

California Department of Fish & Wildlife



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Public Hearing on the Amendment to the Water
Quality Control Plan for the San Francisco Bay/Sacramento-San
Joaquin Delta Estuary and supporting Draft Revised Substitute
Environmental Document

January 3, 2017



Hydrograph (1 of 3)

- Reduction and flattening of the San Joaquin River's hydrographs have altered the physical, chemical and biological characteristics of the SJR and its tributaries and have:
 - Created habitat conditions that have compromised anadromous fish by making them sick/injured, unhealthy, and susceptible to predation



Hydrograph (2 of 3)

- Reduction and flattening of the San Joaquin River's hydrographs have altered the physical, chemical and biological characteristics of the SJR and its tributaries and have:
 - favored the proliferation of non-native species
 - Substantially contributed to the decline in anadromous fish population abundance making these populations non-resilient to stochastic mortality events (such as ocean conditions)



Hydrograph (3 of 3)

- A return to a more natural flow regime hydrology would reverse these trends and
 - Could preclude the need to develop a TMDL for water temperature impairment which is now legally required given the water temperature impairment listing
 - Would support a portfolio effect:
 - Fry/Parr/Smolt contribution to adult production
 - Adult production in the fall-run ESU
 - Create a boost in natural production thereby reducing need for hatchery fish



Implementation

- Implementation should be based on a systematic watershed based approach and focus on achieving:
 - Connectivity between tributary watersheds and the Bay-Delta to protect anadromous and non-anadromous native fish species



Monitoring

- Strong effective monitoring program will be indispensable to managing/evaluating implementation
 - Progress towards goal attainment is needed and a comprehensive monitoring program is the pathway to accomplish this

Adaptive, Collaborative Management



- The Department supports collaborative adaptive implementation of a block of water
 - Recognizing the distinction between annual real-time operations and longer term adaptive management
 - Decisions on use should be tied to achieving biological goals and objectives, and be coupled with effectiveness monitoring



Strengthened Decision Making

- Decisions on implementation of flow (%UIF), and non-flow, should be tied to achieving clearly defined fish and wildlife narrative objectives
 - This includes decisions on adaptive adjustments to the February through June time period
 - Flow shaping by, for example, percentage of unimpaired flow
 - Flow shifting



Governance

- Department supports flexibility and alternatives to the STM work group where there are voluntary agreements
- The Department supports strong leadership and facilitation by the Board for the STM work group, including:
 - early establishment of the STM (e.g., within 180 days of adoption of amendment)
 - development of a governance structure (operating rules etc.)
- Focus participation of STM so group remains effective
 - Consider subgroups or forums to allow additional stakeholder/water user involvement
- Require use of biological goals to guide and inform adaptive management



Voluntary Agreements

- The Department appreciates that the Board recognizes the efforts to secure collaborative voluntary agreements
- Voluntary agreements should accelerate implementation while also increasing the synergies of individual actions, both flow and non-flow, throughout the watersheds, according to an agreed upon schedule of implementation

SWRCB's use of SalSim

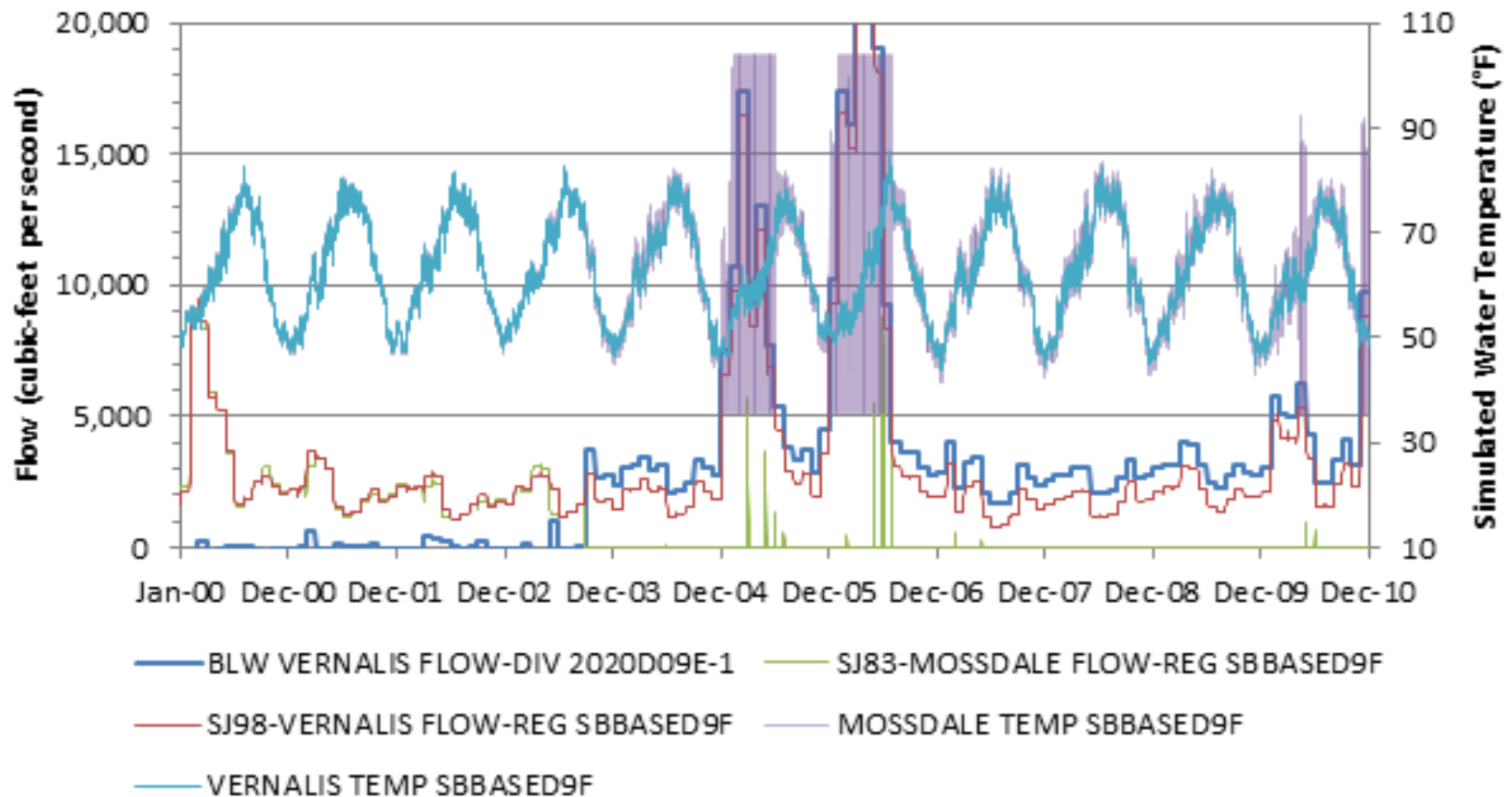


- SWRCB used SalSim and found issues resulting in less fish than would be expected given empirical data
 - egg mortality excessive
 - juvenile mortality insufficient
- Errors corrected
- Recalibrated the SalSim model
- Detail to be provided in our formal SED comments



Mossdale Water Temperature

HEC-5Q Flow and Temp at Mossdale & Vernalis



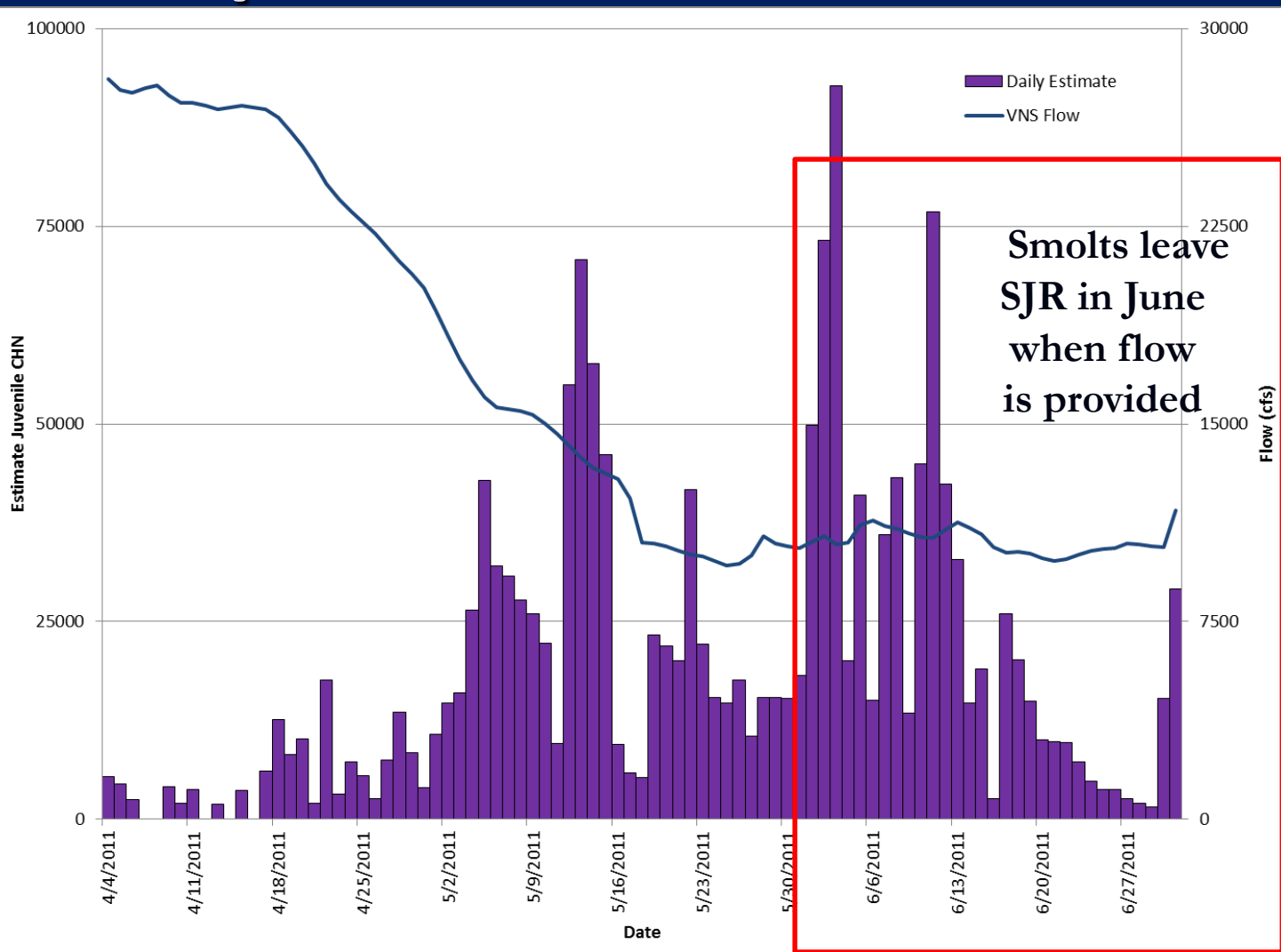


Model Tool –Take Home

- Decision support tool development
 - Finding and fixing “bugs” is standard operating procedure
- Combo of elevated H₂O temp's, and reduced flows, at Mossdale likely result in substantial juvenile salmon mortality for not only salmon entering the delta but also for salmon survival through the delta
- Adult salmon production estimates in the SED are likely substantially lower than they should be



Importance of June Flows - 2011

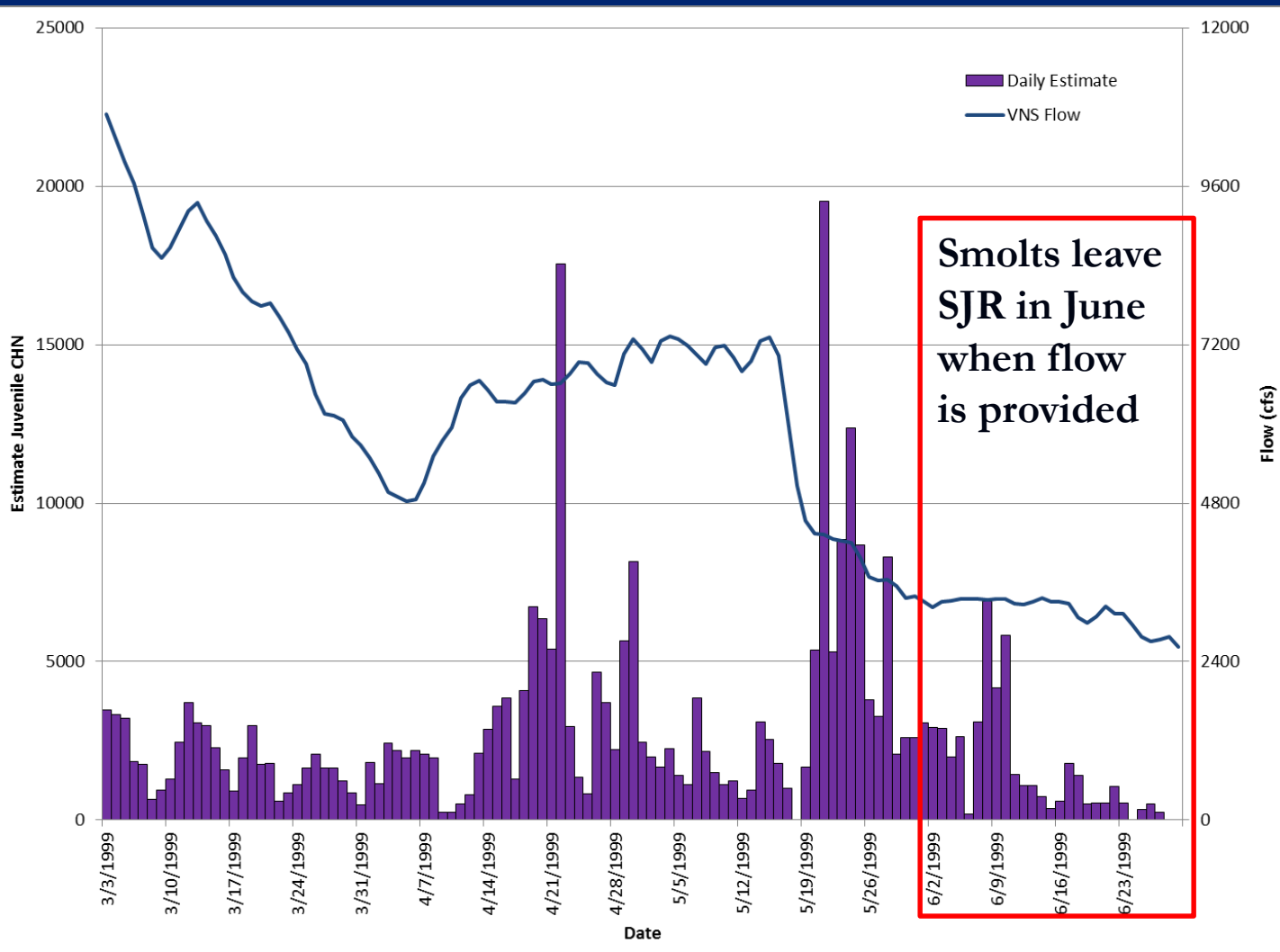


Remember the juvenile portfolio effect described by Dr. Rachel Johnson and Dr. Anna Sturrock: "All life stages are important"

Also, June important for late-fall run



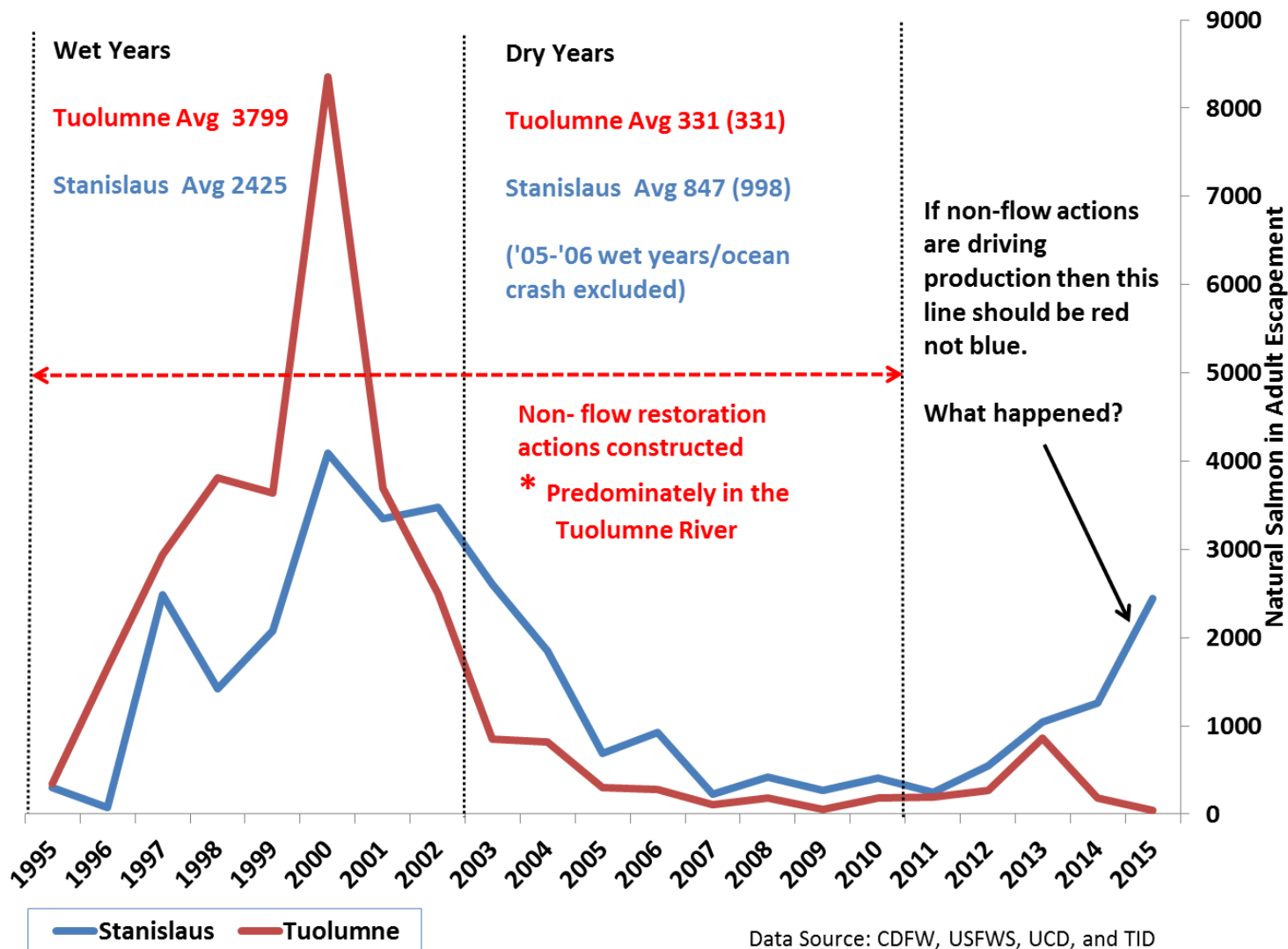
Importance of June Flows - 1999



More SJR trib flow to delta = more juvenile salmon entering and exiting the delta = more adult salmon production



Is Flow Important?





Is Flow Important?

Chinook Returns Since BiOP RPA

- In-situ experiment occurring in the SJR tributaries
- Assess flow vs non-flow focus effect upon salmon production
- Delta Bi-Op RPA's implemented 2009
- Spring flows in Stanislaus rose to ~40% UIF
- While the very wet year of 2011 provided the Tuolumne with some reprieve , its populations have generally dropped
- However, Stanislaus population has shown a steady rise throughout
- Take home:

-results indicate restoration action that primarily focuses on flow improvements are by far out producing those results produced by emphasis on non-flow actions

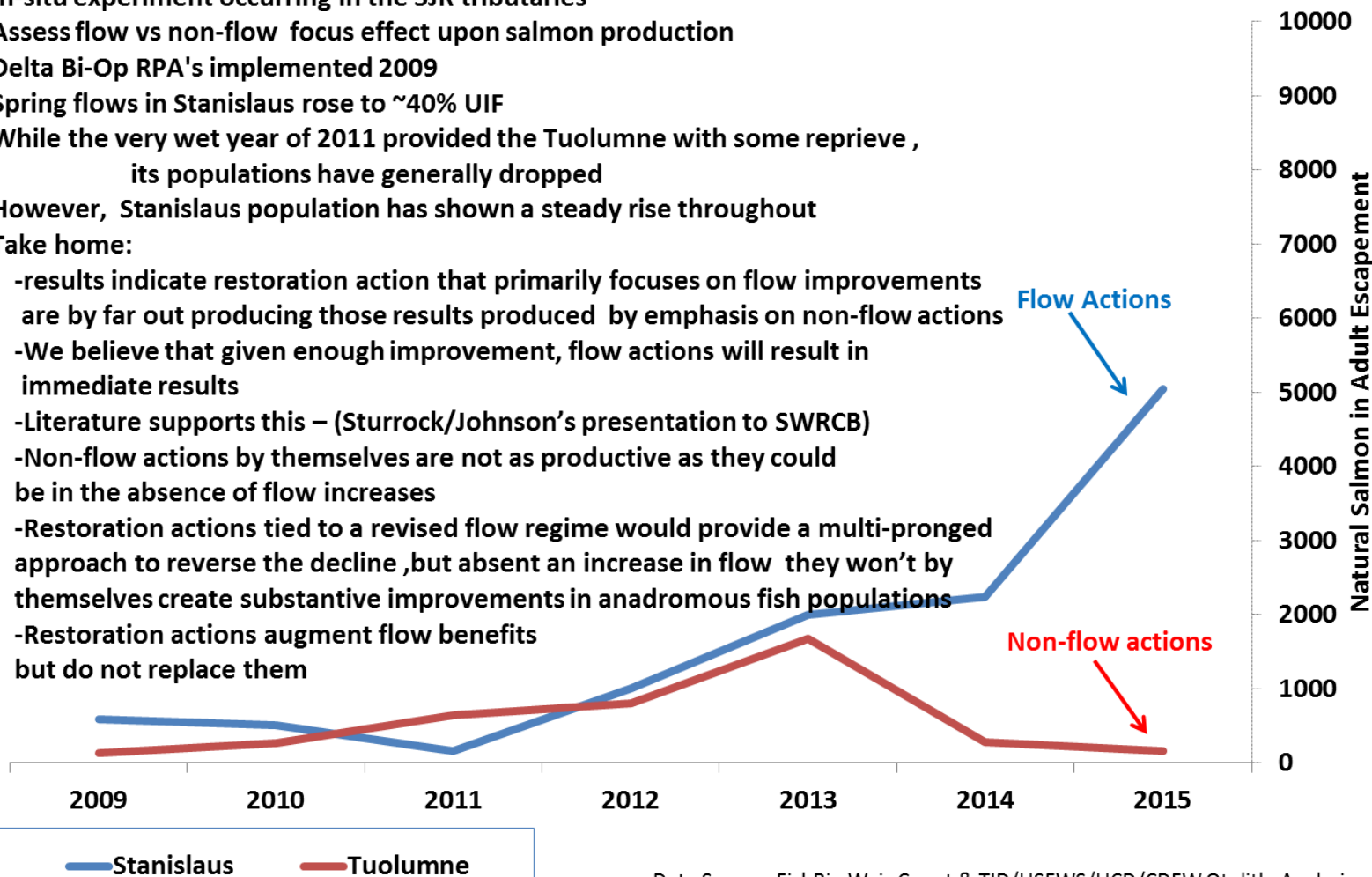
-We believe that given enough improvement, flow actions will result in immediate results

-Literature supports this – (Sturrock/Johnson’s presentation to SWRCB)

-Non-flow actions by themselves are not as productive as they could be in the absence of flow increases

-Restoration actions tied to a revised flow regime would provide a multi-pronged approach to reverse the decline ,but absent an increase in flow they won’t by themselves create substantive improvements in anadromous fish populations

-Restoration actions augment flow benefits but do not replace them



Data Source: FishBio Weir Count & TID/USFWS/UCD/CDFW Otolith Analysis



Closing

- CDFW appreciates the SWRCB's efforts
- At the core of the Department's interest throughout this process, as the state's trustee agency for fish and wildlife, is the undisputed fact that the Bay-Delta ecosystem is in crisis
- CDFW will move ahead tirelessly to work with the SWRCB and other stakeholders to develop solutions to reverse current trends while reasonably protecting all beneficial uses of water within the framework identified in the SED and proposed amendments

