

**Impact of State and Federal Delta Water Export Projects on
Delta Water Quality and Aquatic Resources:
Issues that need to be addressed**

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The state of California Water Project (SWP) Banks pumping station and the Federal Central Valley Project (CVP) pumps at Tracy, combined at times, export up to about 13,500 cfs of South Delta Water to central and southern California and to the San Francisco Bay region (see Lee and Jones-Lee 2004a). While some of the impacts of these diversions on some aspects of Delta water quality are recognized and addressed to some extent such as fish capture on the export pump screens, the full range on water quality impacts on Delta aquatic life have not been considered/evaluated much less been adequately mitigated. With the potential development of expanded South Delta exports as part of the Delta Improvement Package (DIP) many of the existing water quality problems caused by the current exports will be further aggravated.

Lee and Jones-Lee (2004b) have reviewed the current CVRWQCB Clean Water Act 303(d) listing of “water quality limited” Delta channels and the reasons for the listing. As they discuss, the CVRWQCB, SWRCB and the US EPA (2003) have adopted/approved the 303(d) listing of several Delta channels with the listed cause as “hydromodification” (altered flow). Since many of Delta channels are Clean Water Act water quality “limited” for one or more pollutants and are subject to TMDLs to control the water quality objective violation, export of additional Delta water by the Projects will be in violation of the Clean Water Act requirements of no additional loads of the constituents that cause the water quality limited conditions. Also the further increasing the factors such as “hydromodification” that potentially aggravates current water quality impairment will be a violation of CWA requirements for development of a TMDL. Of particular concern is the impact of the export pumping on the flow (magnitude, direction) of water in a Delta channel that alters the magnitude and location the water quality impacts of pollutants introduced into the Delta channel. The impacts of concern include:

- Toxicity to fish, zooplankton, benthic invertebrates and algae due to currently used pesticides in agricultural and urban area,
- Bioaccumulation of “legacy” organochlorine pesticides such as DDT, dieldrin, chlordane, toxaphene etc. and non pesticides such as PCBs, and dioxins that are a threat to human health. in higher trophic level fish and other edible organisms,
- Potentially spread the excessive bioaccumulation of mercury in Delta edible fish,
- Reduced primary production in the Central Delta arising from drawing low nutrient Sacramento River water to the South Delta by the export Projects,
- Loss of Chinook salmon home stream signal in upper San Francisco Bay and the western Delta during the fall in the SJR DWSC below Columbia Cut as a result

of the export projects drawing all San Joaquin River watershed water to the export pumps. This leads to Chinook salmon straying from home stream for reproduction,

- Adversely impact low DO problems in SJR DWSC and in the South Delta,
- Distribution of heavy metals (copper, lead, cadmium and selenium in water quality and sediments that impacts aquatic life,
- Influence of excessive salt/EC impacts on irrigated agriculture and domestic water supplies,
- Distribution of excessive TOC/DOC that impacts domestic water supply water quality,
- Influences the distribution of pathogens/pathogen indicators that influence contact recreation safety.

Before any additional export of South Delta water is permitted, the water exporter should be required to fund studies that,

- Adequately define the current impacts of existing Delta water exports on aquatic life related Delta water quality. This will require funding a comprehensive water quality monitoring program to better define existing aquatic life related water quality impacts of South Delta water exports that includes substantial funds that can be used to search for new unidentified water quality problems,
- Develop and implement a mitigation program for current water quality impacts of existing Delta water exports on Delta aquatic life,
- Estimate the potential impacts of proposed future additional Delta water exports on aquatic life related beneficial uses of the Delta,
- Develop and begin to implement a mitigation plan for the potential water quality impacts of additional South Delta water exports.

Further information on these issues is available in,

Lee, G. F. and Jones-Lee, A., “Comments on the CBDA Delta Improvements Package,” Comments submitted to California Bay-Delta Authority by G. Fred Lee & Associates, El Macero, CA, June (2004a).

<http://www.members.aol.com/apple27298/DIPcomments.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 (2004b).

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

Lee, G. F., “Review of the DWR 60/40 Modeling Rule and Its Implications for Controlling the Low-DO Problem in the DWSC”, report of G. Fred Lee & Associates El Macero, CA (2004c). available from gfredlee@aol.com

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).