



**State & Federal Contractors
Water Agency**

1121 L Street, Suite 802, Sacramento, CA 95814

October 1, 2010

Mr. Charlie Hoppin
Chair, State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Mr. Philip Isenberg
Chair, Delta Stewardship Council
650 Capitol Mall
Sacramento, CA 95814

RE: Critique of SWRCB Report: Development of Flow Criteria for the
Sacramento San-Joaquin Delta Ecosystem

Dear Mr. Hoppin and Mr. Isenberg:

Legislative requirements provide that the Delta Stewardship Council use the subject report to inform its Delta Plan and that the Bay Delta Conservation Plan also be informed by this report. Recognizing this, SFCWA feels that the report deserved a critical review to place the use of the report in additional context, in addition to the many qualifying statements made in the report which caution the reader as to its limitations. SFCWA commissioned a panel of knowledgeable biological scientists, statisticians, water system modelers and engineers to review this report, analyzing the quality of its biological basis and reviewing potential water supply implications should its recommendations be pursued.

Attached are two analyses, Appendix A to this letter is a review of the biological support cited in the report for the flow recommendations. Appendix B is a summary of expected impacts to water supply, power generation and impacts to other public trust uses that would ensue if the flow recommendations were to be pursued. It is these types of effects which would have to be considered in a broad analysis of public trust values and whether particular flow objectives are in the public interest.

Summary of Technical Review of Flow Criteria

Technical experts in biology, statistics and ecosystem science have reviewed this report on behalf of SFCWA and make the following summary observations, with page references for Appendix A, are provided where appropriate.

1. The SWRCB made no distinction in determining best available science to support their recommendations by distinguishing between unpublished data submitted in the report's development process, peer reviewed papers and papers published in scientific journals. Unsupported statements often appear to be taken at face value.

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2. Review of the scientific support for flow for various species shows that in many instances the best available science was not used and that findings in the cited studies often contradict conclusions of the report, and citations were selective or misinterpreted:
 - a. American Shad - p. 1
 - b. Juvenile salmonids - p. 2
 - c. Use of particle tracking models - p. 7
 - d. Recommendations regarding San Joaquin inflow-export ratio – p. 11-15
 - e. Old and Middle River flow restrictions - p. 15
 - f. Longfin Smelt - p. 18-27
 - g. Delta Smelt – p. 28-30
 - h. Sacramento Splittail – p. 31-33
 - i. Starry Founder – p. 33
 - j. California Bay Shrimp – p. 34
3. The report relies on the same scientific analysis that has been criticized by the United States District Court for the Eastern District of California, apparently containing fundamental analytical and statistical errors and/or misapplication of the underlying scientific literature. The Court may rule that it was arbitrary and capricious for federal agencies to rely on these analyses.
4. Ignores the abundance of data showing exports do not influence San Joaquin Salmon Survival and incorrectly concludes the need for inflow/export ratio controls – p.10-14

Benefits Unanalyzed and Speculative

The Report in the main argues that fish abundance was better prior to reduction in flows but makes no attempt either through population dynamic modeling or other analysis to determine the likely benefit of the proposed measures. No attempt is made to quantify the benefit of the flow measures and causal mechanisms for linking flow to abundance are almost completely lacking.

No Recognition of Underlying Predation Problem

Many of the flow measures are based on the simple contention that more flows increase survival of species, specifically salmonids. What is lacking is any serious analysis of the actual underlying reasons for loss of the fish, which is not necessarily due to lack of water but rather to an unnatural system dominated by non-native predator fish. Recent data collected by the National Marine Fisheries Service on juvenile salmon survival show that in the four most recent years where salmon were fitted with radio tags that survival rates are only about 2-10% for Sacramento river juvenile salmon, which is about four times worse than other major salmon rivers such as the Columbia and Fraser Rivers. Synthesis of 22 telemetry studies on the San Joaquin River system indicate that smolt survival is but 6% on average. These data also show that the fish are not lost in either diversions on the river or at the SWP and CVP pumps, and are likely the result of excess predation. With predation being at the core of such survival rates, no amount of flow is likely to significantly improve salmon production prospects. Flows recommended in the report could mask a critical underlying problem of the current ecosystem which should be addressed directly, not through means that unnecessarily impact water supply.

Summary Water Supply Impacts Assessment Analysis

In the Draft Flow Criteria Report, an attempt was made to analyze the water supply impacts of the flow criteria proposed. This appendix was not included in the final report. On behalf of the Northern California Water Association, MBK engineers, who are specialists in modeling water supply operations of California water systems, analyzed supply impacts on Sacramento Valley users and CVP/SWP exports. A summary of this analysis is provided and their report previously provided by NCWA is attached as appendix B and summarized as follows.

Gross Supply Impacts are Catastrophic

The additional Delta outflow required in the SWRCB report would require a statewide reduction in consumptive use of water of about 5.5 million acre feet, which amounts to a 69% reduction in use of water from the Delta watershed. Using an average replacement cost of supply based on current costs of recycled water projects in urban areas and the least expensive seawater desalination projects, of about \$1,100 per acre-foot, the annual added cost of replacement supply is over \$6 billion annually. While replacing the first few hundred thousand acre-feet would likely come at unit costs lower than that, beyond a million acre-feet costs would escalate far beyond \$1,100/AF and thus this estimate is considered very conservative.

Examples of Individual Watershed Impacts

SFCWA has analyzed the impacts of the flow proposals on two isolated watershed systems in accordance with the Report's recommendation that "Flow should generally be provided from the tributaries in proportion to their contribution to unimpaired flow." Impacts to the Putah Creek watershed which serves Solano County and the Mokelumne River, which primarily serves East Bay Municipal Water District serving much of the east San Francisco Bay Region would see a 43 to 48% reduction in water available to those regions as shown below.

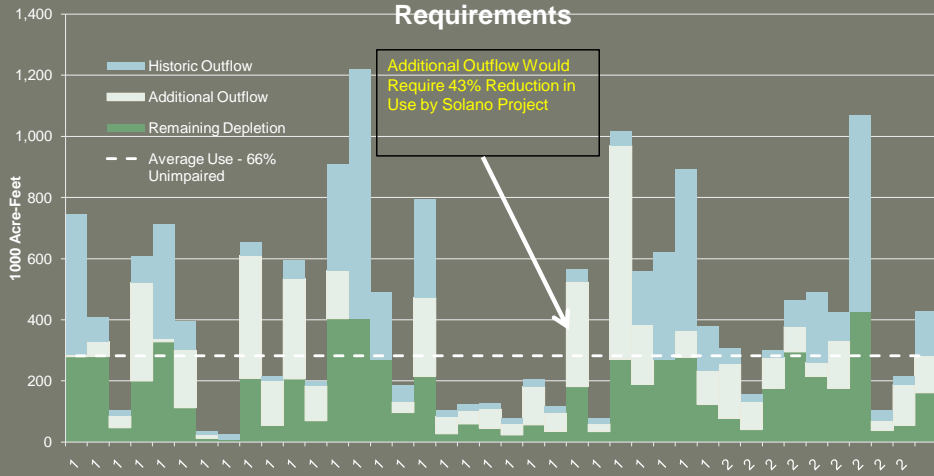
The SWRCB Initial Water Impact Analysis Underestimates Impacts

The withdrawn analysis of water supply impacts likely underestimates actual impacts for the following reasons:

- The models relied on unrealistically increasing Trinity River diversions into the Sacramento River Watershed.
- In an attempt to minimize impacts on cold water pools in reservoirs necessary for salmon spawning, excess cutbacks were allocated to Sacramento Settlement Contractors, resulting in understated supply cuts to CVP and SWP export contractors.
- The model runs overstated San Joaquin River flows beyond proposals in the report, resulting in a lessening of the impacts on South of Delta exports and North of Delta reservoir releases.

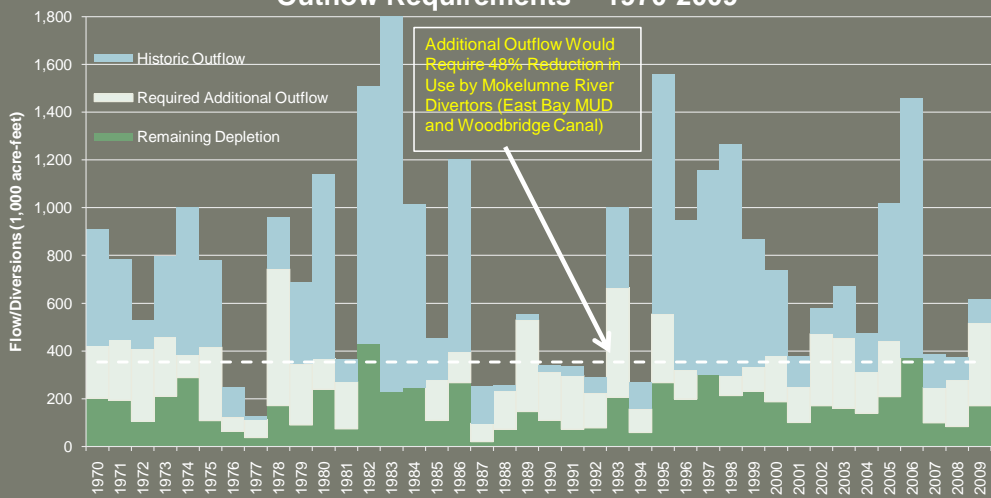
Estimated Impacts to Putah Creek, Solano County Users

Putah Creek Outflow, Depletions and Additional Outflow Requirements



Estimated Impacts to Mokelumne Rivers Users, EBMUD and others

Mokelumne River Outflow, Depletions and Additional Outflow Requirements -- 1970-2009



No analysis of groundwater impacts was made. Less surface water use will result in less groundwater percolation and loss of surface supplies will increase pressure on groundwater. Lowered groundwater levels will have negative impacts on streamflow.

- No impacts to loss of hydropower were made. Increases in stream flow recommended in spring months would most often require bypass of powerplant turbines. Increased frequency of storage pools below hydropower release points would result in further loss of production. Loss of storage to produce both summertime peak power and Valley water deliveries would likely put the electrical grid of California at significant risk of peak power shortages. While no quantitative analysis has been made, operators consulted believe replacement costs will amount well into hundreds of millions annually and could destabilize California's electrical grid. Replacement electrical supply would also be at much higher marginal costs and present greenhouse gas issues. SFCWA and others plan to develop analytical tools to address these issues.

Impacts to other Public Trust Resources

The Report's flow recommendations would create unmanageable impacts to preservation of cold water pools necessary for salmon spawning below reservoirs. For example, loss of storage in Shasta reservoir would cause cold water pool level reserves mandated in federal Biological Opinions to be violated in about three of every four years. These impacts are also underestimated as the report does not assess the impacts of lower summer releases on temperatures necessary to maintain salmon in the Sacramento River below the dam (see figures 4 and 5 of Appendix B).

As recognized by the SWRCB, no analysis is made to public trust resource impacts of upstream fisheries within reservoirs, or recreational and attendant economic impacts of loss of storage and total effective loss of reservoir values by frequent drawdowns to dead storage.

Flow Criteria Impact Underscores the Need for a Comprehensive Approach

The SWRCB has acknowledged many of the limitations of its Flow Criteria report. These limitations and the impracticality of implementing the recommendations due to clearly unacceptable impacts underscore the need for a comprehensive approach that achieves the coequal goals of water supply reliability and Delta ecosystem health. To afford the needed improvements to habitat, investments in alternative water supplies, reduction in wastewater effluent pollution, suppression of non-native predators, modification of Delta conveyance and increasing storage opportunities for both water supply and environmental flows, California's economy will need to recover and thrive. Ensuring a flow regime that works with other investments in ecosystem restoration and water supply reliability is imperative in assuring such recovery.

Sincerely,



Byron M. Buck
Executive Director