



United States Department of the Interior

BUREAU OF RECLAMATION
Mid-Pacific Regional Office
2800 Cottage Way
Sacramento, CA 95825-1898

IN REPLY REFER TO:
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SEP 29 2011

MEMORANDUM

To: Regional Director
U.S. Fish and Wildlife Service
Pacific Southwest Region

From: Donald R. Glaser
Regional Director

Subject: Endangered Species Act Consultation on the Coordinated Operation of the Central Valley Project and State Water Project and Implementation of Reasonable and Prudent Alternative Component 3 for October and November 2011

On December 15, 2008, the U.S. Fish and Wildlife Service transmitted the Biological Opinion (BiOp) on the effect of the Coordinated Long-Term Operation of the Central Valley Project (CVP) and State Water Project (SWP). The Service included a Reasonable and Prudent Alternative (RPA) in the BiOp that included an action in the fall of certain years (Component 3 of the RPA), also referred to as the Fall X2 action. On July 21, 2011, the Bureau of Reclamation provided the Service a memorandum describing anticipated CVP/SWP operations for the fall of 2011 and further clarifying Reclamation's understanding of how Component 3 of the RPA would be implemented. The Service responded on July 22, 2011, concurring with Reclamation's proposed implementation of Component 3 for 2011.

Since that time, the U.S. District Court has ordered that, commencing on October 16, 2011, no Fall X2 action in 2011 shall set the X2 target west of 79 kilometers (km). In addition, various aspects of CVP/SWP operations and hydrologic conditions have become more certain allowing for a better estimate of projected Delta outflows than was available in July of this year. The purpose of this memorandum is to describe proposed coordinated CVP/SWP operations for the months of October and November this year consistent with Component 3 of the RPA, Reclamation's July 22, 2011, memorandum, and the current U.S. District Court order.

As we have discussed informally with your staff, Reclamation has been working closely with the California Department of Water Resources (DWR) to evaluate anticipated CVP/SWP operations and tidal conditions over the next two months to estimate the average X2 position for this period.

Working closely together, Reclamation and DWR have projected the estimated location of X2 based upon planned CVP/SWP operations during the remainder of September through November 2011. (The attached graph and e-mail from DWR Director Mark Cowin describes DWR's modeling projections.) Reclamation believes these projections to be reasonable. The attached graph depicts the estimated location of X2 from October 1 through October 31 and under two hydrologic circumstances for November, and also compares the estimated location of X2 with the U.S. District Court injunction in place to the location of X2 without the injunction in place. These locations are based on (1) where the Net Delta Outflow Index (NDOI) is 9,500 cfs for November (representing a "most likely" or median hydrology); and (2) NDOI is 5,700 cfs for November (representing "worst case" or dry hydrology). Also included on the graph is actual X2 location to date. The graph shows curves identifying where X2 is estimated to occur on a daily average as measured in km from the Golden Gate Bridge. The corresponding monthly average estimates for the X2 location are as follows:

Dry hydrology with Injunction	October 74.4 km	November 81.9 km
Dry hydrology without Injunction	October 74.0 km	November 80.6 km
Median hydrology with Injunction	October 74.4 km	November 78.6 km
Median hydrology without Injunction	October 74.0 km	November 77.2 km

This graph represents the best estimate by the CVP and SWP, for X2 locations under planned CVP and SWP operations, barring unforeseen hydrologic or atmospheric conditions. In an e-mail to me from Mark Cowin, Director of DWR, dated September 29, 2011, Mr. Cowin concurred with these estimates and committed that should variations to the monthly average X2 location occur relative to the values illustrated in this graph during actual operations, DWR will coordinate with Reclamation to minimize those variations, and work with the Service to reduce significant swings in X2 location provided no additional cumulative export reductions occur relative to planned Project operations.

Please feel free to contact me or other Reclamation staff if you need any additional information. We appreciate your willingness to work with us on this matter significant to both water supply and species protection.

Navarro, Lisa M

From: Cowin, Mark [mcowin@water.ca.gov]
Sent: Thursday, September 29, 2011 2:23 PM
To: Glaser, Donald R
Cc: Lohofener, Ren
Subject: SWP Operations and Fall X2
Attachments: X2 actual and projected_092711.pdf

Don,

As requested, DWR has completed additional projections of X2 locations for October and November. The attached graph illustrates estimated X2 locations under two hydrologic circumstances:

- 1) Net Delta Outflow Index (NDOI) for November is 9,500 cfs (labeled "Most Likely Case"); and
- 2) NDOI for November is 5,700 cfs (labeled "Worst Case").

Furthermore, X2 locations are illustrated with and without the Fall X2 injunction in place for comparison. The graph shows curves identifying where X2 is estimated to occur on a daily average as measured in kilometers from the Golden Gate. The corresponding monthly average estimates are:

Worst Case with Injunction (November NDOI = 5,700 cfs)	October 74.4	November 81.9
Worst Case without Injunction (November NDOI = 5,700 cfs)	October 74.0	November 80.6
Most Likely Case with Injunction (November NDOI = 9,500 cfs)	October 74.4	November 78.6
Most Likely Case without Injunction (November NDOI = 9,500 cfs)	October 74.0	November 77.2

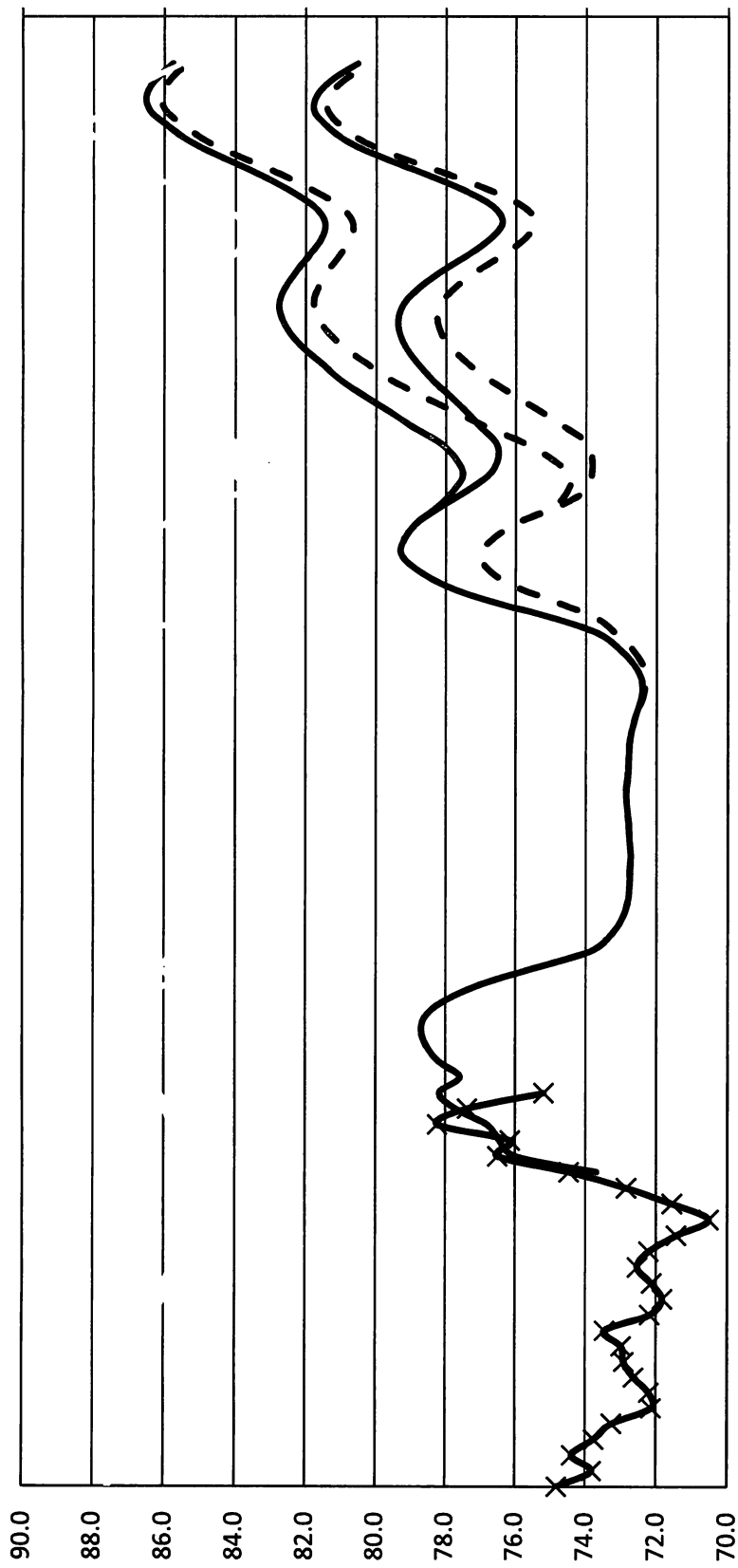
These projections illustrate that with or without the injunction in place, X2 locations would be similar under both "Worst Case" and "Most Likely Case" scenarios and converge at the end of November.

As I noted in my previous email, this graph represents DWR's best estimates for Fall X2 locations under planned CVP and SWP operations, barring unforeseen hydrologic or atmospheric conditions. If variations to X2 location occur relative to the values illustrated in this graph during actual operations, DWR will coordinate with Reclamation to minimize those variations, provided no additional cumulative export reductions occur relative to planned SWP operations.

Please contact me if you have any questions or wish to discuss further.

Mark W. Cowin, Director
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Estimated Location of X2 (km)



- x— Actual X-2 (km)
- Most Likely with Injunction (Nov NDOI = 9,500 cfs)
- - - Most Likely without Injunction (Nov NDOI = 9,500 cfs)
- · — Worst Case with Injunction (November NDOI = 5,700 cfs)
- - - Worst Case without Injunction (November NDOI = 5,700 cfs)
- Antioch Half Tide Forecast (No Units)