

Need for Water Quality Monitoring / Evaluation of Impact of SWRCB Water Rights Decisions on Water Quality in the Delta & Its Tributaries

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SWRCB Water Rights Web Page States:

“OUR MISSION is to establish and maintain a stable system of water rights in California to best develop, conserve and utilize in the public interest the water resources of the State while protecting vested rights, water quality and the environment.”

- SWRCB Water Rights Decisions Involving Water Exports & Flow Manipulations Have Significant Impacts on Water Quality in Delta & Its Tributaries
- Current Delta/Tributary Water Quality Monitoring Programs Inadequate to Define Impacts of Water Rights Decisions on Water Quality
- SWRCB Needs to Require Water Quality Monitoring Program to Define Impacts of Water Rights Decisions on Water Quality

Abbreviations/Definitions

- CVP Central Valley Project (Tracy Pumps) (Federal)
- CVRWQCB Central Valley Regional Water Quality Control Board
- CWA Clean Water Act
- DIP Delta Improvement Package
- DO Dissolved Oxygen
- DWR CA Department of Water Resources
- DWSC Deep Water Ship Channel
- HOR Head of Old River
- RRI Rough & Ready Island Monitoring Station
- San Carlos DWR Cruise Boat Used in Delta for Water Quality Monitoring
- SJR San Joaquin River
- SJR DWSC Flow Net Flow of the SJR in DWSC at Stockton
- SWP State Water Project (Banks Pumps) (State)
- SWRCB State Water Resources Control Board
- TMDL Total Maximum Daily Load
- WQO Water Quality Objective

Delta Channels Listed as Clean Water Act 303(d) Impaired for Variety of Pollutants and Other Water Quality Problems

- Currently Used **Pesticides** That Cause Aquatic Life Toxicity
- **Legacy Pesticides & Other Organochlorine Chemicals** That Cause Excessive Bioaccumulation of Hazardous Chemicals That Cause Delta Fish to Be Hazardous to Eat
- Sediment Toxicity Due to **Pesticides & Other Chemicals**
- Potential Toxicity of **Heavy Metals** in Water Column & Sediments
- Toxicity from **Unknown Causes**
- **Mercury** That Bioaccumulates to Excessive Levels in Delta Fish
- **Low DO** in Deep Water Ship Channel & South Delta Channels Due to “Hydromodification” – Altered Flow
- **Pathogen Indicator Organisms** That Indicate Parts of Delta Are Unsafe for Contact Recreation

Delta Channels Listed as Clean Water Act 303(d) Impaired for Variety of Pollutants and Other Water Quality Problems

- Depressed Primary & Secondary **Production** That Alters Delta Food Web & Fish Production
- Loss of Chinook Salmon Home Stream Water Signal for SJR Watershed Spawning
- Excessive **Total Dissolved Solids** (TDS/EC) That Impact Irrigated Agriculture & Domestic Water Supplies
- Excessive **TOC/DOC** That Impact Domestic Water Supplies
- Excessive **Fertilization** of Delta Waters That Impacts Contact Recreation, Domestic Water Supply Water Quality & Use of Delta Waters for Drip Irrigation
- Other, Unidentified Water Quality Problems Due to Municipal/Industrial/Agricultural Discharges to Delta & Its Tributaries **Endocrine Disrupters, PPCPs, New Pesticides**, etc.

Impacts of SWRCB Water Rights Decisions on Water Quality in Delta & Its Tributaries

- SWRCB Water Rights Decision on Water Exports & In-Delta Flow Manipulations Alter Water Flow Patterns in Delta
- Magnitude & Location of Each of These Impairments Controlled by SWRCB Water Rights Decisions
- Thus Far, Water Quality Impacts Related to SWRCB D-1641 Water Rights Decisions Restricted to TDS/EC
- Inadequate Attention to Impacts of South Water Exports by CVP & SWP on Other Water Quality Problems in Delta That Are Impacted by Water Rights Decisions
- If Technically Valid Water Rights Decisions Are to Be Made by SWRCB, Information Is Needed on How Exports & Flow Manipulations Impact Delta/Tributary Water Quality

SJR DWSC Low-DO Problem

- SWRCB D-1641 Water Rights Decision Postponed Adjustment of Water Rights & Flow Management until SJR DWSC Low-DO TMDL Was Established
- Low-DO TMDL Has Been Adopted by CVRWQCB – SWRCB Should Proceed to Adjust Water Rights/Diversion of SJR Watershed & South Delta Water Exports to Minimize Adverse Impacts on DO Concentrations in DWSC
- Important for SWRCB to Correct Problems Created by State & Federal Export Projects That Export South Delta Water through HOR to South Delta - as Part of Current Deliberations on D-1641 Water Rights Review
- Need to Provide at Least 1,500 cfs of SJR Flow through DWSC to Minimize Low DO Problem in DWSC

SWRCB (2000) Order for D-1641 States (pg 148):

“6. The water quality objectives condition shall be updated to read as follows:

The quantity of water diverted under this permit is subject to modification by the Board if, after notice to the permittee/licensee and an opportunity for hearing, the Board finds that such modification is necessary to meet water quality objectives in water quality control plans which have been or hereafter may be established or modified pursuant to Division 7 of the Water Code. No action will be taken pursuant to this paragraph unless the Board finds that:

(1) adequate waste discharge requirements have been prescribed and are in effect with respect to all waste discharges which have any substantial effect upon water quality in the area involved, and (2) the water quality objectives cannot be achieved solely through the control of waste discharges.”

0000013

DWR and USBR D-1641

Water Quality Monitoring Program

March 25, 2003, Stephen Verigin (Department of Water Resources-DWR) & Susan Ramos (US Bureau of Reclamation-USB) submitted revised Delta water quality monitoring program to Celeste Cantú (Executive Director SWRCB). Cover letter for submission of updated D-1641 Monitoring Program stated,

“D-1641 specifies three goals for this monitoring program: (1) to ensure compliance with Bay-Delta water quality objectives; (2) to identify meaningful changes in any significant water quality parameters potentially related to operation of the State Water Project (SWP) or the Central Valley Project (CVP); and (3) to reveal trends in ecological changes potentially related to SWP/CVP operations. Condition 11 (e) requires DWR/USB to evaluate the EMP and report their conclusions to the Executive Director of the State Water Resources Control Board every three years.”

DWR and USBR D-1641 Water Quality Monitoring Program

The IEP 2001-2002 Review of the Environmental Monitoring Program States,

“The Environmental Monitoring Program (EMP) was initiated in 1971 and now monitors water quality and phytoplankton, zooplankton, and benthos abundance and distribution in the upper San Francisco Estuary.”

Current D-1641 Monitoring Program Falls Far Short of Providing Information Needed to Reliably Evaluate Impact of SWP & CVP Operations on Delta/Tributary Water Quality

Inadequate Water Quality Monitoring Programs for Evaluating Impact of D-1641 Order

- D-1641 Water Right Order Requires That Comprehensive Water Quality Monitoring Program Be Developed to Evaluate Impact of South Delta Water Export & Flow Manipulations
 - Being “Implemented” through IEP Environmental Monitoring Program (EMP)
- D-1641 IEP EMP Water Quality Monitoring Program Grossly Deficient Compared to That Needed to Properly Define Water Quality Impacts of Water Rights Decisions That Allow SWP & CVP Water Exports
- SWRCB Needs to Appoint Independent Panel of Experts to Design, Oversee & Report on Impact of Delta Water Exports on Water Quality in Delta & Its Tributaries
 - Cannot Be Reliably Conducted by Water Exporters, DWR, USBR, MWD, etc.
 - Exporters Do Not Want to Find Problems with Exports on Delta Water Quality

CALFED/CBDA Water Quality Monitoring Program Inadequate to Address Delta/Tributary Water Quality Issues

- CALFED (CBDA) Continually Fails to Develop/Implement Comprehensive Water Quality Monitoring/Evaluation Program
- Current Water Quality Monitoring Program
 - Second Class Concern of CBDA Drinking Water Program Water Quality Program
- Water Quality Issues in Delta/Tributaries Much Broader Than TOC/TOC, Bromide & Other Drinking Water Constituents of Concern
- Broad Range Issues of Aquatic Life & Human Health Not Adequately Addressed
 - Lack of Home & Adequate Supporting Staff in CBDA
- Water Exporters Have Excessive Influence on CBDA Activities in Addressing Water Quality Issues
- D-1641 Water Quality Monitoring Program Must Be Conducted Outside of CBDA & Exporting Agencies

Characteristics of Needed Water Quality Monitoring Program

- Specifically Focus on Assessing Current Status of Impairment for Each of Delta Channel 303(d) Listings
 - Determine Whether “Impairment” Is Real Impairment of Beneficial Uses
- Specifically Address Magnitude, Area & Duration of the Impairment
- Define Constituents Responsible for Impairment, If Not Already Defined (Such as for Toxicity), & Sources of Those Pollutants
- Include both Water Column & Sediments
- Include Focus on Excessive Fertilization of Delta Waters as Evidenced by Excessive Growths of Water Hyacinth, *Egeria densa* & Emerging Problem of Blue-green Algae
- Where Real Potentially Significant Water Quality Impairments Exist in a Delta Channel, Determine How Water Exports & Flow Manipulations Impact Magnitude, Location & Duration of the Impairment

RMP for San Francisco Bay as a Model

- San Francisco Bay Regional Water Quality Control Board, with Cooperation & Assistance of SF Bay Dischargers, Organized Regional Monitoring Program (RMP)
- RMP Implemented through San Francisco Estuary Institute (SFEI) Is Good Model of the Type of Water Quality Monitoring Program Needed for Delta & Its Tributaries
- RMP Focuses on Water Quality Problem Definition & Developing Information That Can Be Used to Manage Those Problems
 - Focus Is on Constituents That Cause SF Bay to Be on 303(d) List
- Comprehensive Monitoring, Assessment & Research Program (CMARP, 1999) Provides Useful Information on Characteristics of Needed Delta Water Quality Monitoring Program
- <http://calwater.ca.gov/programs/science/cmarp/contents.html>
- CMARP Should Be Reactivated Outside of CBDA

Flow Manipulations on CWA 303(d)-Listed Waterbodies

- Must Consider Impact of Flow Alterations on **All** Pollutants in 303(d)-Listed Waterbodies
- 2002 CWA Section 303(d) List of Water Quality Limited Segments Included:

Lower Stanislaus River

- Listed for Diazinon, Group A Pesticides, Mercury, Unknown Toxicity
- Proposed Reduction in Flow from New Melones Reservoir during Summer that Would be Enabled by Changing the DO WQO Could Cause Adverse Impacts to Water Quality in Lower Stanislaus River for Several 303(d)-Listed Pollutants
 - Violations of CWA & Porter-Cologne Anti-Degradation Requirements

Flow Manipulations on CWA 303(d)-Listed Waterbodies

San Joaquin River (Merced River to South Delta Boundary)

- Listed for Boron, Chlorpyrifos, DDT, Diazinon, Electrical Conductivity, Group A Pesticides, Unknown Toxicity
- Reduction in Flow of San Joaquin River Could Aggravate Impairment by 303(d)-Listed Pollutants
- Need Studies to Evaluate Impact of Alteration in SJR Flow on Existing Pollutants
 - Requires Development & Implementation of Comprehensive Water Quality Monitoring Program
- Water Quality Modeling That Only Addresses One Conservative Pollutant Such as Salt Provides Inadequate Technical Basis for Establishing Water Rights Decisions That Are Supposed to Be Protective of Water Quality

HR 2828 Water Supply, Reliability, and Environmental Improvement Act

HR 2828, states,

“D) PROGRAM TO MEET STANDARDS-

(i) IN GENERAL- Prior to increasing export limits from the Delta for the purposes of conveying water to south-of-Delta Central Valley Project contractors or increasing deliveries through an intertie, the Secretary shall, not later than 1 year after the date of enactment of this Act, in consultation with the Governor, develop and initiate implementation of a program to meet all existing water quality standards and objectives for which the Central Valley Project has responsibility.”

- Will Need Comprehensive Water Quality Monitoring Program to Properly Implement HR 2828

Addressing Additional Delta Flow Exports

Before Any Additional Export of South Delta Water Is Allowed, Water Exporter Should Be Required to Fund Studies That:

- Adequately Define Current Impacts of Existing Delta Water Exports on Aquatic Life-Related Water Quality in Delta & Its Tributaries
- Develop & Implement Mitigation Program for Current Water Quality Impacts of Existing Delta Water Exports on Aquatic Life in Delta & Its Tributaries
- Estimate Potential Impacts of Proposed Future Additional Delta Water Exports on Aquatic Life-Related Beneficial Uses of Delta & Its Tributaries
- Develop & Begin to Implement Mitigation Plan for the Potential Water Quality Impacts of Additional South Delta Water Exports

Funding of D-1641 Water Quality Monitoring Program

- Delta/Tributary Water Quality Monitoring Program Should Be Funded by:
 - Those Responsible for Urban & Agricultural Discharges/Runoff to Delta & Its Tributaries, and
 - Those Who Export Water from Delta & Its Tributaries
- Funding Requirements Should Be Part of
 - SWRCB D-1641 Water Rights Decisions, and
 - CVRWQCB's NPDES Discharge Permits & Ag Waiver Requirements

Overall Recommendation

- As part of Implementing a Water Rights Decision, the SWRCB Should Require that a Comprehensive Water Quality Monitoring/Evaluation Program be Developed and Implemented
- The Results of the Monitoring/Evaluation Program Should be Used to Adjust Water Rights Where Significant Adverse Impacts on Water Quality Are Found

Additional Information

- **CMARP**, “Comprehensive Monitoring, Assessment and Research Program (CMARP),” CALFED Bay-Delta Program (1999).
<http://calwater.ca.gov/programs/science/cmarp/contents.html>
- **Lee, G. F., and Jones-Lee, A.**, “Need for Reliable Water Quality Monitoring/ Evaluation of the Impact of SWRCB Water Rights on Water Quality in the Delta and its Tributaries,” Presentation to the CA State Water Resource Control Board D-1641 water rights Workshop Sacramento, CA March (2005).
<http://www.members.aol.com/annejlee/DeltaWaterExportImpactsPaper.pdf>
- **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 (2004a).
<http://www.members.aol.com/apple27298/Delta-WQ-IssuesRpt.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, D-1641 Water Rights Review, January 24 (2005).
<http://www.members.aol.com/annejlee/D1641SlidesSWRCBJan2005.pdf>

Additional Information

- **SWRCB**, “REVISED Water Right Decision 1641 In the Matter of: Implementation of Water Quality Objectives for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary; A Petition to Change Points of Diversion of the Central Valley Project and the State Water Project in the Southern Delta; and A Petition to Change Places of Use and Purposes of Use of the Central Valley Project December 29, 1999 Revised in Accordance with Order WR 2000-02,” State Water Resources Control Board Sacramento, CA March 15, (2000).
<http://www.waterrights.ca.gov/baydelta/d1641.htm>
- **US EPA**, “The Section 303(d) List of Water Quality Limited Segments,” US Environmental Protection Agency Region 9, Available from California State Water Resources Control Board website (http://www.swrcb.ca.gov/tmdl/303d_lists.html), July (2003).

Further Information
Consult Website of
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<http://www.gfredlee.com>

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Publications on:

- Landfills-Groundwater Quality
- Surface Water Quality
- Hazardous Chemical Sites
- Mine Waste Impacts
- Contaminated Sediment
- Domestic Water Supply
- Excessive Fertilization
- Reclaimed Wastewater
- **Watershed Studies San Joaquin River Watershed & Delta**
- Stormwater Newsletter