

Comments on CALFED Independent Science Board Review of IEP

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At its January 31, 2008 meeting, the CALFED Independent Science Board (ISB) discussed various aspects of the Interagency Ecological Program (IEP). I observed that discussion on the Web cast and provide these comments based on my experience as an invited panel member in the detailed review of the IEP Environmental Monitoring Program (EMP) in 2000-2001; Anke Mueller-Solger and Zachary Hymanson were the leads on that review. I included a summary of the IEP EMP in my review of Delta Water Quality Issues report:

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>

In meetings of the EMP review panel, and in follow-up emails to Z. Hymanson, I raised concerns that the current IEP EMP did not fulfill the requirement of SWRCB D-1641 to evaluate the impact of water rights decisions on water quality. The following is an excerpt from the Lee and Jones-Lee (2004) report.

"Delta Water Quality Monitoring Programs

The key to reliably managing water quality in the Delta is a comprehensive water quality monitoring and evaluation program. There are several water quality monitoring programs being conducted in the Delta and its nearby tributaries. In general, these programs have specific objectives related to managing Delta resources. The most comprehensive of these programs is the Interagency Ecological Program (IEP) Environmental Monitoring Program (EMP). On March 25, 2003, Stephen Verigin of the Department of Water Resources (DWR) and Susan Ramos of the US Bureau of Reclamation (USBR) submitted a revised Delta water quality monitoring program to Celeste Cantú, Executive Director of the State Water Resources Control Board (available at http://iep.water.ca.gov/emp/EMP_Review_Final.html). This monitoring program is being conducted as part of implementing the State Water Resources Control Board's Water Rights Decision 1641 covering the export of water from the Delta by the state and federal projects. As stated in the cover letter for this submission,

'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/USBR to evaluate the EMP and report their conclusions to the Executive Director of the State Water Resources Control Board every three years.'

The 2001-2002 Review of the Environmental Monitoring Program states that,

'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.'

According to the report, the monitoring elements consist of

- *'Continuous Recorder' monitoring of water temperature, electrical conductivity (EC), or dissolved oxygen,*
- *Continuous 'Multiparameter' monitoring,*
- *Discrete (monthly) physical and chemical water quality monitoring,*
- *Discrete (monthly) phytoplankton monitoring,*
- *Discrete (monthly) zooplankton monitoring, and*
- *Discrete (monthly) benthos monitoring.*

EMP monitoring is currently conducted at 22 of the 42 stations listed in D-1641, Table 5.'

The footnotes to Table 5 Water Quality Compliance and Baseline Monitoring list the following as the current parameters that are monitored:

- *'Continuous recording (every 15 minutes) of water temperatures, electrical conductivity (EC), and/or dissolved oxygen. For municipal and industrial intake chloride objectives, EC can be monitored and converted to chloride concentration.*
- *Continuous multi-parameter monitoring (recording every 1 to 15 minutes with telemetry capabilities) includes the following variables: water temperature, EC, pH, dissolved oxygen, turbidity, chlorophyll fluorescence, tidal elevation, and meteorological data (air temperature, wind speed and direction, solar radiation).*
- *Discrete physical/chemical monitoring is conducted near-monthly on alternating spring and neap tides and includes the following variables: macronutrients (inorganic forms of nitrogen, phosphorus, and silicon), total suspended solids, total dissolved solids, total, particulate and dissolved organic nitrogen and carbon, chlorophyll a, pH, dissolved oxygen (DO), EC (specific conductance), turbidity, Secchi depth, and water temperature. In addition, on-board continuous recording is conducted intermittently for the following variables: water temperature, dissolved oxygen, electrical conductivity, turbidity, and chlorophyll a fluorescence.*
- *Near-monthly discrete sampling on alternating spring and neap tides for phytoplankton enumeration or algal pigment analysis.*
- *Near-monthly tow or pump sampling for zooplankton, mysids, and amphipods.*
- *In 2003 and 2004, replicated benthos and sediment grab samples are taken quarterly (every three months) and during special studies; more frequent monitoring sampling resumes in 2005.'*

There is also a monitoring program for fish in the Delta. However, it is not integrated with the EMP program.

Several years ago, those responsible for organizing the Interagency Ecological Program (IEP) monitoring terminated the pesticide monitoring. This is unfortunate. What should have been done was to shift the monitoring for organochlorine pesticides, from the water column to fish tissue. This is a much more reliable approach for determining whether there are excessive concentrations of organochlorine pesticides than attempting to measure these pesticides in the water column.

Dr. G. Fred Lee was part of an external advisory panel for the 2001-2002 review of the Environmental Monitoring Program, which served as a basis for the DWR/USBR (2003) submission to the SWRCB. As part of this effort it was found that those responsible for developing the D-1641 water quality monitoring program for the Delta assumed a narrow scope for the potential impacts of the export of Delta waters on Delta water quality compared to the water quality monitoring program that is needed to fully evaluate the impacts of the export projects on Delta water quality beneficial uses.

The state and federal export projects, which typically export about 10,000 to as much as 13,000 cfs of Delta water, significantly alter the impacts on Delta waters of a variety of pollutants, such as mercury, organochlorine pesticides, PCBs, organophosphorus and other pesticides, herbicides, aquatic plant nutrients, aquatic life toxicity, etc. As one example of this, the export of South Delta water by the two projects, which causes at least 8,000 cfs of Sacramento River water to be drawn through the Central Delta to the South Delta export pumps, carries mercury into regions of the Delta where it would not otherwise exist at the concentrations found, if the export projects did not occur. The same applies with respect to altering the location and impacts of a number of other constituents that are on the CVRWQCB 303(d) list of constituents causing impaired water quality in the Delta. Because of the limited scope that the DWR, USBR and SWRCB have assumed for potential impacts of the state and federal export projects, there has been no proper evaluation of the full range of water quality impacts of the export of Delta water by the state and federal projects.”

No action was taken to remedy the deficiencies I pointed out in those comments. It was clear that DWR and USBR, with the concurrence of the SWRCB member of the panel, had no interest in conducting a comprehensive water quality monitoring program to evaluate the impacts of the DWR and USBR export “Projects” on water quality.

In the Lee and Jones-Lee Delta Water Quality report (cited above) we indicated that the least that should be done in that regard in the IEP would be to conduct specific studies on each of the current Delta channels’ Clean Water Act Section 303(d) “impaired” waterbodies (so-identified by violations of CVRWQCB Basin Plan objectives) to determine how the “Projects” export of water from the southern Delta impacts the magnitude, location, and water quality significance of the known WQO violations. We also indicated that IEP EMP should have a specific component devoted to searching for yet-undefined water quality problems in the Delta that could be impacted by the DWR and USBR project diversions, as well as other diversions of water upstream and within the Delta. There still has been no action taken to begin to address these issues. If our recommendations had been followed, much of what is being investigated in the POD crash water quality program would have been already been answered. As it stands now, the

current POD crash program of water quality studies falls far-short of what is needed in monitoring and water quality evaluation to evaluate the impact of SWRCB water rights decisions. Such studies should be funded by the water rights holders/diverters as part of meeting D-1641 requirements. They should be planned and reviewed by an independent, expert panel that is not controlled by USBR, DWR, or others who have a vested interest in their outcome.

I have followed up my comments with these specific comments to the SWRCB:

Lee, G. F., and Jones-Lee, A., "Impact of State and Federal Delta Water Export Projects on Delta Water Quality and Aquatic Resources: Issues That Need to Be Addressed," Report of G. Fred Lee & Associates, El Macero, CA, October (2004).
<http://www.members.aol.com/annejlee/ImpactDelExpProj.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.members.aol.com/annejlee/DeltaWaterExportImpactsPaper.pdf>

as well as other papers and reports on these issue that are on our website, www.gfredlee.com in the SJR Delta section, <http://www.gfredlee.com/psjriv2.htm>.

With the SWRCB now beginning to take a more active role in Delta water quality issues, the Board should require that IEP fully implement the requirements of D-1641 in evaluating the water quality impacts of water diversions. The ISB should include recommendations that the IEP EMP be broadened to include a full evaluation of the impacts of Delta water diversion on water quality.

Please contact me if you have questions on these issues or if I can be of assistance in these matters.

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