

# Enhanced Delta Flows Needed to Help Control Water Quality Impacts of Delta Pollutants

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Testimony for

CA State Water Resources Control Board Public Workshop:  
Comprehensive (Phase 2) Review & Update to Bay-Delta Plan  
Workshop 1: Ecosystem Changes and the Low Salinity Zone

September 5, 2012

## Overall Finding

- In Establishing Public Trust Flows into/through Delta Channels, SWRCB Should Incorporate:
  - Flow Levels Necessary for Mitigating Water Quality Impacts of Delta Pollutants

# Pertinent Qualifications of G. Fred Lee

- 5 Decades of Research on Sources, Water Quality/Beneficial Use Significance, Fate, Control of Chemicals in Aquatic Systems
- $\geq 1,100$  Professional Publications,
  - Many Can Be Downloaded from [www.gfredlee.com](http://www.gfredlee.com)
- $\geq 20$  Yrs Investigating Delta Water Quality
  - $\sim 100$  Professional Papers & Reports on Delta Water Quality
- Detailed Qualifications Described at [www.gfredlee.com](http://www.gfredlee.com)

# Issue 1

- Important to Establish Tributary Flows into Delta & through Delta Channels That Are
  - Sufficient to Minimize Water Quality Impacts of Pollutants Discharged to Delta Tributaries & within Delta

## Sufficient Flow Needed to Minimize Impacts of Pollutants

- Delta Waters Polluted with
  - Known, Regulated Pollutants
  - Known, Unregulated Pollutants
  - Presently Unrecognized Pollutants
- Pollutants from
  - Agricultural Tailwater & Stormwater Discharges
  - Municipal Wastewater
  - Stormwater Runoff
- Pollutants Threaten
  - Delta Water Quality
    - Aquatic Life & Other Beneficial Uses
    - Public Trust

# Clean Water Act (CWA) Pollution Control Approach Inadequate to Control Delta Pollutants from Urban & Agricultural Sources

- CWA Approach Based on
  - Exceedance of Water Quality Objective (WQO)
  - Total Maximum Daily Loads (TMDL)
- CWA Approach Applicable to
  - Regulated Pollutants from
  - Discrete, Readily Controllable Sources
- Some Pollutants in Delta Are:
  - Known Pollutants but Not Regulated by WQO
  - Presently Unrecognized Pollutants – New & Expanded Use Chemicals
  - Not Amenable to Cost-Effective Control

# Clean Water Act (CWA) Pollution Control Approach Inadequate to Control Delta Pollutants from Urban & Agricultural Sources

- Inadequate Screening of Materials That Can Be Added to Delta through Urban & Ag Wastes & Runoff
- Impacts of Many Pollutants in Delta Greatly Affected by Flow
  - Intensity of Impact
  - Areal Extent of Impact
  - Location of Impact
- Inadequate Scope of Monitoring & Funding for CWA-Based Regulation
- No Water Quality Criteria, Standards, Objectives for All Known & Potential Pollutants
- CVRWQCB “Balance” Approach for Irrigated Ag & Dairies
  - Less Stringent Control Requirements Allow Operations to Stay in Business

# Impact of Flow on Low-DO Problem in Delta

- Major Cause of DO WQO Violations:
  - Low SJR Flow through DWSC
- Low DO in SJR DWSC
  - Blocks Fall Run of Chinook Salmon to Home Stream Waters
  - Associated with & Exacerbated by Diversions of Delta Flow by Export Projects
  - Will Be Essentially Eliminated if SJR DWSC Flow  $\geq 1,000$  cfs
    - Will Greatly Reduce Cost of Other Measures Taken to Control Violations of DO WQO



# Impact of Flow on Low-DO Problem in Delta

- South Delta Low-DO Problem
  - DWR Export Project & Channel Barriers
    - Create Stagnant Zones in South Delta Channels
    - Result in Violations of DO WQO
    - Cause/Contribute to Documented Fish Kills
- Current Federal & State Water Diversion Projects in South Delta Cause
  - Loss of SJR Watershed Home-Stream Water Signal to Guide Fall-Run Chinook Salmon to Home Stream for Spawning

## SWRCB and IEP Delta Monitoring under D-1641

- Grossly Inadequate to Evaluate Impacts of Delta Water Export on Delta Water Quality
  - Must Understand & Monitor Impacts of Altering Delta Flows on Delta Water Quality in Implementing Water Rights Permit

# Issue 1

## Conclusion

- Dilution Flows into & through Delta Channels Needed to Reduce Impacts of
  - Regulated Pollutants
  - Known, Unregulated Pollutants
  - Unrecognized Pollutants

## Recommended Approach

- Implement CWA Pollution Control Approach to Maximum Extent Possible Based on
  - Reliable Technical Information
  - Assessment
  - Available Funding
- Establish Sufficient Public Trust Flows in Delta to
  - Help Reduce Impacts of Inadequately Controlled Pollutants

## Issue 2

- Proposed BDCP Tunnel Diversion Project Has Potential to Cause Significant Adverse Impacts on Water Quality/Beneficial Uses in Delta Channels & Delta Public Trust Resources
  - BDCP & Delta Stewardship Council Plan Not Adequately Addressing This Issue
  - Diversion Project Should Not Proceed Until Potential Impacts of Alterations in Delta Channel Flows on Water Quality in Delta Fully Known

# Delta Flow Alterations

## Issues to Consider

- In Considering Alterations in Delta Flow  
(e.g., BDCP-Proposed Tunnel Diversion of Sacramento River Water under Delta)
  - Critical to:
    - Evaluate Impacts of Proposed Flow Alterations on Water Quality in Delta Channels & Delta
    - Adequately Mitigate for Adverse Impacts on Flows & Water Quality in Delta Channels
- Impact of Proposed Diversion Project
  - Must Be Closely, **Independently** Monitored
  - Amenable to Ready Corrective Action if Major Adverse Impacts on Delta Water Quality Begin to Occur

# Overall Finding

- In Establishing Public Trust Flows into/through Delta Channels, SWRCB Should Incorporate:
  - Flow Levels Necessary for Mitigating Water Quality Impacts of Delta Pollutants

**Further Information**  
Consult Website of  
**Drs. G. Fred Lee and Anne Jones-Lee**



**<http://www.gfredlee.com>**