

California Sportfishing Protection Alliance



**State Water Resources Control Board
25 June 2015 Workshop**

The State Board is in Violation of the CWA, ESA and the Constitutional Prohibition Against the Waste & Unreasonable Use of Water.

- State Water Board has either ignored or weakened Delta water quality standards and Sacramento River temperature standards in 2013, 2014 and 2015.
- Pervasive sequential weakening of standards implementation amounts to a de facto change in standards.
- Failure of the CVP and SWP to provide a margin of safety for reservoir storage to ensure compliance with standards has caused enormous mortality to threatened and endangered species.
- Regardless of backroom deals between the projects, fishery agencies and Board, these relaxations of standards constitute violations of the Clean Water Act and Endangered Species Acts.
- The delivery of millions of acre-feet of water to irrigate pasture and alfalfa in the midst of a drought constitutes a waste and unreasonable use of water.

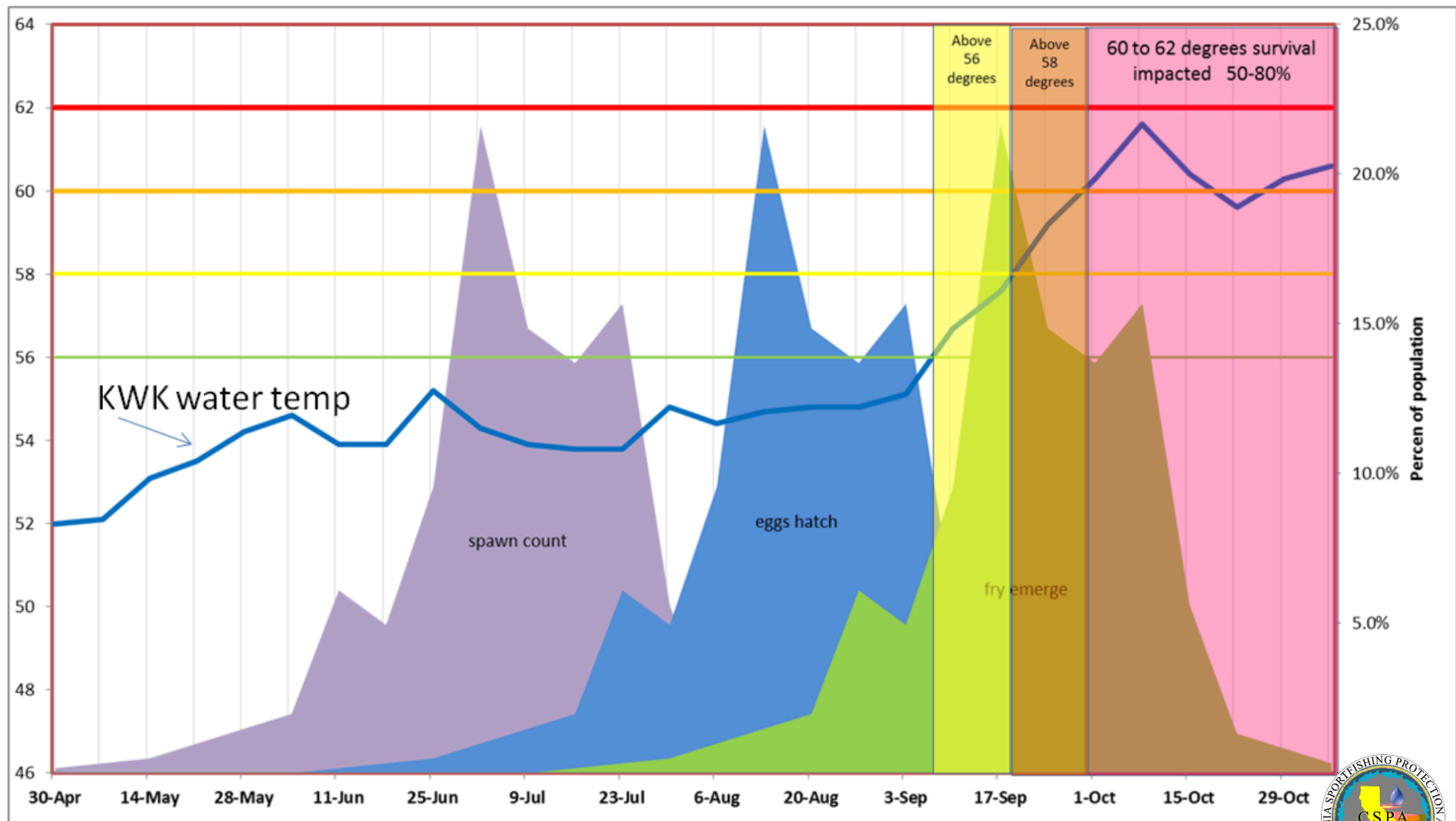


State Board Should Not Endorse the Mismanagement by the State & Federal Projects.

- State Water Board has historically ignored or weakened Delta water quality standards and Sacramento River temperature standards in past droughts and in 2013, 2014 and 2015.
- Drought sequences are normal in California, having occurred in 41 of the last 100 years.
- The Projects have historically delivered near-normal supplies of water in initial drought years and failed to provide a margin-of-safety to ensure compliance with standards in the event of another dry year.
- If mismanagement by the Projects leads to violation of standards, the Board should require them to operate as to minimize impacts.
- However, the State Board must not encourage the mismanagement of water by waiving promulgated water quality standards and sending species into extinction.



Chinook Salmon Spawning and Incubation in the Upper Sacramento are Occurring Now



NOAA Fisheries presentation to SWRCB



Temperature Compliance Plan Standards Are Not Protective

Table 5: Effects of Temperature in Considering Chinook Incubation and Emergence

°C	Incubation and Emergence					
20	17.5-20 The highest single day maximum temperature should not exceed this range to protect eggs and embryos from acute lethal conditions (2)					
19						
18						
17						
16						
15						
14	5-14.4 Recom- mended temp. range for incubation (4)	13.5-14.5 Daily maximum temperatures should not exceed this from fertilization through initial fry development (5)	14 Moderate embryo survival (6)		2-14 Range of temps. for normal embryo develop- ment (6)	1.7-16.7 Eggs can survive these temps. but mortality is greatly increased at the extremes (3)
13			13 MWMT should not exceed this value to be protective of spawning, egg incubation, and fry emergence (1)			
12			4-12 Lowest levels of egg mortality at these temps. (3)	11-12.8 Average daily temperatures should be below this range at beginning of incubation (2)		
11		11 High embryo survival (6)		6-10 Optimum temperature for salmonid eggs survival to hatching (5)		
10		9-10 Optimal temp. should be below this range (5)				
9		8-9 Seasonal ave. temps. should not exceed this range from fertilization through initial fry development (2)				
8		8 High embryo survival (6)				
7						
6						
5		5 High embryo survival (6)				
4						
3						
2	2 Poor embryo survival (6)					
1						

References

- 1 USEPA 2003 (reviewed many literature sources to make assessments of temperature needs)
- 2 WDOE 2002 (reviewed many literature sources to make assessments of temperature needs)
- 3 Myrick and Cech 2001 (reviewed many literature sources to make assessments of temperature needs)
- 4 Reiser and Bjornn (1979, as cited by Armour et al. 1991)
- 5 USEPA 2001 (reviewed many literature sources to make assessments of temperature needs)
- 6 Murray and McPhail 1988 (laboratory study)

North Coast RWQCB Temperature Review

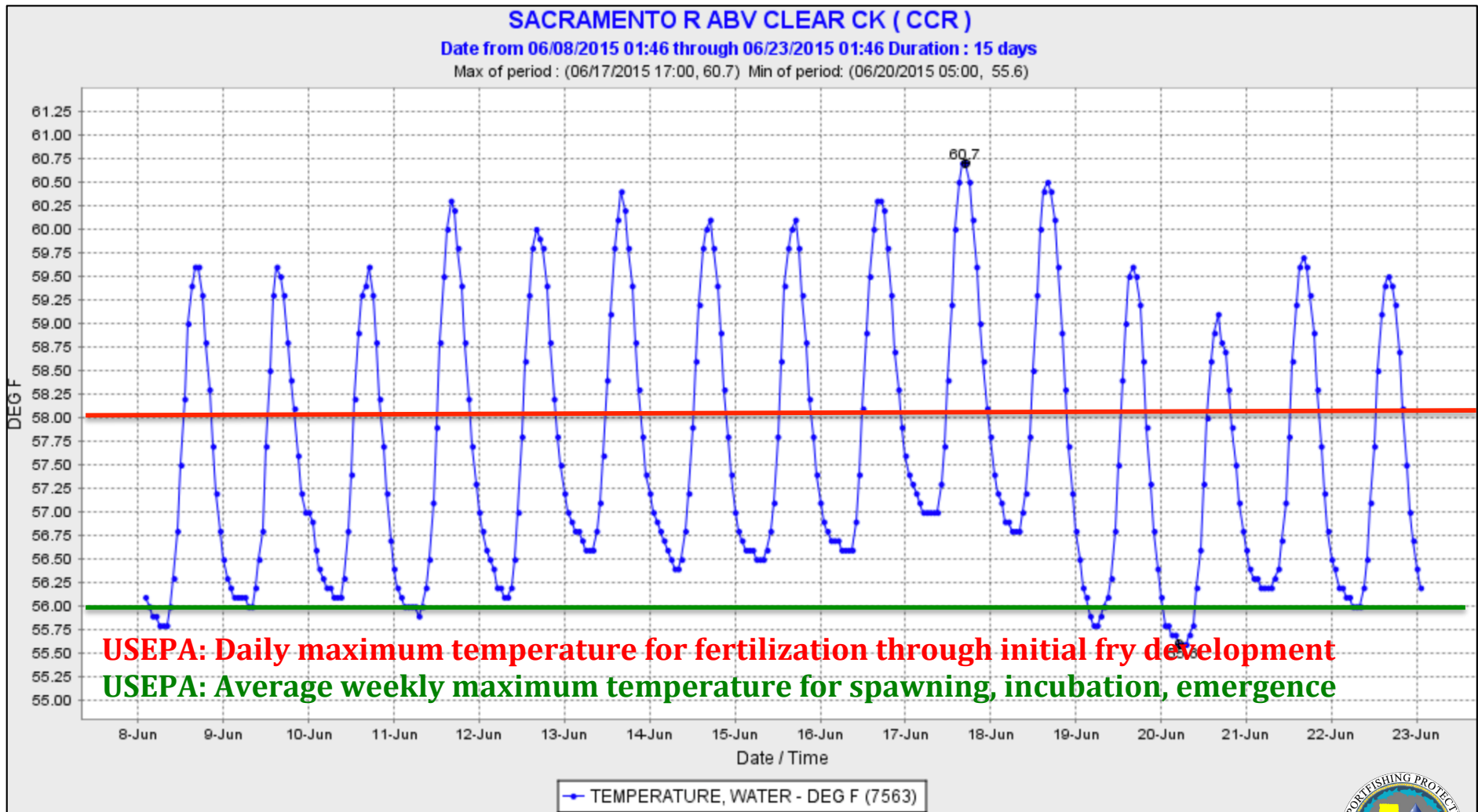


Board Should Not Further Relax Standards Following Last Year's Debacle

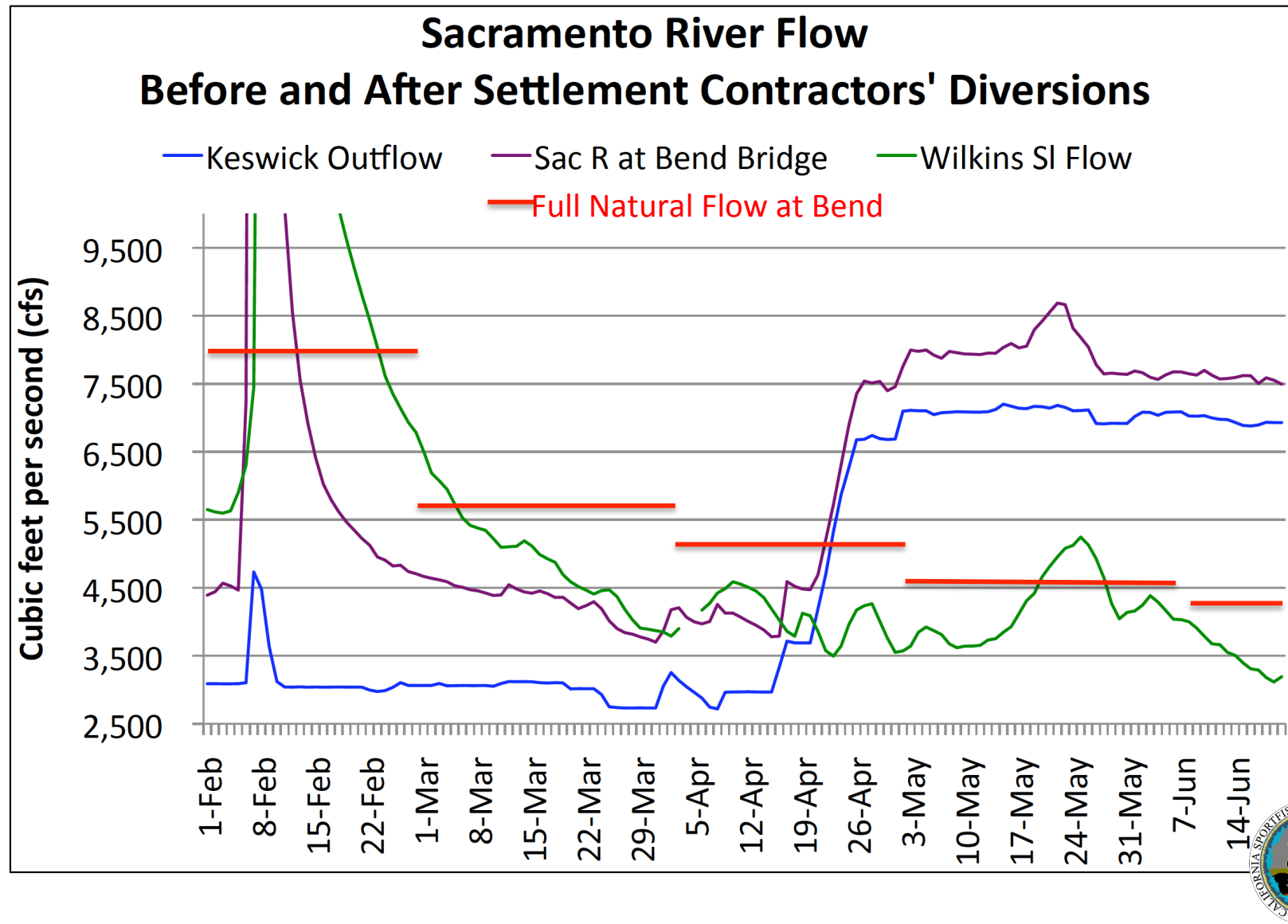
- Mean weekly maximum water temperature (MWMt) should not exceed 13°C (55.4°F), generally referred to as the 56°F limit.
- Daily maximum water temperature should not exceed 13.5-14.5°C (56-58°F).
- Optimal temperature for egg incubation is <13°C (55°F).
- Pre-spawning mortality of adult Chinook salmon becomes pronounced when temperatures exceed 13-15.5°C (55-60°F).
- These temperatures have already been exceeded above Clear Creek.



Temperatures Above Clear Creek are Already Lethal



Deliveries to Sac Valley Contractors have and are Exhausting Cold Water in Shasta

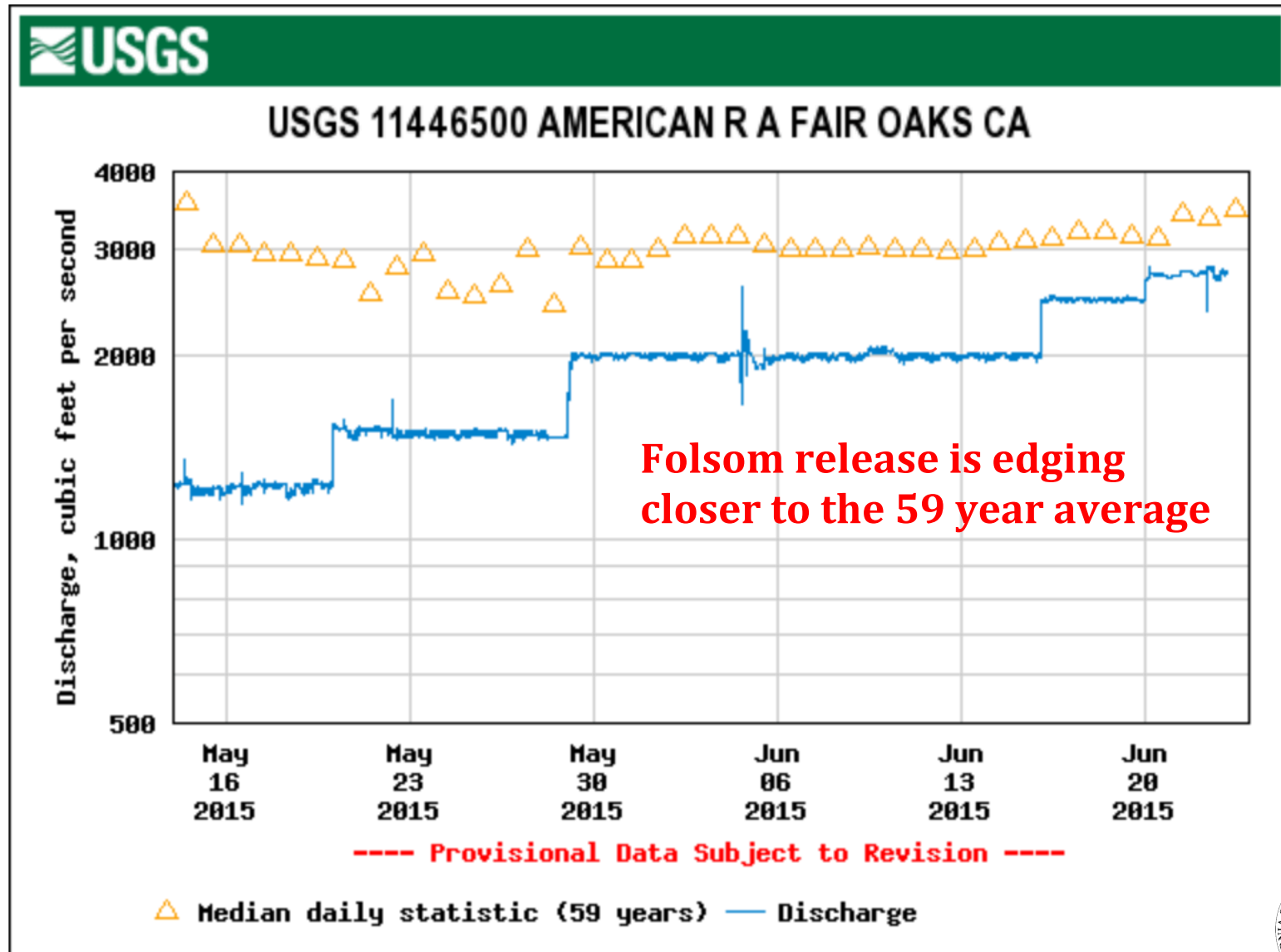


Excessive Deliveries to Sac Valley Contractors Are Externalizing Impacts of Meeting Delta Outflow to the American and Feather Rivers

- Depletions (diversions) between Bend and Wilkins Slough are about 4,000 cfs.
- Wilkins Slough flows are subject to riparian, pre-14, post-14 and export demands.
- Flows from Oroville and Folsom Reservoirs have been significantly increased to meet the reduced Delta outflow requirements.
- Impacts have been transferred from Shasta to Feather and American River fisheries and Sacramento area communities.



Protecting Sac Contractors Transfers Impacts to the American River



And American River Steelhead Will Take the Hit

Table 4: Effects of Temperature in Considering Steelhead Incubation and Emergence

°C	Incubation and Emergence		
15	15 Steelhead and rainbow trout eggs can survive at temperatures as high as this but mortality is high compared to lower temperatures (3)		
14			
13	13 MWMT should not exceed this value to be protective of spawning, egg incubation, and fry emergence (1)		
12	11-12 Maximum daily average temperature should be below this range at the time of hatching (2)		
11			
10	5-10 Steelhead and rainbow trout eggs had the highest survival within this range (3)	6-10 Optimum temperature for salmonid eggs survival to hatching (4)	7-10 Average daily temperature should not exceed this range throughout embryo development (2)
9			
8			
7			
6			
5			
4			
3			
2	2 Steelhead and rainbow trout eggs can survive at temperatures as low as this but mortality is high compared to higher temperatures (3)		

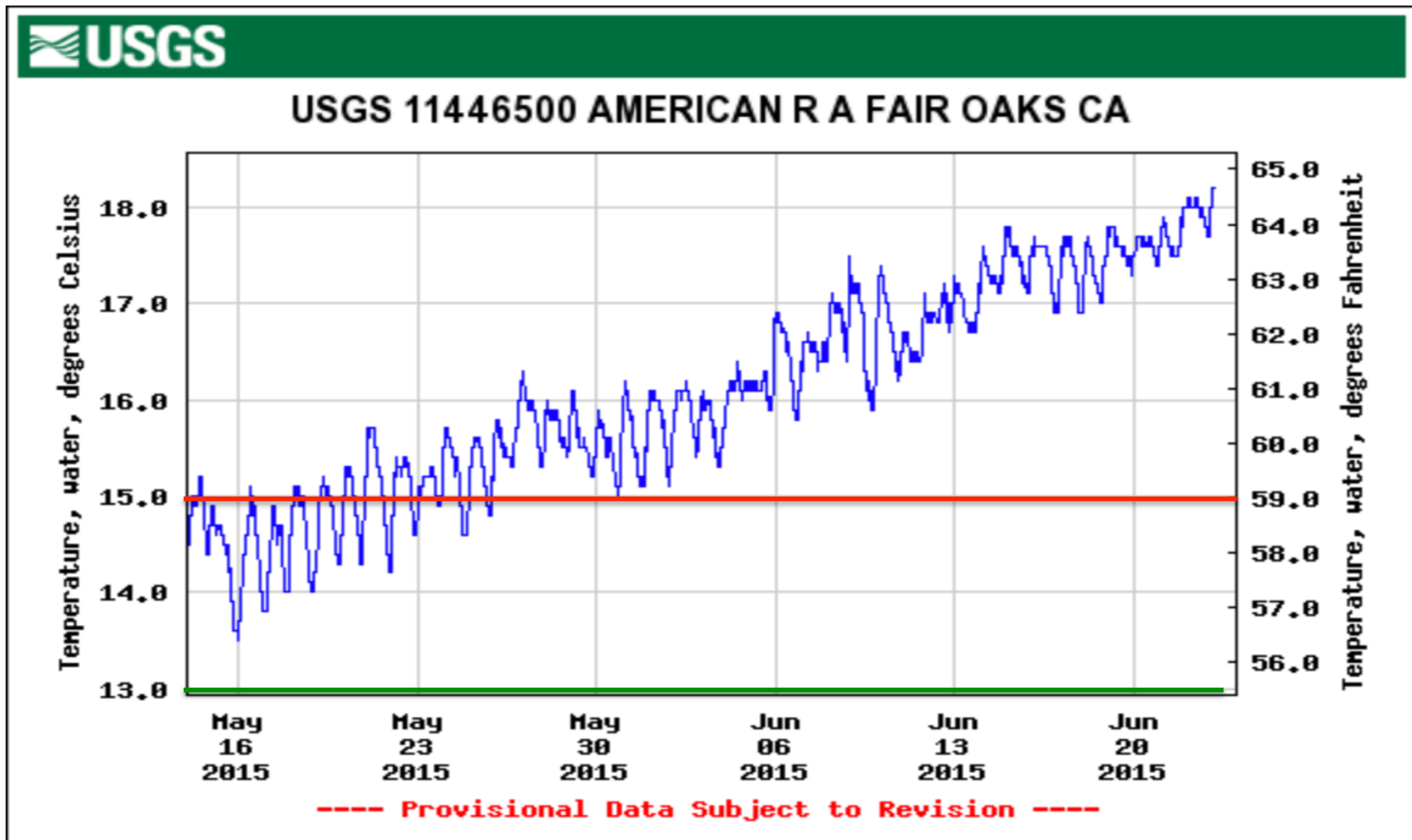
References

- 1 USEPA 2003 (reviewed many literature sources to make assessments of temperature needs)
- 2 WDOE 2002 (reviewed many literature sources to make assessments of temperature needs)
- 3 Myrick and Cech 2001 (reviewed many literature sources to make assessments of temperature needs)
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North Coast RWQCB Temperature Review



Draining Folsom Will Devastate Steelhead

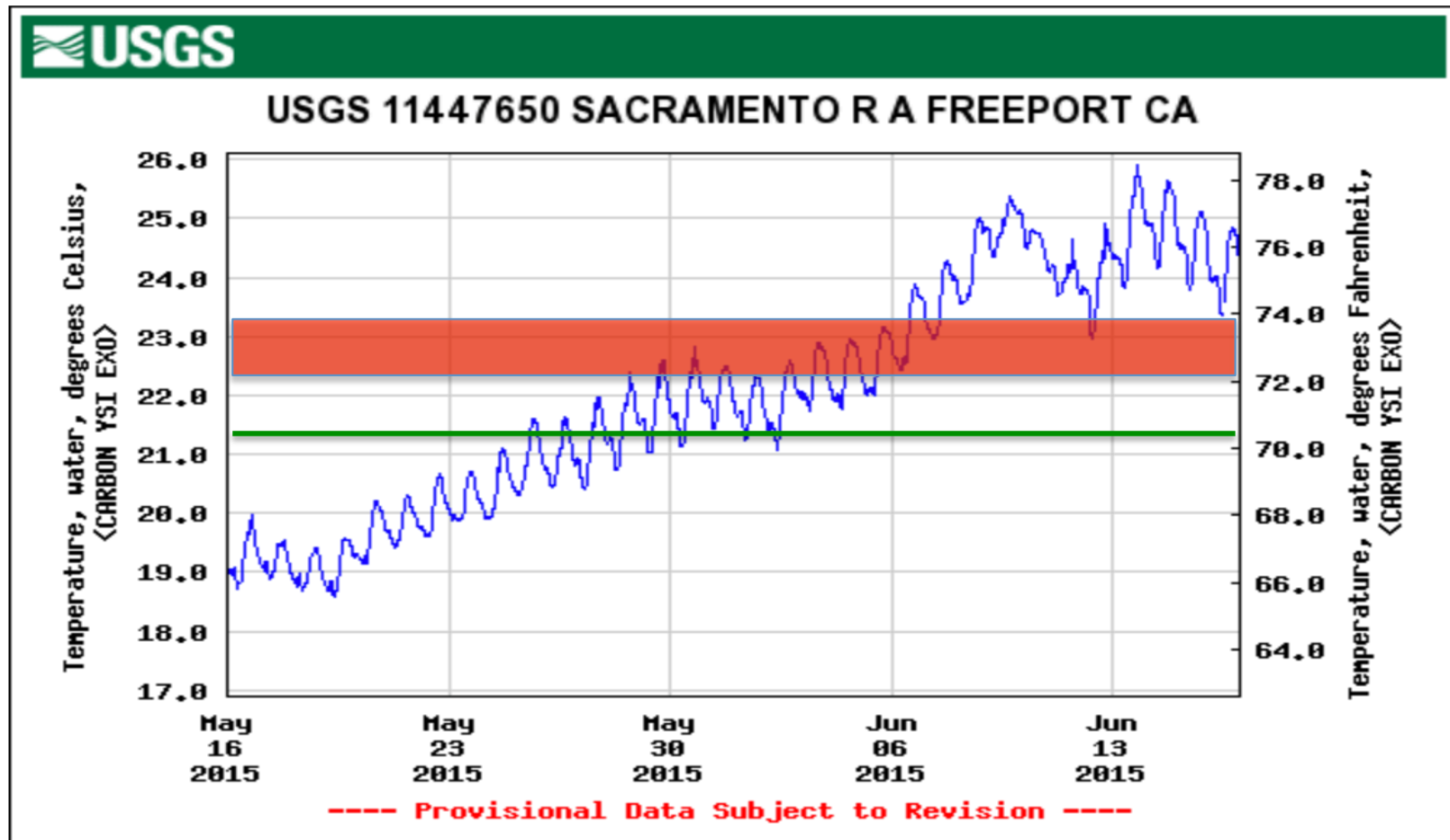


USEPA: High mortality to steelhead and trout eggs

USEPA: Maximum weekly average temperature for spawning, incubation, fry emergence



Fish are Not Only Hammered at Clear Creek, They're Hammered Trying to Get There



USEPA: 21-22°C is frequently cited as a thermal block to migration

USEPA: Maximum weekly average temperature for migration



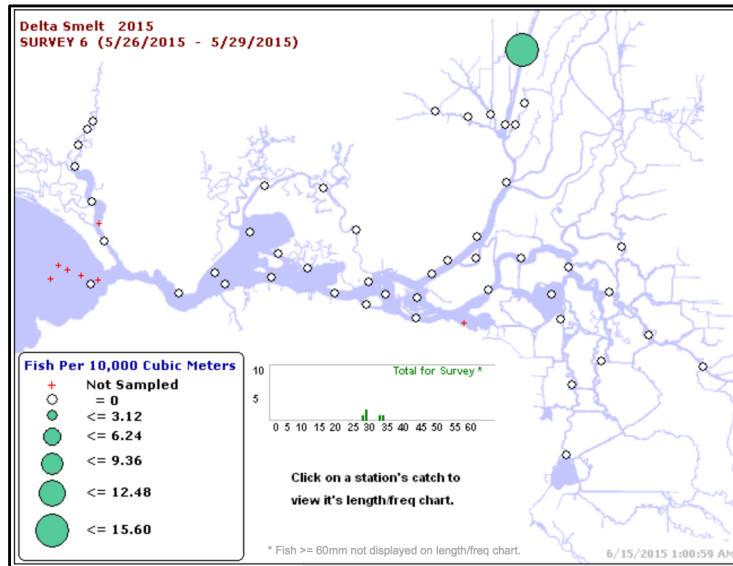
Historically Low Numbers of Delta Smelt

- 2014 Fall Midwater Trawl and 2015 Spring Kodiak indexes are the lowest in history.
- 2015 Smelt Larva, 20-mm, and Townet survey numbers so far are by far the lowest in history.
- The proposed TUCP will shift the low salinity zone further into the Central Delta.
- Delta smelt will be drawn into areas experiencing excessive and lethal temperatures.
- Temperatures in Cache Slough and lower Sacramento River are likely to be lethal to northern population.

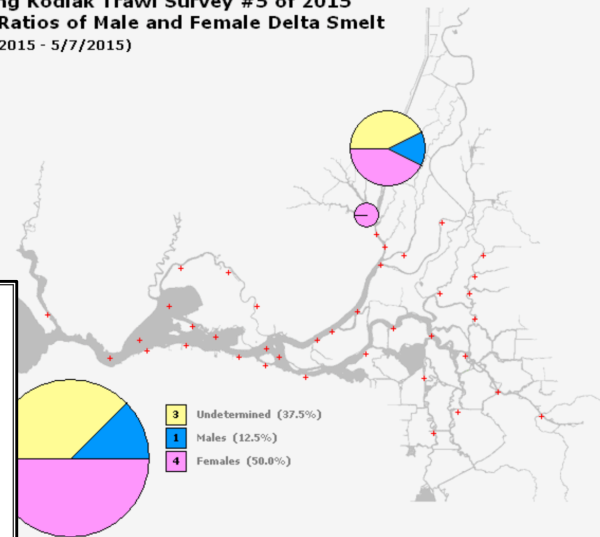


On the Edge of Extinction

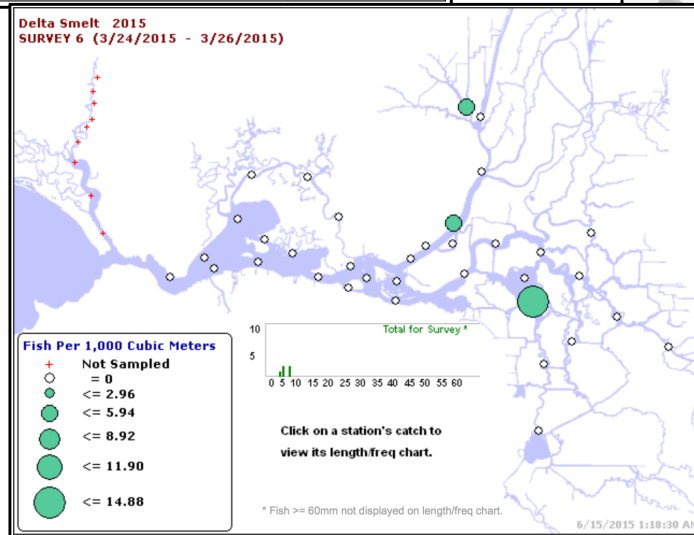
20-mm Survey 6
Postlarval-Juvenile
5 fish collected
Late May



Spring Kodiak Trawl Survey #5 of 2015
Sex Ratios of Male and Female Delta Smelt
(5/4/2015 - 5/7/2015)



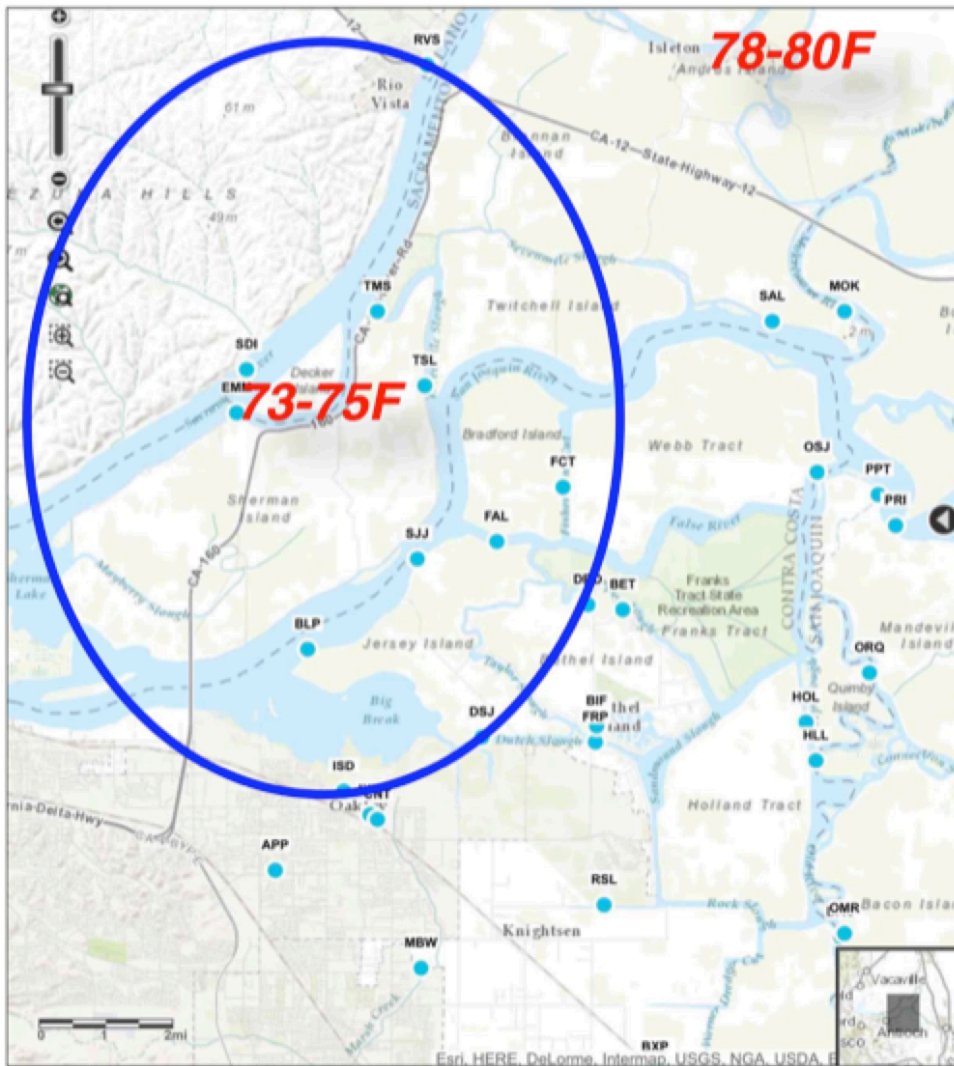
Larva Survey 6
5 fish collected
Late March



Kodiak Survey 5
8 fish collected
Early May



A Death Sentence for Delta Smelt



Reduction in July Delta outflow and Rio Vista flow and a continuation of the relocated salinity compliance point from Emmaton to Threemile Slough will have dire consequences for the survival of Delta smelt

Central Delta temperatures are likely to be lethal, as will temperatures in Cache Slough, Sacramento Ship Channel and lower Sacramento River.



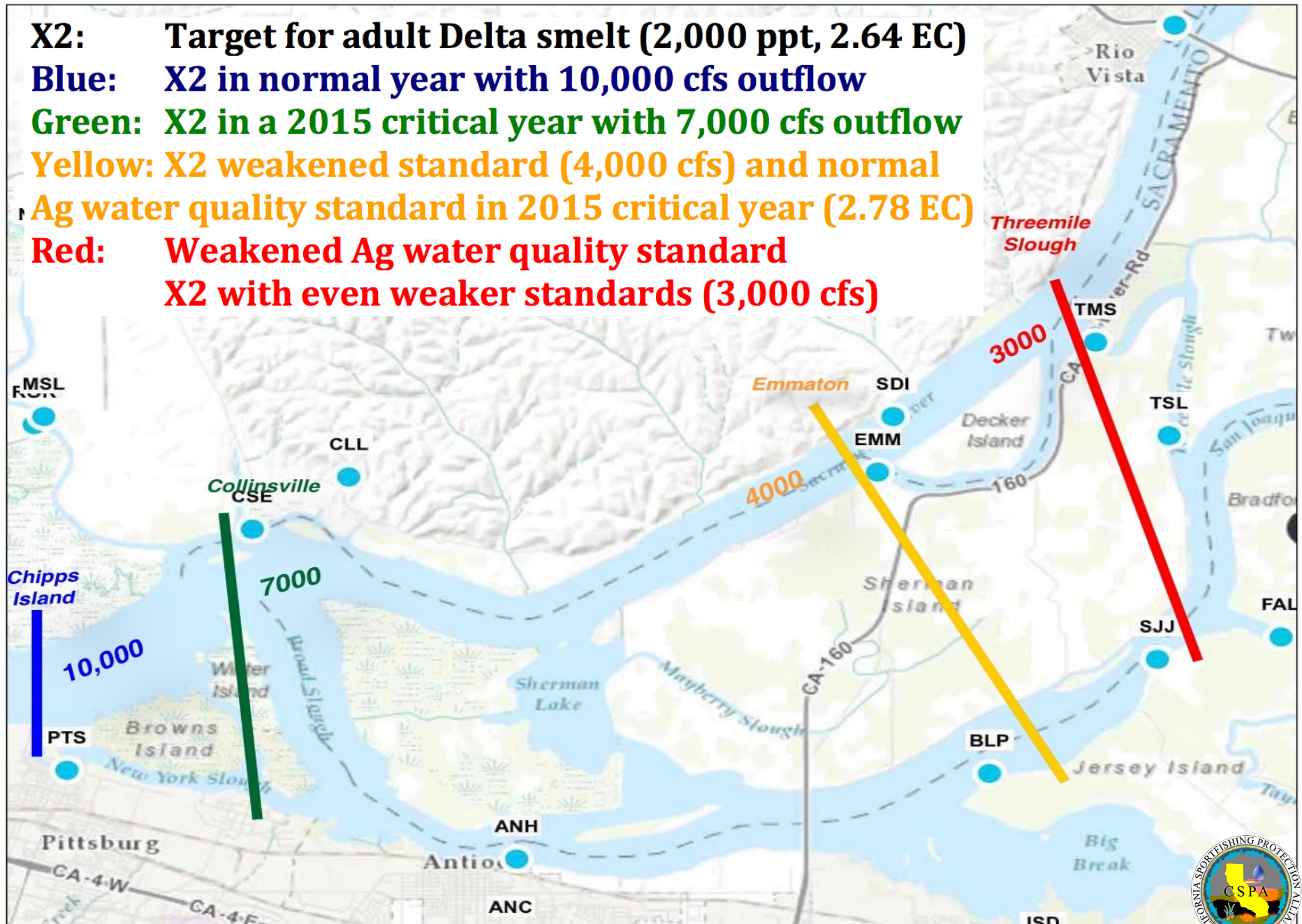
X2: Target for adult Delta smelt (2,000 ppt, 2.64 EC)

Blue: X2 in normal year with 10,000 cfs outflow

Green: X2 in a 2015 critical year with 7,000 cfs outflow

Yellow: X2 weakened standard (4,000 cfs) and normal Ag water quality standard in 2015 critical year (2.78 EC)

Red: Weakened Ag water quality standard
X2 with even weaker standards (3,000 cfs)



Compliance with the CWA, ESA and the Prohibition Against Waste and Unreasonable Use of Water Would Minimally Require:

- Curtailment of water deliveries to irrigate water intensive, low value crops like pasture and alfalfa.
- Maximum flow at Keswick of 7,200 cfs and minimum flow of 4,000 cfs at Wilkins. Sac Contractors should not be “entitled” to 75% of contracted deliveries in the fourth year of a drought.
- Daily maximum temperature of 58°F and mean weekly maximum temperature of 56°F above Clear Creek.
- Restoration of D-1641 critical year water quality standards.
- **If preventing extinction of species matters, the Board should:**
 - Prohibit summer water transfers through the Delta.
 - Maintain a 3-day NDOI > 4,000 cfs through September.



“It follows that to commit a crime against the natural world is a sin. For humans to cause a species to become extinct and to destroy the biological diversity of God’s creation, for humans to degrade the integrity of Earth by causing changes in its climate, by stripping the Earth of its natural forests or destroying its wetlands ... for humans
To contaminate the Earth’s waters, its land, its air, and its life with poisonous substances--these are sins.”

Ecumenical Patriarch Bartholomew I of the Eastern Orthodox Communion, 1997

