

State Water Project Exports (QSWP)

In 2003, the definition of QSWP was changed to include only Clifton Court Inflow. The change was made to improve the representation of the State Water Project's direct influence on Delta currents, water levels, and transport of biota.

In 2002, the definition of QSWP was changed to include only Banks Pumping Plant flow.

Previous QSWP values used the following equation:

$$\text{QSWP} = \text{Clifton Court Forebay Inflow} - \text{BBID}$$

The following is the reason for using this equation:

The parameter QSWP (representing Banks Pumping Plant flow) has been used in the Dayflow program to account for daily exports from the Delta by the State Water Project. In the Dayflow data base, QSWP represents daily mean pumping rates at the Harvey O. Banks Delta Pumping Plant (formerly Delta Pumping Plant) from October 1, 1967, through April 30, 1971. During this period, SWP export pumping was direct from Delta channels.

Since Clifton Court Forebay came on line, SWP exports have been taken from the forebay and not directly from Delta channels. Consequently, estimates of net Delta outflow are affected by the amount of water diverted into Clifton Court Forebay (intake) from Old River at West Canal. Therefore, values for QSWP used in the Dayflow data base since May 1, 1971 represent daily mean Clifton Court Forebay intake flows after a necessary correction.

Before Clifton Court Forebay came on line, Byron-Bethany Irrigation District (BBID) withdrawals were channel depletions. As noted in the documentation for gross channel depletions (see QGCD above), an average value for the BBID withdrawal was included in QGCD estimates as a portion of gross channel depletions (i.e., the BBID withdrawal was not explicitly accounted for). Since Clifton Court Forebay has been on line, BBID diversions have been taken out of the forebay and are no longer a direct channel depletion. To correct for the current inclusion of BBID withdrawals in QGCD values, actual BBID withdrawals from Clifton Court Forebay (as reported by DWR operations) are subtracted from the Clifton Court Forebay intake (QSWP) to prevent double-counting. As a result, the values reported for QSWP since May 1, 1971 are actually Clifton Court Forebay intake minus the BBID withdrawal.

Once the estimates for historical gross channel depletion (see QGCD above) are used in running the Dayflow program, this correction will not be needed.

Miscellaneous Water Diversions/Transfers (QMISDV)

The parameter QMISDV was added to the Dayflow program when it was partially automated in 1978. It was included to account for water diversions and transfers other than consumptive use (gross channel depletions, QGCD) and exports (QCCC, QCVF, and QSWP) that would affect daily estimates of historical net Delta outflow. Mean monthly values for QMISDV are reported in [Table 5](#) are other water diversions and transfers occurring in the Delta from October 1955 through September 1984 (Dayflow data base period of record) that have not been accounted for. These events need to be evaluated with respect to their effect on estimates of net Delta outflow for possible inclusion in the Dayflow data base as QMISDV.

Estimated distance from Golden Gate to 2 ppt Salinity (X2), km

The 1994 Bay-Delta agreement established standards for salinity in the estuary. Specifically, the standards determine the degree to which salinity is allowed to penetrate up-estuary, with salinity to be controlled through delta outflow. The basis for the standards is a series of relationships between the salinity pattern and the abundance or survival of various species of fish and invertebrates. These relationships have been expressed in terms of X2, the distance from the Golden Gate to the point where daily average salinity is 2 parts per thousand at 1 meter off the bottom (Jassby et. al. 1995).

In Dayflow, X2 is estimated using the Autoregressive Lag Model:

$$X2(t) = 10.16 + 0.945 * X2(t-1) - 1.487 \log(QOUT(t))$$