



August 30, 2011

Mr. Joe Grindstaff
Executive Officer, Delta Stewardship Council
980 Ninth Street, Suite 1500
Sacramento, CA 95814

Subject: Fall X2 Adaptive Management Plan

Dear Mr. Grindstaff:

At the August 26 meeting, the Delta Stewardship Council received an update on Delta outflow issues as they relate to a scheduled increase in State Water Project (SWP) and Central Valley Project (CVP) releases (“Adaptive Management of Fall Outflow for Delta Smelt Protection and Water Supply Reliability”). The oral presentation accurately reflected how the coming CVP releases will not impact future water supply availability because these releases are necessary in order to provide available capacity for the coming rain season. The same is not true, however, for Oroville Reservoir and SWP. This point may not have been clear to Stewardship Council members based on a review of the presentation. The following is a review of the potential water supply impacts of increasing Delta outflows this fall based on the directives of the smelt Biological Opinion and the so-called Fall X-2 releases.

The State Department of Water Resources most recent water supply analysis (dated August 10, 2011) indicates that there are potential water supply losses of up to 670,000 acre-feet if 2012 is a dry or critically dry year. These impacts include a combination of reductions in upstream storage at Oroville (about 370,000 acre-feet) and reduced exports of 300,000 acre-feet. To put these water supply impacts in context, they would reduce the initial allocation to 25 percent instead of 45 percent. If 2012 proves to be another wet year, the SWP will experience no water supply impact. However, if we experience a repeat of 2006 (wet) and 2007 (dry), the lost supply would have been enough to run the city of Los Angeles for approximately one year.

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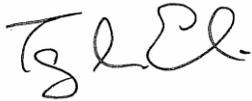
Mr. Joe Grindstaff

August 20, 2011

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As additional background on the Fall X2 plan in general, the State Water Contractors have prepared the attached summary of the Fall X2. In addition to providing general background on the Fall X2 adaptive management study, this also provides several references that review the proposed program. If you have any questions about this information, feel free to contact me at (916) 447-7357 ext. 203.

Sincerely,

A handwritten signature in black ink, appearing to read "T. Erlewine". The signature is fluid and cursive, with a long horizontal stroke at the end.

Terry Erlewine
General Manager



Delta Smelt, Water Supplies and the “Fall X2 Action” Background, Facts and Concerns

The State Water Contractors, concerned about protecting the water supply for customers throughout the state, are seeking an injunction in federal court in Fresno to stop a government measure that would remove a large amount of water from the system. The measure is known as the “Fall X2 Action.” A court hearing on the injunction was held July 26-29, and a ruling by the Court is expected in August.

The case involves an ongoing debate over how to manage water operations in the Sacramento-San Joaquin Delta, home to a threatened fish species called the Delta smelt. Three years ago, the U.S. Fish and Wildlife Service issued a biological opinion that required significant cutbacks in water exports from the Delta in an effort to protect the smelt. Earlier this year, Judge Oliver Wanger, of the U.S. District Court for the Eastern District of California, issued a final ruling that overruled most of the 2008 biological opinion and directed the Service to rewrite it. In the meantime, the 2008 biological opinion remains operative, with the Service seeking to impose the Fall X2 Action in an attempt to boost smelt numbers.

Here is a look at the facts and issues of concern to public water agencies:

What is X2?

In the Sacramento-San Joaquin Delta, freshwater from the Sierra watershed and saltwater from the San Francisco Bay meet in the largest estuary on the West Coast of North America. “X2” is a scientific term that defines this ever-changing intersection of fresh and saline waters. “X” refers to distance. The number “2” refers to the amount of dissolved salts in the water. X2 is the distance upstream from the Golden Gate Bridge where the salinity is 2 parts per thousand.

For comparison, ocean water typically is 35 parts per thousand. Fresh water is usually less than 0.5 parts per thousand. Thus, the X2 location marks a “low salinity zone” with a high ratio of fresh water to dissolved salt solids.

It is helpful to think of X2 as something of a pressure point, a place where freshwater flows are pushing seaward while the tides are pushing saltwater further into the Delta. The location of X2 varies naturally, depending on the season, the tides, how much snow and rain has fallen. It also varies based on releases from reservoirs for flood control and other purposes.

Why is the current debate over the Fall X2 position happening?

The [U.S. Fish and Wildlife Service has proposed a measure](#) to release much larger than usual amounts of freshwater in September and October of this year to push the X2 location westward to a point 74 kilometers upstream from the Golden Gate Bridge. The Service has proposed this measure based on the hypothesis that such a Fall X2 manipulation will expand low-salinity habitat areas for Delta smelt, thereby leading to higher numbers of delta smelt.

Delta smelt have been declining for several decades, saw serious population drops between 2000 and 2005, and are listed as threatened under the federal Endangered Species Act. [Scientists have pointed to a number of reasons for the decline](#), including pollutants and wastewater releases, a diminished food supply for the smelt and Delta pumping operations.

Why are public water agencies concerned about the proposed Fall X2 Action?

Under the action, there is no scientific evidence to suggest that the delta smelt population actually will grow, while the water cost is certain and high. The proposal represents a large and expensive experiment with a precious natural resource based on a much-disputed theory. For this reason, water agencies are seeking an injunction in federal district court in Fresno to stop the action.

What will be the cost of moving the X2 position westward?

To push the X2 position as far west as the federal government proposes will require reducing exports from the State Water Project and possible additional reservoir releases. Calculations show the water loss would range from 300,000 acre-feet to 670,000 acre-feet, depending on how much precipitation falls next year. A single acre-foot of water is enough to supply two typical households for a year, or approximately six people. On average, the State Water Project supplies about 2.5 million acre-feet to cities, industries and farms in the Bay Area as well as central and southern California.

The price for such an action is high:

- 300,000 acre-feet of water is enough to serve 1.8 million people for a year, while 670,000 acre-feet of water would be enough water to serve more than four million people for one year. To put this in perspective, 670,000 acre-feet could provide drinking water for Fresno for approximately eight years, San Francisco for more than four years, San Jose for nearly four years, or San Diego for nearly three years.
- The water lost from this experiment could otherwise be wisely stored for future uses. In 2006, the last wet year in California, water agencies were careful to store as much water as possible. It was a good move. A severe three-year drought hit soon after. In 2007, reservoirs were filled with stored water, enabling

the state to survive the first year of the drought fairly comfortably, before shortages and rationing took hold. Although 2011 has been a year of heavy precipitation, it is not possible to predict what 2012 will hold. Public water agencies must be able to plan and prepare in the event of another series of dry years.

- At \$200 an acre-foot, it would cost \$134 million on the open market to replace 670,000 acre feet of water that could be lost under the Fall X2 Action.

What have the court and outside experts said about the proposed Fall X2 Action?

[A March 2010 Report by the National Research Council](#) found that the statistical relationship between the location of X2 and the size of smelt populations is “weak” and “lacks rigor.”

[In December 2010, the U.S. District Court’s Eastern District of California](#) ruled that aspects of the federal government’s plans to manipulate the Fall X2 location – which is at the heart of the current debate – were arbitrary, capricious and unlawful.

[A 2011 report by the National Research Council](#) stated there were “considerable uncertainties” about how management of freshwater flows, especially involving salinity gradients, actually affects the survival of fish.

[A July 1, 2011 Peer Review](#) of the adaptive management plan for the Fall X2 Action stated that while the proposal held potential for providing a better understanding of the Delta, the peer reviewers held “serious reservations about the successful implementation of this ambitious venture” for the following reasons:

- 1) The lack of a clear plan for how water flows will be manipulated.
- 2) The lack of explicit and measurable objectives for determining whether moving X2 actually increases the delta smelt population.

[A July 2011 peer-reviewed article in the Canadian Journal of Fisheries and Aquatic Sciences](#) described a life-cycle model that was used to assess how much the position of X2 in the fall affects delta smelt abundance. The authors concluded that X2 position is not related to delta smelt abundance and manipulating X2 will not benefit the smelt.

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The State Water Contractors is a statewide, non-profit association of 27 public agencies from Northern, Central and Southern California that purchase water under contract from the California State Water Project. Collectively the State Water Contractors deliver water to more than 25 million residents throughout the state and more than 750,000 acres of agricultural lands. For more information on the State Water Contractors, please visit www.swc.org.