

Comments on Revised Notice of Additional Scoping Meeting

Comments Submitted to SWRCB by
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Need for Increased Flow of the SJR through the Delta

According to the SWRCB's April 1, 2011 "*Revised Notice of Preparation and Notice of Additional Scoping Meeting*,"

"The purpose of this revised notice of preparation and additional scoping meeting is to provide additional information regarding the State Water Resources Control Board's (State Water Board) current review of the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta) (2006 Bay-Delta Plan). In addition, as lead agency, the State Water Board is requesting additional comments from responsible and trustee agencies and interested persons concerning the scope and content of the environmental information to be included in the State Water Board's substitute environmental document (SED) relating to the State Water Board's current review of the Bay-Delta Plan. For responsible and trustee agencies, the State Water Board requests the views of your agency as to the scope and content of the environmental information that is germane to your agency's statutory responsibilities in connection with the proposed Project. "

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/docs/notice_sjr_flow_southern_delta_scoping_mtg_with_attachments.pdf.

We wish to provide the following comments on deficiencies in the proposed review of the SWRCB 2006 Water Quality Control Plan for the Bay Delta.

We have reviewed the 2006 Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta) (2006 Bay-Delta Plan):

http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/bay_delta_plan/water_quality_control_planning/index.shtml.

and have found that it fails to address two of the SJR/Delta flow issues that need to be addressed as part of protecting/enhancing the fall run of Chinook Salmon that spawn in the SJR tributaries. Two issues of primary concern are:

- Maintaining the flow of the SJR through the Deep Water Ship Channel (DWSC) to eliminate/greatly reduce the low DO conditions that inhibit the fall run of Chinook Salmon to SJR eastside tributaries,
- Maintaining the flow of SJR water that is present in the SJR at Vernalis so that the Chinook salmon home stream water chemical signal is present at the confluence of the SJR with the Sacramento River.

Background information on both of these issues is presented in,

Lee, G. F., and Jones-Lee, A., "Comments on the Delta Stewardship Council's Third Staff Draft Delta Plan – Chapter 6 Improve Water Quality to Protect Human Health and the Environment – Released April 22, 2011," Submitted to Delta Stewardship Council, Sacramento, CA, Report of G. Fred Lee & Associates, El Macero, CA, Updated May 1 (2011). <http://www.gfredlee.com/SJR-Delta/DSCThrdStaffDraft-Com.pdf>

Lee, G. F., and Jones-Lee, A., "Need for SJR Watershed Water to Reach San Francisco Bay," Comments submitted to Delta Stewardship Council, Sacramento, CA by G. Fred Lee & Associates, El Macero, CA, May 22 (2011). <http://www.gfredlee.com/SJR-Delta/NeedSJRtoSFBay.pdf>

Pertinent sections of these reports are attached to these comments.

In their SJR DWSC Low-DO TMDL synthesis report of the studies of the low-DO conditions in the DWSC cited below, Lee and Jones-Lee reported on the issues concerning the South Delta water export projects' leading to low flow conditions in the SJR DWSC, which in turn lead to diminished DO concentrations and violations of DO WQO (water quality objective).

Lee, G. F., and Jones-Lee, A., "Synthesis and Discussion of Findings on the Causes and Factors Influencing Low DO in the San Joaquin River Deep Water Ship Channel near Stockton, CA: Including 2002 Data," Report Submitted to SJR DO TMDL Steering Committee/Technical Advisory Committee and CALFED Bay-Delta Program, G. Fred Lee & Associates, El Macero, CA, March (2003). <http://www.gfredlee.com/SJR-Delta/SynthesisRpt3-21-03.pdf>

Low SJR flow through the DWSC is a major factor contributing to violations of the DO water quality objective in the first seven miles of the DWSC. It is well-documented that the diversion of SJR water at the Head of Old River to the USBR and DWR export pumps is a major factor contributing to low flows of the SJR through the DWSC, which lead to DO WQO violations. **As part of updating its 2006 Bay Delta Plan the SWRCB should prohibit the diversion of SJR water that would cause SJR DWSC flows to decrease below about 1,000 cfs.** Maintaining that minimum flow level could eliminate or greatly reduce the violations of the DO WQO in the DWSC, and at least greatly reduce the need for aeration of the DWSC thereby reducing the cost of controlling the low-DO conditions. It could also greatly reduce, if not eliminate, the need for agricultural interests in the Grasslands Bypass area to attempt to control the nutrients discharged to Mud and Salt Sloughs and the SJR that lead to the algae-related oxygen demand that is responsible for the low-DO conditions that occur under low-flow conditions in the SJR DWSC.

Lee and Jones Lee also reported on impacts of SJR flow diversions on the ability of fall run Chinook Salmon to reach their preferred spawning area in the SJR watershed. The above-reference Synthesis Report and the comments cited above, reported on loss of Chinook Salmon home stream water signal associated with the operation of the South Delta export project pumps by drawing all SJR water to the South Delta export pumps either at the Head of Old River or at Turner Cut.

Lee, G. F., and Jones-Lee, A, “Review of Impacts of Delta Water Quality and Delta Water Exports on the Decline of Chinook Salmon in the SJR Watershed,” Comments submitted to NMFS Southwest Fisheries Science Center, NOAA, Santa Cruz, CA, by G. Fred Lee & Associates, El Macero, CA, August (2008).
<http://www.gfredlee.com/SJR-Delta/Salmon-NOAAcom.pdf>

The operation of the South Delta export project pumps by USBR and DWR during the summer, fall, and early winter draws all SJR water, with its Chinook Salmon home stream water signal, to the export pumps via the Head of Old River and at Turner Cut; the Chinook Salmon thus have no SJR watershed home stream water signal to guide their return to their preferred area of spawning through the Delta. This leads to considerable straying of the fish and poorer reproduction. **As part of updating the 2006 Delta Plan the SWRCB should require that at least some of the SJR water present at Vernalis be allowed to pass all the way down the SJR to its confluence with the Sacramento River in the Western Delta.** As discussed by Lee and Jones-Lee, SJR water can be readily distinguished from Sacramento River water through its much higher specific conductance.

Selected sections of
**Comments on the Delta Stewardship Council’s Third Staff Draft Delta Plan –
Chapter 6 Improve Water Quality to Protect Human Health
and the Environment – Released April 22, 2011**

<http://www.gfredlee.com/SJR-Delta/DSCThrdStaffDraft-Com.pdf>

Compliance with SWRCB D-1641

The DSC staff third draft Chapter 6 states,

“The Bay-Delta Plan establishes water quality objectives for which implementation is best achieved through assigning responsibilities to water right holders and water users, because the parameters to be controlled are primarily significantly affected by flows and diversions; these responsibilities were established in Water Rights Decision 1641. By establishing these largely flow-based objectives, the Bay-Delta Plan is intended to provide reasonable protection for beneficial uses that require control of salinity and water project operations (State Water Resources Control Board 2006).”

The impacts of water diversion and management of flow into and through the Delta channels are of concern. This concern evolved from our finding that the one of primary causes of the low-DO conditions in the SJR DWSC is the diversion of SJR at the Head of Old River to the export pumps at USBR Jones and DWR Banks. These issues are discussed in the following section.

Impact of Delta Water Diversions on Delta Water Quality and Low DO

In addition to serving as project coordinators for the CALFED-supported, approximately \$2-million SJR DWSC low-DO project, Lee and Jones-Lee developed the reports cited below that synthesized the findings of the 12 project investigators and provided insights into the issues from the technical literature and their experience and expertise in working on similar issues at other locations.

Lee, G. F., and Jones-Lee, A., "Synthesis and Discussion of Findings on the Causes and Factors Influencing Low DO in the San Joaquin River Deep Water Ship Channel near Stockton, CA: Including 2002 Data," Report Submitted to SJR DO TMDL Steering Committee/Technical Advisory Committee and CALFED Bay-Delta Program, G. Fred Lee & Associates, El Macero, CA, March (2003).
<http://www.gfredlee.com/SJR-Delta/SynthesisRpt3-21-03.pdf>

Lee, G. F. and Jones-Lee, A., "Supplement to Synthesis Report on the Low-DO Problem in the SJR DWSC," Report of G. Fred Lee & Associates, El Macero, CA, June (2004).
<http://www.gfredlee.com/SJR-Delta/SynthRptSupp.pdf>

Lee, G. F. and Jones-Lee, A., "San Joaquin River Deep Water Ship Channel Low DO Problem and Its Control," PowerPoint slides presented at SETAC World Congress Portland, OR, November 2004. Updated December (2004).
<http://www.gfredlee.com/SJR-Delta/LowDOSummaryDec2004.pdf>

During the course of those investigations Drs. Lee and Jones-Lee reported that the USBR Jones, and DWR Banks south Delta water export projects were a major cause of the low DO in the SJR DWSC. The projects draw SJR water from the Head of Old River to the pumps; that water would normally have flowed through the DWSC. By reducing the flow of the SJR water through the DWSC, the projects have caused a significant increase in the hydraulic residence time of the oxygen demanding materials that enter the DWSC which allows more of the oxygen demand to be exerted in the DWSC, lowering the dissolved oxygen levels.

Impacts of Delta USBR and DWR water diversions have also been discussed in,
Monsen, Nancy E.; James E. Cloern; and Jon R. Burau. Effects of Flow Diversions on Water and Habitat Quality: Examples from California's Highly Manipulated Sacramento-San Joaquin Delta. San Francisco Estuary and Watershed Science. Vol. 5, Issue 3 (July), Article 2. (2007). <http://repositories.cdlib.org/jmie/sfewsvol5/iss3/art2>

Lee and Jones-Lee recently provided guidance to the CVRWQCB on how to address the residual oxygen demand in the DWSC that is caused by algae that develop in the SJR upstream of Vernalis. These issues are discussed in,

Lee, G. F., and Jones-Lee, A., "Issues in Controlling Residual Oxygen Demand in SJR DWSC That Leads to Violations of DO WQO," PowerPoint Slides, G. Fred Lee & Associates, El Macero, CA, February (2011).
<http://www.gfredlee.com/SJR-Delta/Issues-Ox-Demand-DWSC-Ppt.pdf>

Lee, G. F., and Jones-Lee, A., "Issues in Controlling the Residual Oxygen Demand in the SJR DWSC That Leads to DO WQO Violations," Report of G. Fred Lee & Associates, El Macero, CA, November 3, 2010; updated February 6 (2011).
<http://www.gfredlee.com/SJR-Delta/Residual-Ox-Demand-DWSC.pdf>

Lee, G. F., "Comments on Developing Nutrient Criteria for SJR Delta," email to Christine Joab, Central Valley Regional Water Quality Control Board, Rancho Cordova, CA, March 29 (2011). <http://www.gfredlee.com/SJR-Delta/Delta-Nutr-Criteria-Com.pdf>

Lee and Jones-Lee reported that with adequate flow of the SJR through the DWSC, and by allowing an appropriate averaging of DO water quality objective compliance it is possible to eliminate the current residual low-DO problem in the DWSC. The DSC should consider these issues in developing a Directed Action that impacts the amount of SJR flow through the DWSC. From the information available it appears that by maintaining about 1,000 cfs of SJR flow through the DWSC it would be possible to achieve acceptable DO levels in the DWSC while eliminating the need to try to control upstream algal nutrient discharges in the Grasslands Bypass area by that area's farmers.

Lee and Jones-Lee have also expanded and updated their discussions of Delta water quality issues including:

Lee, G. F., and Jones-Lee, A., "Overview—Sacramento/San Joaquin Delta Water Quality," Presented at CA/NV AWWA Fall Conference, Sacramento, CA, PowerPoint Slides, G. Fred Lee & Associates, El Macero, CA, October (2007).
<http://www.gfredlee.com/SJR-Delta/DeltaWQCANVAWWAOct07.pdf>

Lee, G. F., and Jones-Lee, A., "Comments on 'Draft Environmental Impact Statement Environmental Impact Report, South Delta Improvement Program' Prepared by Bureau of Reclamation for the U.S. Department of the Interior and the Department of Water Resources for the State of California Resources Agency," Report of G. Fred Lee & Associates, El Macero, CA, Submitted to CA Department of Water Resources, Sacramento, CA February 5 (2006).
<http://www.gfredlee.com/SJR-Delta/SDIP-ComFeb06.pdf>

Lee, G. F., and Jones-Lee, A., "Discussion of Water Quality Issues That Should Be Considered in Evaluating the Potential Impact of Delta Water Diversions/Manipulations on Chemical Pollutants on Aquatic Life Resources of the Delta," Report of G. Fred Lee & Associates, El Macero, CA, February 11 (2010).
http://www.gfredlee.com/SJR-Delta/Impact_Diversions.pdf

Drs. Lee and Jones-Lee have continued to follow the deliberations of various agencies and committees devoted to Delta resource management issues; they have submitted comments and other writings to the SWRCB as part its review of Delta Trust tributary and Delta flow and pollutant criteria including the following:

Lee, G. F., and Jones-Lee, A., "Comments on Water Quality Issues Associated with SWRCB's Developing Flow Criteria for Protection of the Public Trust Aquatic Life Resources of the Delta," Submitted to CA State Water Resources Control Board as part of Public Trust Delta Flow Criteria Development, by G. Fred Lee & Associates, El Macero, CA, February 11 (2010).
http://www.gfredlee.com/SJR-Delta/Public_Trust_WQ.pdf

Lee, G. F., and Jones-Lee, A., "Impact of SJR & South Delta Flow Diversions on Water Quality," PowerPoint Slides, Presentation to CA Water Resources Control Board, D1641 Water Rights Review, January 24 (2005).
<http://www.gfredlee.com/SJR-Delta/D1641SlidesSWRCBJan2005.pdf>

Lee, G., F., and Jones-Lee, A., "Need for Reliable Water Quality Monitoring/Evaluation of the Impact of SWRCB Water Rights Decisions on Water Quality in the Delta and Its Tributaries," Submitted to CA Water Resources Control Board Workshop on D-1641 Water Rights, Sacramento, CA, March 22 (2005).
<http://www.gfredlee.com/SJR-Delta/DeltaWaterExportImpactsPaper.pdf>

Lee, G., F., and Jones-Lee, A., "Need for Reliable Water Quality Monitoring/Evaluation of the Impact of SWRCB Water Rights Decisions on Water Quality in the Delta & Its Tributaries," PowerPoint Slides Submitted to CA Water Resources Control Board Workshop on D-1641 Water Rights, Sacramento, CA, March 22 (2005).
<http://www.gfredlee.com/SJR-Delta/DeltaWaterExportImpactsPowerPoint.pdf>

Lee, G. F., "Comments on the CA State Water Resources Control Board Cease and Desist Order to Cause the US Bureau of Reclamation and CA Department of Water Resources to Control Salinity Violations in the South Delta Compliance Points," Testimony presented at CA SWRCB evidentiary hearing, Sacramento, CA, November 7 (2005). <http://www.gfredlee.com/SJR-Delta/CeaseDesistSalinity.pdf>

Lee, G. F., and Jones-Lee, A., "Water Quality Issues That Could Influence Aquatic Life Resources of the Delta," Comments submitted to CALFED Science Program, Sacramento, CA, by G. Fred Lee & Associates, El Macero, CA, November 28 (2005).
<http://www.gfredlee.com/SJR-Delta/POD-Com.pdf>

Based on the SWRCB D 1641 water rights decision, the California Interagency Ecological Program (IEP) and CALFED were supposed to address the impacts of diverting Delta water on quality/resource management issues. The synthesis report referenced above, as well as the Lee (2008) comments cited below discussed the CVRWQCB's listing of known water quality criteria violations as well as technical inadequacies in the approach that the IEP monitoring/CALFED followed to evaluate water quality problems associated with exceedances of water quality objectives. These issues are summarized in,

Lee, G. F., "Comments on CALFED Independent Science Board Review of IEP," Comments submitted to Interagency Ecological Program, February 4 (2008).
<http://www.gfredlee.com/SJR-Delta/Comments-ISB-Review-IEP.pdf>

It is critical that DSC establish a program that requires that the SWRCB management of the IEP Delta monitoring of the Delta channels be focused on evaluating the impact of permitted water diversions on Delta water quality and Delta resources as required in D-1641.

Dr. Lee followed the Delta Vision Blue Ribbon Panel discussions on Delta Water Quality Issues, and has discussed technical inadequacies of the staff draft discussions in,

Lee, G. F., and Jones-Lee, A., "Comments on 'Delta Vision Strategic Plan Fourth Staff Draft Volume 2: Strategy Descriptions,'" Comments submitted to P. Isenberg, Chair, Delta Vision Blue Ribbon Task Force, Sacramento, CA. Report of G. Fred Lee & Associates, El Macero, CA, September 30 (2008). <http://www.gfredlee.com/SJR-Delta/DeltaVisionStaffDraft4.pdf>

Lee, G. F., and Jones-Lee, A., “Delta Water Quality Standards Violations” and “Comments on Water Quality Sections of the Delta Vision Strategic Plan, Third Staff Draft – dated August 14, 2008,” Submitted to Delta Vision Blue Ribbon Task Force, Sacramento, CA. Report of G. Fred Lee & Associates, El Macero, CA, September 1 (2008). <http://www.gfredlee.com/SJR-Delta/DeltaVisionWQViolations.pdf>

Lee, G. F., and Jones-Lee, A., “Comments on September 19, 2008 Delta Vision Task Force Meeting Discussion of Nutrient-Related Water Quality Problems in the Delta,” Comments submitted to P. Isenberg, Chair, Delta Vision Blue Ribbon Task Force, Sacramento, CA. Report of G. Fred Lee & Associates, El Macero, CA, October 14 (2008). <http://www.gfredlee.com/SJR-Delta/DeltaVisionCom9-19-08.pdf>

Dr. Lee served as an invited peer reviewer of the Department of Fish and Game (DFG) biological objectives and flow criteria review that developed the following report:

Gross, E.S., Lee, G. F., Simenstad, C. A., Stacey, M., Williams, J.G., (Expert Panel Members), “Panel Review of the CA Department of Fish and Game’s Quantifiable Biological Objectives and Flow Criteria for Aquatic and Terrestrial Species of Concern Dependent on the Delta,” DFG Water Rights Program Documents Senate Bill X7 1 DFG Implementation, Submitted to California Department of Fish and Game, October (2010). http://www.dfg.ca.gov/water/water_rights_docs.html

That report discusses the need for DFG to include an evaluation of the Delta tributary and in-Delta flows in establishing the needed flows criteria, as well as guidance on the need to more adequately manage the Delta aquatic life resources through maintaining adequate flows in Delta tributaries and in-Delta channels.

Selected Section of

Lee, G. F., and Jones-Lee, A., “Need for SJR Watershed Water to Reach San Francisco Bay,” Comments submitted to Delta Stewardship Council, Sacramento, CA by G. Fred Lee & Associates, El Macero, CA, May 22 (2011). <http://www.gfredlee.com/SJR-Delta/NeedSJRtoSFBay.pdf>

As part of their studies on the SJR DWSC low-DO situation Lee and Jones-Lee found that during the summer, fall, and early winter, all the SJR water that is present in the DWSC near the Port of Stockton is drawn by the USBR/DWR South Delta export project pumps (Jones and Banks) through Turner Cut. Turner Cut is located about seven miles from the Port of Stockton. Through several cruises conducted in the early 2000s (organized by Lee with support of DeltaKeeper boats and staff), the authors found that during the summer, fall, and early winter the water in the SJR channel downstream of Turner Cut is Sacramento River water. The waters of those two rivers are easily distinguished from each other by their specific conductivities; the SJR water has a much higher salinity than does Sacramento River water. At the suggestion of Dr. Lee, the DWR compliance monitoring of the SJR Deep Water Ship Channel from Prisoner’s Point to the Stockton Turning Basin (which consisted of periodic cruises of the length of SJR from its confluence with the Sacramento River to the Port of Stockton) be expanded to include specific conductance. As a result, specific conductance was measured about monthly at 14 stations along the SJR in that reach from summer through the fall. Those data showed that

downstream of Turner Cut the water in the SJR channel consistently had conductivities characteristic of Sacramento River water. The data collected on this issue was presented and discussed in the reports on the Lee and Jones-Lee website www.gfredlee.com in the Watershed Studies section, San Joaquin River Delta subsection at <http://www.gfredlee.com/psjriv2.htm>.