

**2009 CVP/SWP Operations RPA Shasta Division Operations Adjustment Outline**  
**May 13, 2016**

**DRAFT, FOR DISCUSSION PURPOSES ONLY**

1. Background and rationale for adjustment
  - a. Temperature-related mortality led to winter-run Chinook salmon year class failures in 2014 and 2015.
  - b. The stressor of water operations resulting in elevated water temperatures that have lethal and sub-lethal effects on egg and alevin incubation and juvenile rearing in upper Sacramento River still exists.
  - c. There is a lack of sufficient cold water in storage to allow for cold water releases to reduce downstream temperatures at critical times.
  - d. Temperature needs for early life stages of winter-run Chinook salmon have not been met.
2. Update<sup>1</sup> RPA section 11.2.1.1 Responsibilities and Procedures of Technical Teams
  - a. Add Shasta Water Interagency Management Team (SWIM Team) and associated descriptive language
  - b. Explicitly state the objectives, roles and responsibilities Sacramento River Temperature Task Group (SRTTG)
3. Update RPA, Section 11.2.1.2 Research and Adaptive Management
  - a. Investigate new ways to operate the Central Valley Project based on new and future meteorological and hydrological conditions due to climate change (i.e. shifting baselines)
  - b. Invest in new reservoir and water temperature tools and monitoring.
    - i. Require RAFT model into real-time operations
    - ii. Develop and implement Shasta Reservoir stratification modeling into monthly forecasts
    - iii. Develop and implement an integrated Shasta/Whiskeytown/Trinity/Lewiston operations and temperature model.
  - c. Research and implement engineering solutions to access cold water pool in Shasta Reservoir and prevent warm water leaks through the Shasta Dam temperature control device.
  - d. Fund further studies to understand other stressors associated with water temperatures and operations, such as disease, predation, lack of spawning and rearing habitat, food web supply, bioenergetics, etc.
4. Update RPA, Section 11.2.1.3 Monitoring and Reporting
  - a. Require funding for redd-dewatering and juvenile stranding monitoring
  - b. Require funding for additional temperature and dissolved oxygen monitoring in the Sacramento River
  - c. Require funding for spawning gravel and juvenile rearing habitat monitoring
5. Update RPA Action Suite I.2 Shasta Division and Action I.4 with new language
  - a. Action I.2.1 Performance Measures
    - i. Delete 10-year running average metric
    - ii. Storages based on water year types but at least:
      1. End of April or May storage requirement of  $\geq 4.0$  MAF every year
      2. End of September storage requirement of  $\geq 2.2$  MAF every year

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<sup>1</sup> All additional language and updates will be in tracked changes

- b. Action I.2.2 November through February Keswick Release Schedule (Fall Actions)
    - i. Update language to reflect storage requirements
    - ii. Stabilize flows to minimize fall-run redd de-watering, and winter-run and spring-run juvenile stranding
  - c. Action I.2.3 February Forecast: March – May 14 Keswick Release Schedule (Spring Actions)
    - i. Require a March forecast instead (*i.e.*, for better accuracy) prior to initial water allocation decisions
    - ii. Update language to require initial monthly Keswick release schedules with consultation with NMFS regardless of storage
      - 1. Impose minimum and maximum monthly Keswick releases
      - 2. Delay full side gate operations as long as possible in low storage years
    - iii. Change temperature compliance point language to 61°F 7DADM during winter-run adult holding period
    - iv. Add pulse flows in spring for emigrating spring-run juveniles from Deer and Mill creeks and for bed load movement (if needed)
  - d. Action I.2.4 May 15 – October 31 Keswick Release Schedule (Summer Action)
    - i. Establish temperature compliance point during summer season of 55°F 7DADM to downstream most Sacramento River winter-run Chinook redd
    - ii. Stabilize Keswick releases to minimize the potential for redd dewatering.
  - e. Action I.4 Wilkins Slough Operations
    - i. Change current 5000 cfs navigation criterion to 3800 cfs
6. Update 11.3 Analysis of RPA based on above changes
7. Update Appendix 2-A, Decision Criteria and Processes for Sacramento River Water Temperature Management, to reflect current information and processes