Middle River, and Old River at Tracy Road) are contrary to the intent of the negotiated contract. These three southern Delta stations are degraded by local agricultural practices (drainage returns, concentration of salts) such that salinity levels often rise above that of Vernalis. As described, the agreed-upon way to alleviate this problem is through construction of a series of barriers in conjunction with CVP/SWP pumping operations as experienced under D-1485. Even with installation of the barriers, there is no guarantee that the salinity levels specified in the proposed WQCP

would be maintained. In summer and fall months, southern Delta water quality is heavily influenced by uncontrollable factors; poor quality water from the San Joaquin River, agricultural drainage and upstream diversions. While the barriers would help maintain adequate water levels, good quality Sacramento River water brought to the region by the project pumps would not be enough to counteract the effects of these uncontrollable factors and provide adequate dilution.

The Department recommended that the SWRCB adopt the three-party South Delta Agreement to protect water quality for south Delta agricultural users in the State and federal water project service areas.