

**California Department of Water Resources
Bay-Delta Office
August 28, 2008**

**Summary:
Final State Water Project Delivery Reliability Report, 2007**

The final *State Water Project Delivery Reliability Report 2007* updates DWR's estimate of current (2007) and future (2027) SWP delivery reliability and expands the conditions under which reliability is quantified. The report is produced every two years as part of a settlement agreement signed in 2003. Public comments to the draft report were received in March 2008. The comments and DWR's responses are included in Appendix E of the final report.

The report shows that future SWP deliveries will be impacted by two significant factors. The first is climate change, which is altering hydrologic conditions in the State. The second is significant restrictions on SWP and Central Valley Project (CVP) pumping in accordance with a December 2007 federal court imposed interim rules to protect delta smelt. The 2007 report incorporates future impacts on water deliveries to communities due to these factors.

This report represents the state of water affairs if no actions for improvement are taken. It shows a continued eroding of SWP water delivery reliability under the current method of moving water through the Delta.

The analysis shows that annual SWP deliveries (Table A and Article 21 amounts) would decrease virtually every year in the future (93% of future years). These reductions would amount to a 20% reduction from current levels about one-fourth of the time, and greater than 30% in one-sixth of future years.

The report discusses areas of significant uncertainty to SWP delivery reliability:

- the recent and significant decline in pelagic organisms in the Delta (open-water fish such as delta smelt and striped bass);
- climate change and sea level rise; and
- the vulnerability of Delta levees' to failure due to floods and earthquakes.

As in previous reports, estimates of SWP deliveries are based upon operation simulations with DWR's CalSim II model using an extended record of runoff patterns. These patterns have been adjusted to reflect the levels of development in the source areas and, for future conditions, possible impact due to climate change. Potential deliveries under current conditions are estimated at the 2007 level and assume current methods of conveyance across the Delta and the interim operating rules defined by the recent court order to protect delta smelt. Potential deliveries under future conditions are estimated at the 2027 level and are also based on the assumption that no changes will be made in either the way water is conveyed across the Delta or in the interim operating rules to protect delta smelt. The analysis of future conditions incorporates climate change scenarios which correspond to the scenarios contained in DWR's 2006 report, *Progress on Incorporating Climate Change into Management of California's Water Resources*.

Under current conditions, annual SWP Table A deliveries from the Delta average 63% of the maximum Table A amount of 4,133 thousand acre-feet (taf) per year. Over the 82-year simulation period, annual SWP Table A deliveries range from a minimum of 6% to 90% of the maximum amount. Over multiple-year dry periods, average annual Table A deliveries are 34 or 35% of the maximum Table A amount, while average annual Table A deliveries over multiple-year wet periods range from 66 to 73% of the maximum Table A

amount. Twenty-five percent of annual SWP Table A deliveries exceed 3,218 taf, 50 percent of deliveries exceed 2,976 taf and 75 percent exceed 2,168 taf.

Under current conditions, annual SWP Article 21 deliveries average 90 taf, ranging from 0 to 590 taf over the 82-year simulation period. Over the multiple-year wet period of 1978-1987, SWP Article 21 deliveries average 170 taf and range from 0 to 490 taf.

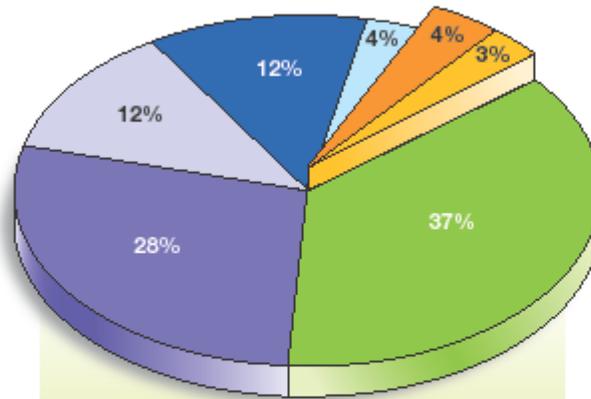
Due to the uncertainty of impacts by climate change on the availability of source water, SWP Table A and Article 21 deliveries under future conditions are expressed as a range in values. Under future conditions, annual SWP Table A deliveries from the Delta average from 66 to 69% of the maximum Table A amount. Although the estimated average annual amount of future SWP Table A deliveries increase when compared to current conditions, the amount of Article 21 deliveries decrease. Also, the amount of SWP Table A deliveries during multiple-dry periods in the future tend to decrease compared to current conditions. This decrease can be significant, depending upon the climate change scenario. This difference in future deliveries is reflected in lower SWP Table A delivery amounts associated with a 75% exceedence level (1,860 to 2,077 taf per year) than is for current conditions (2,168 taf per year).

Under future conditions, annual SWP Article 21 deliveries average 30 taf, ranging from 0 to 420 taf over the 82-year simulation period. Over the multiple-year wet period of 1978-1987, SWP article 21 deliveries average approximately 95 taf per year and range from 0 to 420 taf, depending upon the year and the climate change scenario.

The updated estimates of both current and future total annual SWP deliveries in the final *State Water Project Delivery Reliability Report, 2007* report are generally less than were estimated in the 2005 report, at times substantially so. As shown in the figure below, the current total annual SWP deliveries (Table A and Article 21 amounts) decrease in 93% of the years based on the historical data used in the analysis, when compared to the estimates in the 2005 report. Updated estimates for the current level of reliability show the total annual deliveries decrease over 20% in over one-quarter (28%) of the years analyzed and greater than 30% in one-sixth (16%) of the years, when compared to the estimates in the 2005 report. Water deliveries estimated for 20 years into the future show even greater decreases in a majority of years when compared to the estimates in the 2005 report.

SWP ANNUAL DELIVERY CHANGES

Frequency of occurrence for changes in total annual SWP deliveries under current conditions due to federal court operation restrictions



PERCENT CHANGE IN DELIVERIES

