

## 2010 Dayflow Highlights

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We improved and updated the Dayflow data set and website in several ways this year. As a reminder, Dayflow is intended to estimate a Delta Outflow Index, a non-tidal estimate of net flow out of the Delta. This important flow parameter requires estimation because there is no direct measurement at the downstream boundary of the Delta, nominally at Chipps Island. In the past, Dayflow has also provided estimates of certain other key Delta flow patterns like Delta “cross-transfer” flow, and “Qwest.” These estimates were based on empirical relationships that for the most part are quite accurate. Over the years, flow monitoring stations have been deployed primarily by the USGS at strategic locations within the Delta. With the addition of direct flow measurements, some of the empirical estimates are outmoded. For example, Delta cross-transfer flow (“QXGEO”) is available directly from USGS. We now use this data to estimate QXGEO in Dayflow as the addition of Delta Cross Channel and Georgiana Slough flow. We revert to the empirical estimates only when a requisite flow station is down. Similarly, a direct estimate of Delta outflow is available by tidally filtering and summing USGS flow data at Rio Vista, Three Mile Slough, Jersey Point, and Dutch Slough. At this point, the Delta Outflow Index reported in Dayflow remains the arithmetic sum of inflows, diversion, and exports from the Delta. As shown in Figure 1, we always check our outflow estimate against the measured quantity if it is available. Assuming the observed outflow is very accurate, the Figure shows that Dayflow generally over estimates flow during wet periods and under estimates during dry periods. The observed outflow is also more variable because it responds to the spring-neap cycle while the Dayflow estimate does not. On average, Dayflow over estimated Delta outflow in WY2010 by 176 cfs. We have long assumed that the seasonal bias is related to the crude estimate of internal Delta depletions we use. In general however, we want Dayflow users to remember that direct estimates of Delta outflow are available that preserve tidal dynamics.

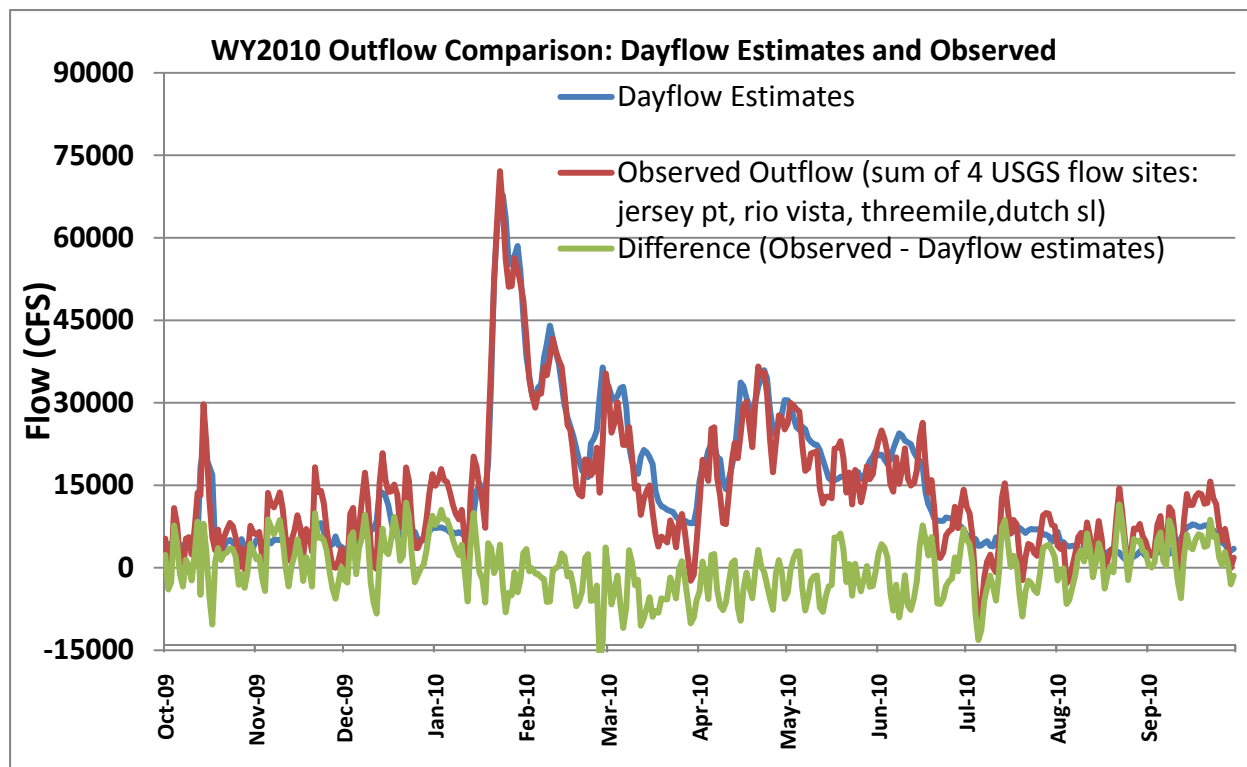


Figure 1.

## Other Highlights

The Dayflow web site is [www.water.ca.gov/dayflow](http://www.water.ca.gov/dayflow).

- *Byron Bethany Irrigation District (BBID) Adjustment*  
DWR staff identified a problem with double counting Byron Bethany Irrigation District (BBID) in the Dayflow computational scheme of Gross Channel Depletion (GCD). The BBID diverts directly from Clifton Court Forebay (CCFB). Since State Water Project diversion for Dayflow is actually the daily average flow into CCFB, BBID is counted both there and in GCD. This was corrected by subtracting historical BBID data from GCD in the 2010 data set. This correction reduces the Delta outflow estimate by the amount of BBID diversion. BBID diversion varies seasonally and daily depending on demands. For the period of record, the BBID diversion average is 42 cfs while the standard deviation is 48 cfs. DWR staff is in the process of collecting the rest of the historical data for BBID diversions. This will allow us to make the correction going back to 1979, the inception of BBID diversion from CCFB. We will report the full correction when it is completed.
- *New Contra Costa Water District (CCWD) export point in the Delta at Middle River near Victoria.*  
The new Contra Costa export came on line in August 2010 per USBR notification. DWR staff made changes to the Dayflow QCCC parameter to include this additional export point in the computational scheme.
- *Pre 1956 Dayflow data set availability.*  
At the request of Dayflow users, DWR staff posted the 1930 -1960 Dayflow data set in Excel format with accompanying documentation is now available on the Dayflow web site.
- *Preliminary Dayflow Estimates for the Current Year*  
We often get requests for current year estimates of Delta outflow prior to the release of Dayflow. We provided instructions on the Dayflow website where users can find up-to-the-day estimates of Delta outflow from the DWR Operations Control Office website.
- *Website cosmetic changes to “Data” and “Dayflow Home” sections.*  
DWR staff made changes to these two sections to better direct the needs of the data users.