

**Comments on the  
Scope of the EIS/EIR for SJR Flow Restoration  
& Its Impact on SJR Water Quality**

Submitted by  
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US Bureau of Reclamation  
Sacramento, CA

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These comments are submitted in response to a request for comments on the Scope of the EIS/EIR for the Restoration of the SJR flow downstream of Friant Dam. They focus on the impacts of restoration of SJR flow releases from Friant Dam on SJR water quality downstream of Lander Avenue (Highway 165).

**Overall Comment**

The SJR Restoration EIS/EIR should include a detailed evaluation of how changing the Friant Dam releases and manipulating other aspects of SJR flow associated with the SJR Restoration Program will impact water quality in the SJR and Delta. As discussed in the references cited below, the water quality in the SJR and Delta is impacted by SJR flow; thus, SJR water quality will be impacted by the SJR Restoration Program. These issues should be evaluated in the EIS/EIR.

**Background to Comments**

These comments are based on information and insight we obtained during the upstream studies conducted as part of investigating sources of pollutants that impact the SJR Deep Water Ship Channel low-DO problem that occurs just downstream of the Port of Stockton. We became involved in this issue in 1999 and were especially active in investigating this problem for the following five years when we served as the coordinating principal investigators for a \$2-million CALFED-supported study of the SJR DWSC low-DO problem. Our work included the development of a comprehensive synthesis report,

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 and CALFED Bay-Delta Program, G. Fred Lee & Associates, El Macero, CA, March (2003).

<http://www.gfredlee.com/SynthesisRpt3-21-03.pdf>

Since completing that synthesis report we have prepared a series of supplemental reports including,

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.members.aol.com/duklee2307/SynthRptSupp.pdf>

Our papers and reports are available on our website, [www.gfredlee.com](http://www.gfredlee.com) in the San Joaquin River Watershed Delta section at <http://www.gfredlee.com/psjriv2.htm>.

Also pertinent to review of how releases of water from Friant Dam could potentially impact water quality in the SJR, is our report,

Lee, G. F. and Jones-Lee, A., “San Joaquin River Water Quality Issues,” Report of G. Fred Lee & Associates, El Macero, CA, June (2006).

<http://www.members.aol.com/annejlee/sjr-WQIssues.pdf>

and associated presentation,

Lee, G. F. and Jones-Lee, A., “San Joaquin River Water Quality Issues,” (PowerPoint Slides) Invited Paper Presented at Great Valley Conference, “At the Tipping Point,” Sacramento, CA, Sponsored by Great Valley Center, Modesto, CA, May 11 (2006).

<http://www.members.aol.com/annejlee/SJR-April2006.pdf>

We discussed the role of irrigated agricultural discharges in water quality problems in the San Joaquin River in the presentation,

Lee, G. F. and Jones-Lee, A., “Agriculture-Related Water Quality Problems in the San Joaquin River,” PowerPoint slides presented at 2006 International Conference on “The Future of Agriculture: Science, Stewardship, and Sustainability,” Sacramento, CA, August 7-9 (2006).

<http://www.members.aol.com/annejlee/SJRAgAug06Paper.pdf>

We will also be presenting a paper on these issues this fall,

Lee, G. F., and Jones-Lee, A., “Water Quality Issues of Irrigated Agricultural Runoff/Discharges—San Joaquin River, Central Valley, California,” Presented at *Agriculture and the Environment - 2007* Conference, Central Coast Agricultural Water Quality Coalition, Monterey, CA, November (2007).

<http://www.members.aol.com/GFLEnviroQual/SJR-WQ-Ag-Monterey.pdf>

Because Delta water quality is highly influenced by water quality in the San Joaquin River, our comprehensive review of Delta water quality,

Lee, G. F. and Jones-Lee, A., “Overview of Sacramento-San Joaquin River Delta Water Quality Issues,” Report of G. Fred Lee & Associates, El Macero, CA, June (2004).

<http://www.members.aol.com/apple27298/Delta-WQ-IssuesRpt.pdf>

is of interest in evaluating the potential impacts of increased SJR flow from Friant Dam on Delta water quality.

Additional information on our experience in working on SJR and Delta water quality issues is available at <http://www.members.aol.com/annejlee/Delta-SJR-exp.pdf>.

**Discussion**

The reach of the SJR between Friant Dam and Lander Ave. is generally dry, except for wet years when the USBR spills excess water from Friant Dam. Beginning at Lander Ave. (Highway 165), groundwater discharge to the river and irrigation return water provide flow to the SJR which continues through to the Delta. The east-side rivers, including the Merced River, Stanislaus River, and Tuolumne River, typically provide high quality Sierra water to the SJR. The west-side tributaries beginning at Mud and Salt Sloughs are dominated, especially during the summer, fall and winter, by agricultural tail water and subsurface drain flows that contain elevated concentrations of a variety of pollutants. Table 1 presents a summary of currently known and suspected contaminants of water quality concern in the SJR between Lander Ave. and the Delta.

**Table 1. San Joaquin River Watershed TMDLs**  
Updated from Lee and Jones-Lee (2002)

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<b>Current (Active)</b>
Selenium
Salinity at Vernalis, Total Dissolved Solids (TDS), Electrical Conductivity (EC)
Boron
Organophosphorus (OP) Pesticides (Diazinon, Chlorpyrifos)
Oxygen-Demanding Substances (BOD/Algae, Ammonia, Organic N)
<b>Pending (to be Developed)</b>
Organochlorine “Legacy” Pesticides (DDT, Chlordane, Dieldrin, Toxaphene, etc.)
PCBs
Dioxins/Furans
Mercury
Sulfate (Bioaccumulation of Mercury)
Pathogen-Indicator Organisms, <i>E. coli</i> , Fecal Coliforms
Toxicity of Unknown Cause
Salinity Upstream of Vernalis
<b>Potential Future (to be Evaluated)</b>
Nutrients, Excessive Fertilization (Nitrogen and Phosphorus Compounds)
High pH, Low DO caused by Excessive Fertilization (Photosynthesis/Respiration)
Alternative Pesticides to OP Pesticides including the Pyrethroid-Based Pesticides that are
Causing Water Column and Sediment Toxicity
PBDEs
Total Organic Carbon, and other Chemicals such as Bromide that Develop into Disinfection
Byproducts (Trihalomethanes) in Treated Domestic Water Supplies
Excessive Sediment, Erosion, Turbidity
Herbicides (toxicity to algae)
Aquatic Sediment Toxicity (Pesticides, Nutrients/Algae/Sediment Ammonia, Heavy Metals,
PAHs and other Chemicals)
Unrecognized Pollutants
Pharmaceuticals and other Unregulated Chemicals Discharged by Confined Animal Facilities
(dairies, feedlots, etc.) and Domestic Wastewaters

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[updated from: Lee, G. F. and Jones-Lee, A., “An Integrated Approach for TMDL Development for Agricultural Stormwater Runoff, Tailwater Releases and Subsurface Drain Water,” *Proc. 2002 Water Management Conference, “Helping Irrigated Agriculture Adjust to TMDLs,”* pp. 161-172, US Committee on Irrigation and Drainage, Denver, CO, October (2002). [http://www.gfredlee.com/tmdl\\_07.2002.pdf](http://www.gfredlee.com/tmdl_07.2002.pdf)]

Increasing the flow of the SJR through Friant Dam releases as part of the SJR restoration will impact water quality in the SJR including the levels of the pollutants listed in Table 1. Lee and Jones-Lee (2006) reported,

***“Impact of Friant Dam Water Releases***

*The Karlton (2004) court order states that the Department of Interior’s failure to release sufficient water from Friant Dam to keep historic salmon fisheries in good condition violates California Fish and Game Code §5937. Judge Karlton established a February 2006 date for a hearing to consider the “remedy” for this violation, including the flows needed to restore the upper SJR fisheries and bring the operation of Friant Dam into compliance with the law. During the summer and early fall of most years, the SJR at the confluence with the Merced River largely consists of irrigation return (tailwater) flow. This results in the water in the SJR being of poor quality, with several known water quality objective (WQO) violations.*

*“Since the magnitude of the corrective actions that will be needed to address these water quality problems will be dependent on the flow of the SJR, the releases of water from Friant Dam to restore fisheries will have ancillary effects on these water quality issues. Without increased flows from Friant Dam, a number of costly and arguably extreme control measures will be required to meet current and likely future WQOs. For the urban and agricultural interests affected by these measures, releases from Friant will be beneficial by helping to provide for less onerous pollutant control programs.*

*“A key issue that will need to be addressed is the need, through permit conditions and/or other Water Rights mechanisms, for the Bureau of Reclamation to ensure that any new releases from Friant Dam to the SJR for the purpose of meeting instream flow needs for fisheries will be allowed to persist (i.e., not be diverted) throughout the SJR to at least Turner Cut in the Stockton Deep Water Ship Channel.*

*“In accordance with Clean Water Act requirements, exceedance of a WQO means that action must be taken to eliminate the WQO violation. Since the quality of water in Millerton Lake is high, release of water from Friant Dam to the SJR channel that is allowed to pass all the way to the Delta and SJR Deep Water Ship Channel will dilute the concentrations of the pollutants in SJR water that are causing WQO violations. Reductions in the concentrations of pollutants by Friant releases to the SJR channel will reduce the cost of pollutant control programs that public agencies (including the USBR), municipalities and agricultural interests will have to fund to comply with Clean Water Act requirements. This is one of the substantial benefits of restoring releases of Friant Dam water to the SJR.”*

[Reference: Karlton, L. K., Order, No. Civ. S-88-1658 LKK, Natural Resources Defense Council, et al., Plaintiffs, vs. Roger Patterson, etc., et al., Defendants, US District Court, Eastern District of California, August 26 (2004).]

**Scope of the SJR Restoration EIS/EIR**

In previous writings,

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.members.aol.com/annejlee/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.members.aol.com/annejlee/DeltaWaterExportImpactsPowerPoint.pdf>

we have discussed the need for all water rights deliberations to include specific review of the impacts of altering water flow on water quality. The SJR Restoration Project EIS/EIR should include a comprehensive discussion of the impacts of Friant Dam releases that are made in accord with the Court order, as well as any other manipulations of flow in the SJR made as part of the Restoration Program, on water quality in the SJR and the Delta. Of particular concern will be any components of the SJR Restoration Program that would include or allow Friant Dam releases to be diverted from the SJR before they reach Turner Cut in the Delta Deep Water Ship Channel. Any such diversions would be adverse to improving the water quality in the SJR as a result of the restoration program releases of flows from Friant Dam.

The EIS/EIR should include an assessment of the impact of flow diversions that would be adverse to SJR water quality improvements that would otherwise occur if the diversions did not take place. Also needing discussion is the economic impact to SJR watershed NPDES dischargers, such as cities and industry as well as agricultural interests, that would be associated with diversions of Friant Dam released flow that would otherwise improve water quality in the SJR and thereby reduce the cost of wastewater treatment and stormwater runoff management. Further, the EIS/EIR should include a discussion of the follow-up monitoring/studies that will be needed to fully evaluate the impact of the Friant Dam flow releases and other flow alterations on all aspects of water quality, including the parameters listed in Table 1.

If there are questions about the background reports that we have developed or these comments please contact us.

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