California Department of Fish & Wildlife

Hearing in Support of the Potential Changes to the Bay-Delta Plan

March 20, 2013

CDFW KEY POINTS

- Salmon-Doubling Goal Should be Included in the LSJR Fish and Wildlife Flow Objective
- The CDFW's Analysis - 35% of UIF
  - NOT Adequate for Juvenile Salmon Out-Migration Pulse Flows
  - NOT Adequate for Combination Salmon OM Pulse and Natural Flow Peaks
  - CDFW's Analysis – 50% of UIF Achieves Prior Rec. in Most Water Years
- SED -> 14-Day Running Ave. of 35% UIF
  - Won't Achieve Salmon Doubling Objective
- Economic Impacts of Declining Fisheries are Significant & Important
- The Revised WQCP's Program of Implementation Needs Detail

Salmon-Doubling Goal Should be Included in the LSJR Fish and Wildlife Flow Objective

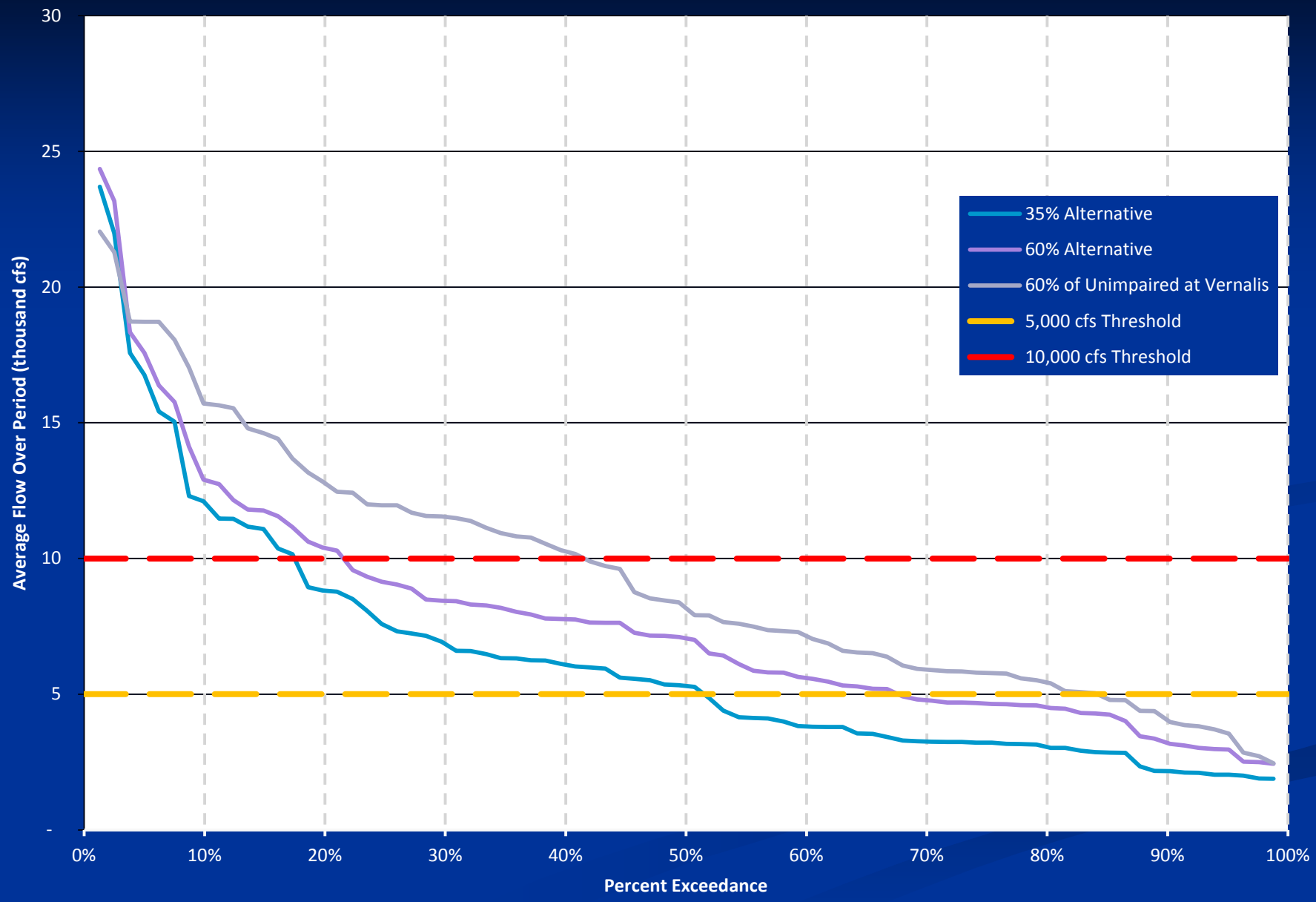
"Water quality conditions shall be maintained, together with other measures in the watershed, sufficient to achieve a doubling of natural production of Chinook salmon from the average production of 1967-1991, consistent with the provisions of State and federal law." (SWRCB 2006)"

Salmon-Doubling Goal Should be Included in the LSJR Fish and Wildlife Flow Objective

- State and Federal Laws Require Action to Double Natural Production
  - Fish and Game Code section 6900 et. seq. Salmon, Steelhead Trout, and Anadromous Fisheries Program Act (see especially sect 6902)
  - Central Valley Project Improvement Act

Flows needed to Achieve Salmon Doubling

- *Development of Flow Criteria for the Sacramento-San Joaquin Delta Ecosystem* (SWRCB 2010)
  - "Available scientific information indicates that average March through June flows of 5,000 cfs on the San Joaquin River at Vernalis represent a flow threshold at which survival of juveniles and subsequent adult abundance is substantially improved for fall-run Chinook salmon and that average flows of 10,000 cfs during this period may provide conditions necessary to achieve doubling of San Joaquin basin fall-run."

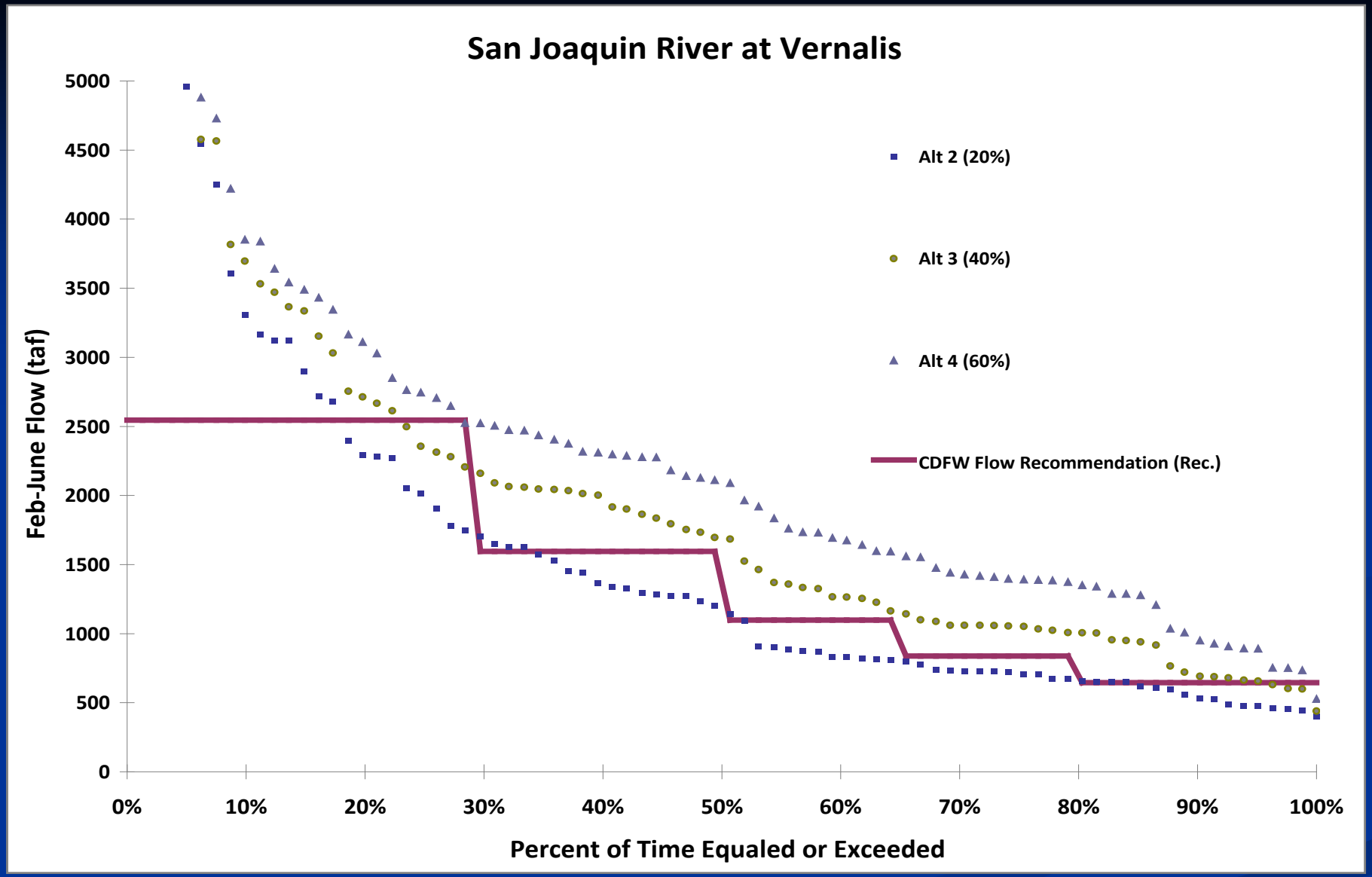

Average San Joaquin River Flow at Vernalis for February to June
Average Flow Over Period (thousand cfs)
30
25
20
15
10
5
-
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent Exceedance
35% Alternative
60% Alternative
60% of Unimpaired at Vernalis
5,000 cfs Threshold
10,000 cfs Threshold

The CDFW's Analysis -> 35% of UIF is Inadequate

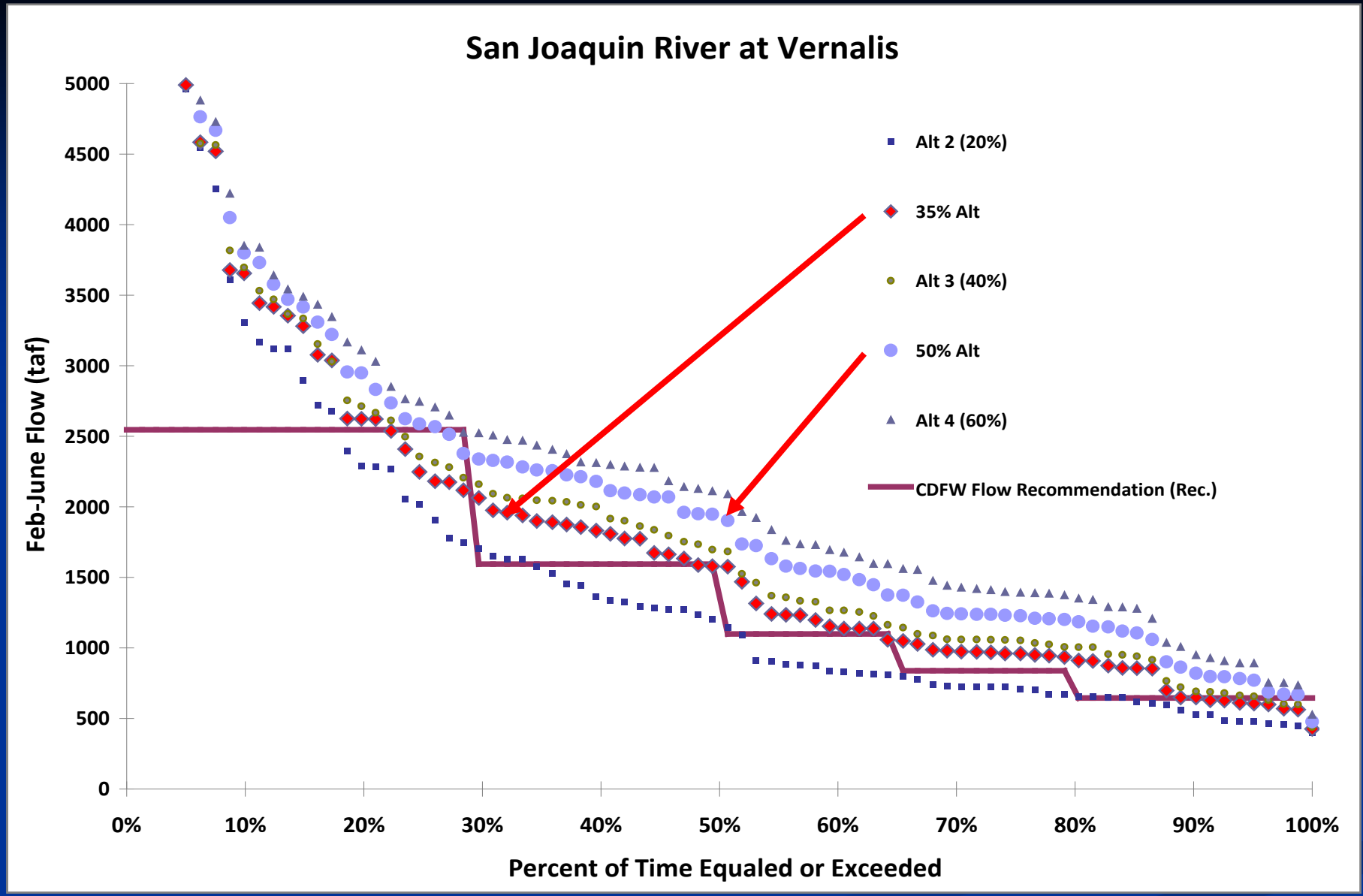
- SWRCB Underestimated the Total Volume of Water Needed for CDFW's 2010 Flow Recommendation
  - SWRCB Only Applied CDFW Recommended Base Flows Between March and June 15th
  - Consistent With the Program Under Consideration Base Flows Should Extend From February 1st to June 30th
- SWRCB Correctly Accounted for the Volume Associated With the Pulse Flow Component of the CDFW Recommendation

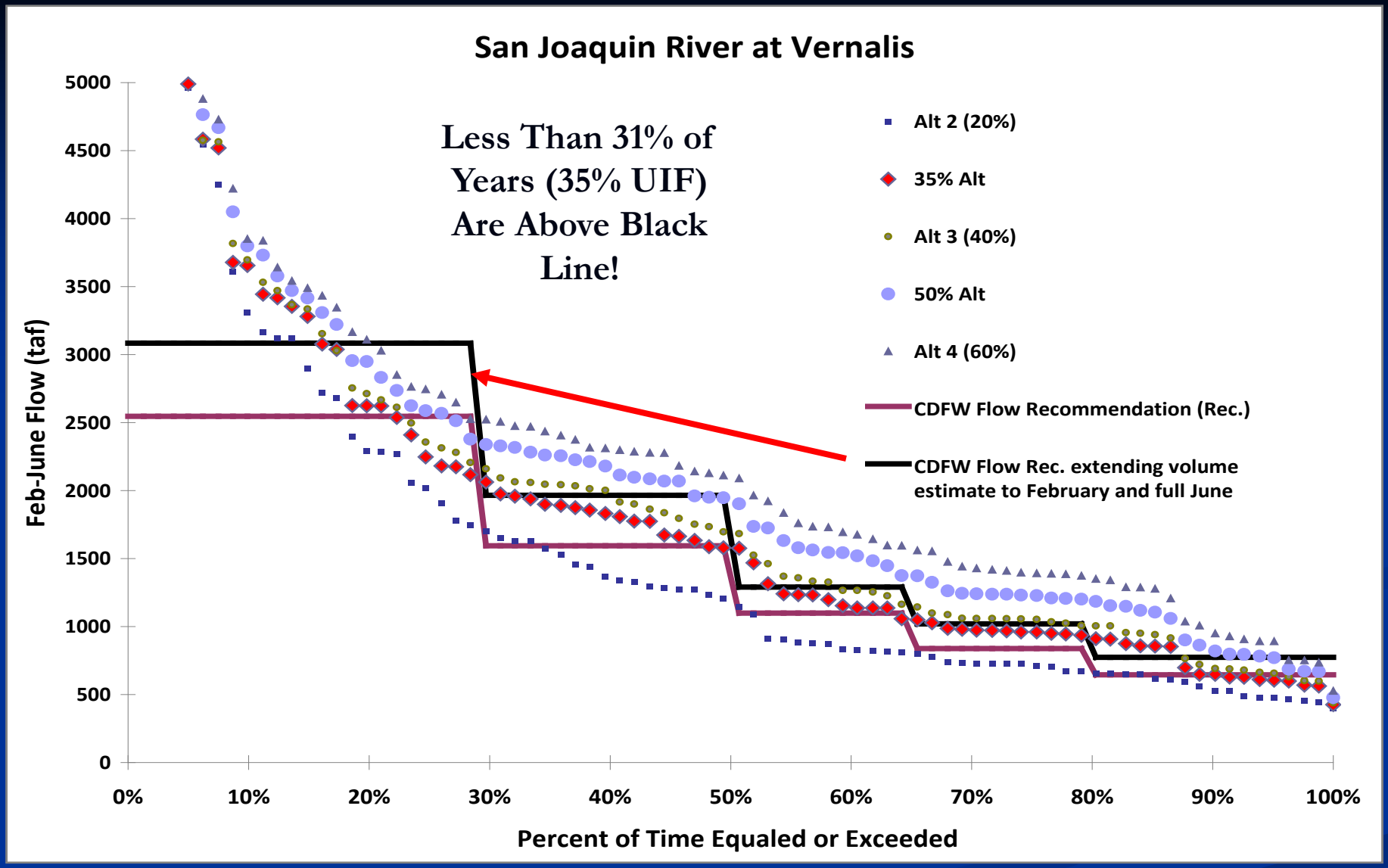
The CDFW's Analysis -> 35% of UIF is Inadequate

- CDFW Recommendations Demonstrated Flow Necessary to Address One Life Stage of One Fish
  - Is Critical Life Stage of Ecologically Important Species
    - Need Year Round Protection
  - Other Species Are Also Important
  - Ecosystem Functions and Services Important

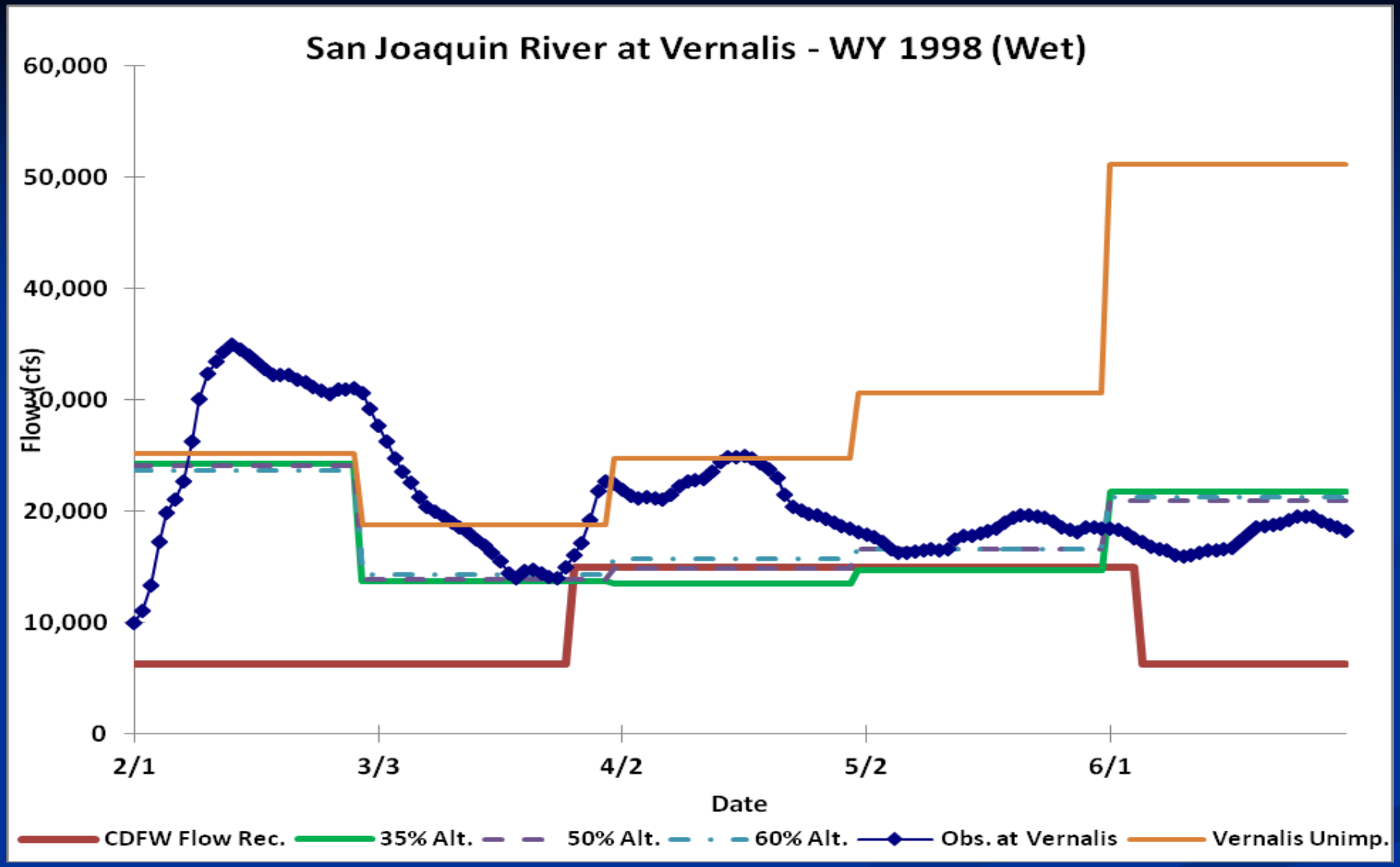


- From SED Figure 3-2 – Red Line is SED's Analysis of CDFW's Volume Needed for Pulse Flows

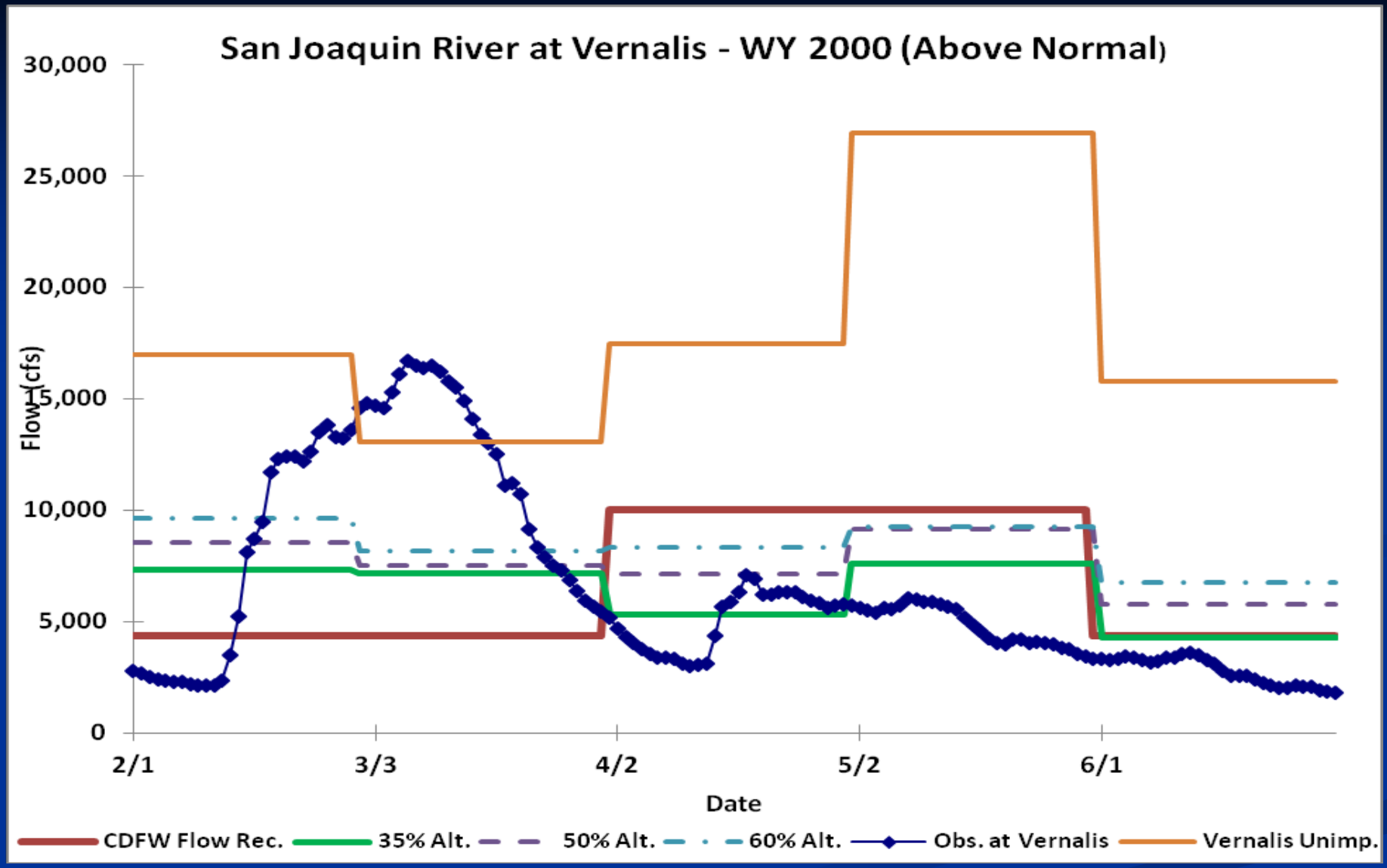

San Joaquin River at Vernalis
Feb-June Flow (taf)
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
0%
10%
20%
30%
40%
50%
60%
70%
80%
90%
100%
Percent of Time Equaled or Exceeded
Alt 2 (20%)
35% Alt
Alt 3 (40%)
50% Alt
Alt 4 (60%)
CDFW Flow Recommendation (Rec.)



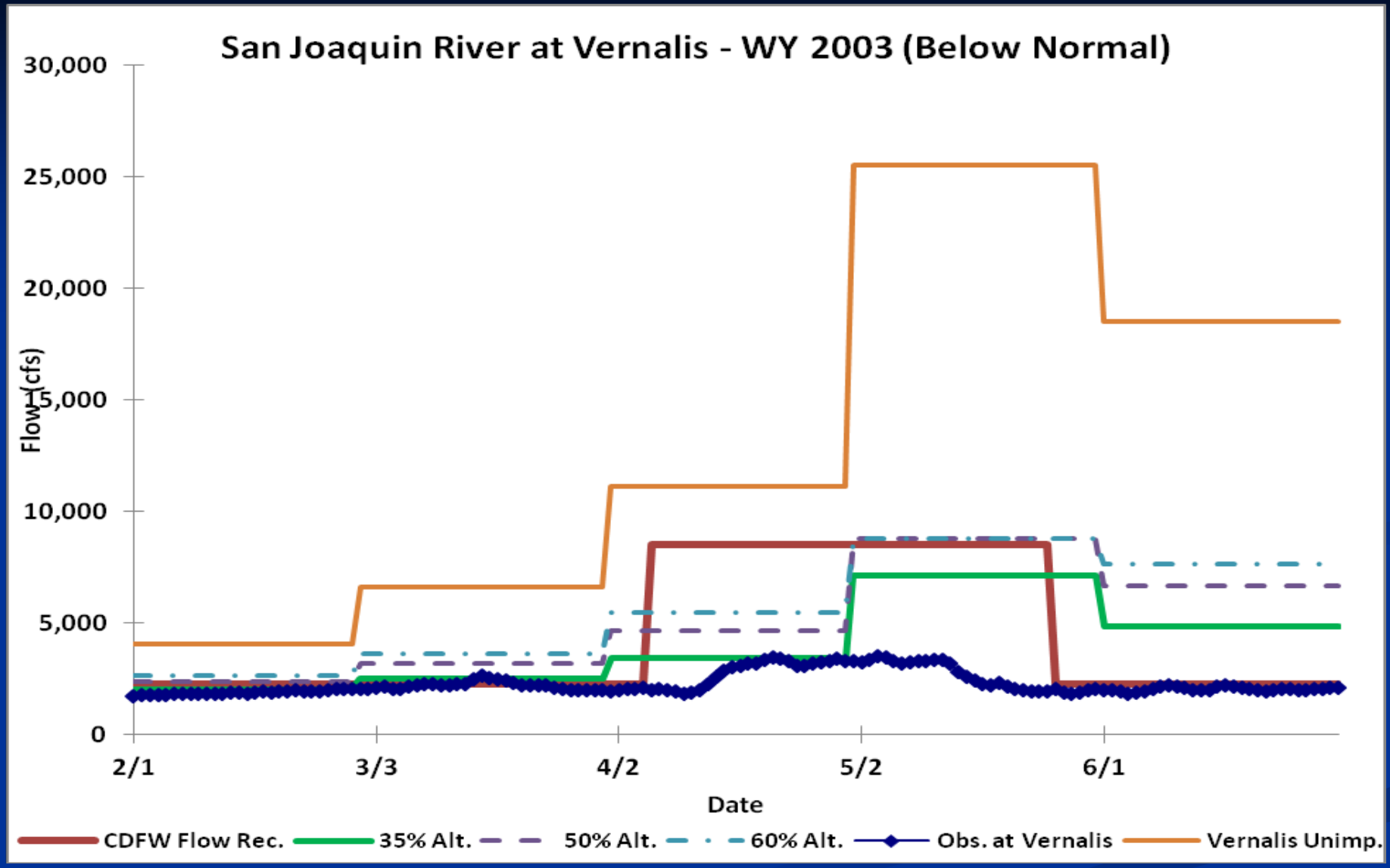
- **Black Line -- Volume Needed for CDFW's Flow When Including Base Flow From February 1st -- June 30th**



35% UIF sufficient



35%UIF insufficient

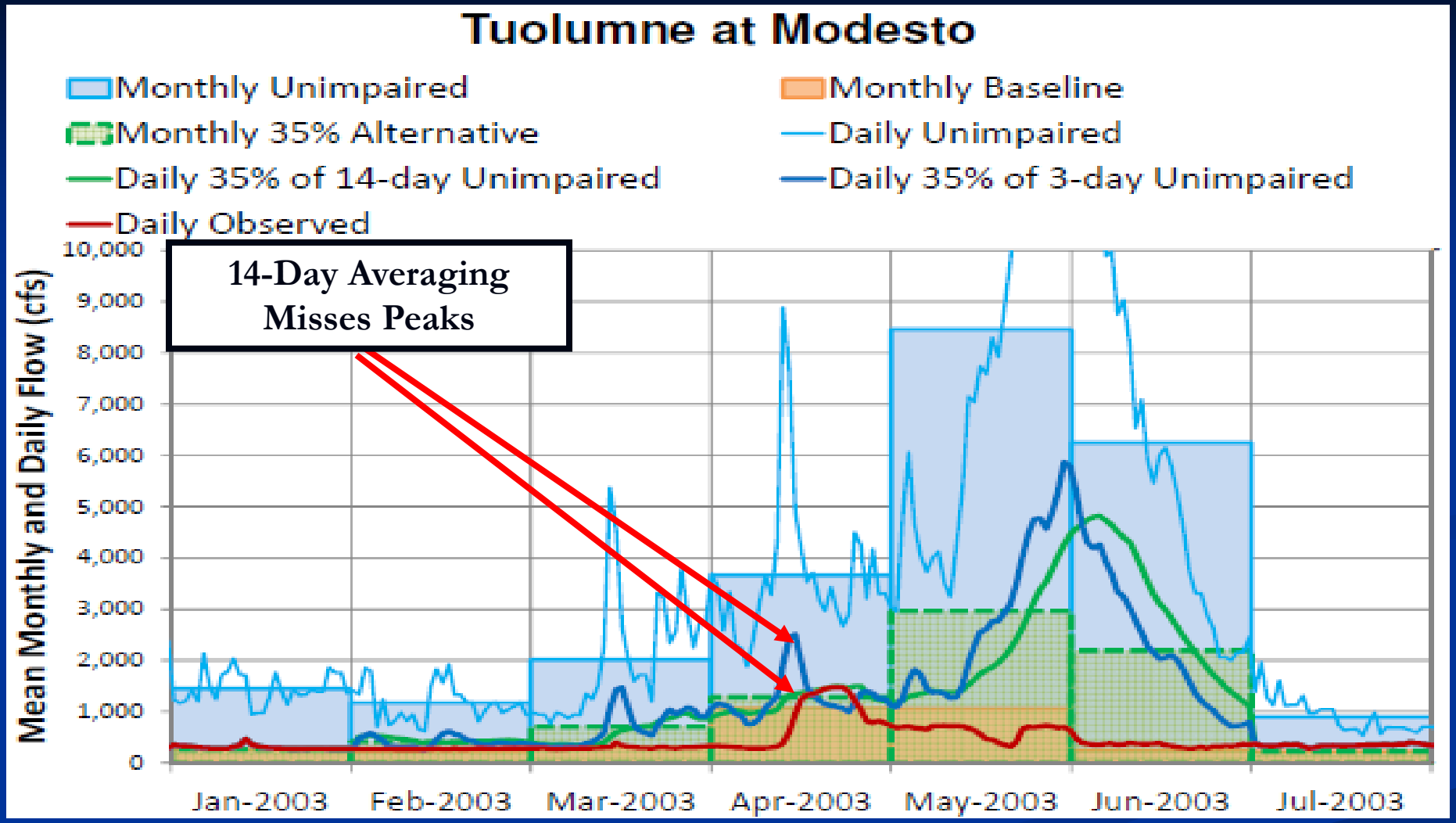


35% UIF insufficient

SED -> 14 Day Ave. of 35% UIF Won't Help Restore/Maintain Ecosystem Functions and Services

- Basis of Science is Natural Flow Regime (NFR)
  - Basis of NFR is to Maintain Variability and Pattern of Natural Hydrograph
  - Ex.: Timing, Magnitude, and Duration of High Flows
- Model Flood Limits May Unnecessarily Restrict Peak Flow Magnitudes
  - Sum of Flood Limits < 10,000 cfs (Needed to Achieve Salmon Doubling Goal Measured at Vernalis)

2003 Daily Average UIF and 35 % UIF



Using 3-day & 14-day Averaging Periods

Source: Grober and Satkowski 2013.

Economic Impacts of Declining Fisheries are Significant & Important

- For Balancing - Board Needs to Understand Full Range of Economic Impacts
  - Both Potential Positive and Negative Economic Impacts to Recreational and Commercial Fisheries
  - Long Term Economic Impacts to Agricultural Water Use
- SED Does Not Assess Future Negative Economic Impacts as Salmon Fisheries Continues to Decline Under 35% UIF

Estimated Economic Impact of Salmon Fishery Closure in 2008 and 2009

	Income Lost	Jobs Lost
Commercial	$47.9 million	961
Recreational	$70.5 million	862
Total	$118.4 million	1,823

Source: Employment Impacts of California Salmon Fishery Closures in 2008 and 2009. Jeff Michaels, Business Forecasting Center, University of the Pacific, April 1, 2010.

2009 Governor's Declaration of State of Emergency:

- $279 million economic impact
- loss of estimated 2,690 jobs

The Revised WQCP's Program of Implementation Needs Detail

- Should Include A Clear Governance Structure
- Should Be Based On Specific Measurable Achievable Relevant Time-fixed (SMART) Objectives
- Management Triggers, Performance Measures, And Time Frames Identified As Integral Components
- Should Include An Adequate Process For Implementing And Evaluating Higher Flows
- Should Expand the Incorporation of Independent Science Review and Advice