

**CALFED Bay-Delta Program  
San Joaquin River DO Modeling Projects**

**Meeting Minutes (Draft)**

**Date: Tuesday, January 15, 2002**

**Time: 10:00 am – 2:00 pm**

**Location: Conference Room 335, Resources Building**

**1. Introduction**

CALFED staff

Sam H. stated the objectives of this meeting include going through the history of what agencies and consultants are doing, and how to proceed in the future. This meeting was to generate ideas for the contract scopes of work and to introduce the modeling teams. CALFED would like to shape the modeling, field studies, and implementation planning into a cohesive package that will guide efforts to improve DO conditions in the Deep Water Ship Channel (DWSC).

**2. TMDL Stakeholder Group – overview of current activities, findings, and planned actions.**

Fred gave a brief talk on the history and the need to develop TMDL:

- Low DO concentration has been the problem in the DWSC since 70's.
- Early modeling done by Brown & Caldwell was used to predict the lowest DO.
- The Stockton Regional Wastewater Control Facility was assumed to be a relatively large source of the oxygen depletion in the SJR.
- CALFED's involvement started in the 90's.
- By law, Regional Board has to come up with TMDL by 2003.
- The Bay Protection and Toxic Cleanup Program looked into contaminants sums, and Central Regional Board looked into toxicity and DO depletion problems, and then it lead to the decision to establish Stakeholders group.
- The SJR TMDL Technical Advisory Committee (TAC) is a technical group, organized to allocate responsibilities. The Regional Board has primary responsibility and will allocate the allowable TMDL.
- Findings: increase flow through SJR DWSC will eliminate DO depletion problem, especially in wet years; Regional Board did measurement last August.
- The current standard is to keep DO above 5 mg/l between 12/1 and 8/31, and 6 mg/l between 9/1 and 11/30.

Russ stated that low DO concentrations at Turning Basin are not persisting; instead, they change every 2 weeks or week after week due to stratification. It was noted that phased TMDL with interim goals should be used (e.g. weekly averages with minimum not less than 3 mg/l).

Fred reported that the responsibility for Stakeholder Group is to control DO depletion in the SJR. Some of the approaches are to control oxygen demand sources and algal respiration.

The City of Stockton has done studies through their model, and the RWCF is a source of BOD and, at times, significant ammonia concentrations in the river.

Russ and Fred also talked about the current modeling efforts including the Systech 1-D model and the "Strawman Analysis" developed by Chris Foe:

- The 1-D model does a pretty good job of simulating DO concentrations in the DWSC with the available data sets.
- The TAC feels that they can use the current modeling to develop initial allowable oxygen demand loads and a good understanding of flow influence on DO depletion.
- Possible problems - the model does not address stratification. Monitoring may not be frequent enough to catch short time scale variations.
- There are multiple sets of DO and WQ data available including DWR and the City of Stockton

Russ reported that the data from the City of Stockton shows that DO concentrations can reach up to 10 mg/l ; and can stay as low as 4 mg/l for extended periods.

Fred announced that the future plan includes:

- External periodic review from all PIs.
- Synthesizing a report of all individual reports which will include findings on the sources, causes, impacts and recommendations for control of the DO problem.
- Having peer review in March on the studies done during 1999, 2000, and 2001.

Mark from the Regional Board described the target analysis they have done, and their approach is through phased studies. Draft targets report will be available soon.

### **3. The CALFED Science Program and the Modeling RFP –**

Sam Luoma, the CALFED Lead Scientist, discussed the history of the RFP and the views of Science Program. Sam L. emphasized that two aspects of SJR DO modeling projects are the problem itself and the related politics and regulations. He stated that currently we only have a thin knowledge on the subject and we should use modeling to further our knowledge of Delta flow and water quality. The modeling strategy includes three stages:

- meeting the immediate needs of the TMDL effort through the existing 1-D modeling
- expedited development of an advanced 3-D model (Hydroqual) to guide TMDL implementation in the mid-term
- and a long-term commitment to use advanced modeling and field research to advance our basic understanding of the Delta.

Sam presented the following Science Program vision for the modeling project:s

- Group involvement, multiple modeling, and collaboration not competition.
- Work with the Regional Board to solve the DO problem.
- Periodic peer review.

#### **4. Selected Proposals – HydroQual with Jones & Stokes, and Stanford University**

Andy Thuman gave a short presentation of the basic approach and elements of the Hydroqual proposal.

Stephen Monismith presented the proposal for the Stanford University, UC Davis, and USGS team.

#### **5. DWR Delta Modeling Section**

Parviz Nader presented an overview of the Delta Modeling Section's work on DO and the current status of the DSM2 model pertaining to DWSC and SJR modeling.

#### **6. Open discussion – suggestions for adjustments to scopes of selected proposals and things to consider**

##### **Issues:**

- 1) Use both hydro and WQ modules of DSM2 for SJR 1-D modeling, calibrate WQ
- 2) SOD measurements – throughout system

Missing data (data gap) needs to be collected and when (from Russ's work) / new measurements

- 3) How to model the DWSC? Relationship between models, boundary conditions (BC) (DSM2 output will be BC for WQ models)

- 4) Compilation of data (existing – synthesizing CALFED studies)

DWR tasks: archive set of runs, available runs or additional runs?

- 5) How does notice to proceed date affect projects?
- 6) Existing studies and monitoring
- 7) Bathymetry Grid – U.S.G.S. GIS
- 8) Synopsis of WQ model details
- 9) Communications – modeling jamboree, workshop
- 10) Additional studies needed?

##### Other suggestions/comments

What is the connection between this modeling and the IEP?

DWR modeling support (with appropriate funding) – projections (what ifs?)

A set of common runs (limited #)

CALSIM actually drives inflows not DSM2

DWR modeling needs to support DO modeling teams – 1-staff year (2002/2003 FY)?

Peer review in January 2003 with the CALFED Science Conference?

#### **7. Decisions and Conclusions**

HydroQual will calibrate the DSM2 SJR DO model and will use both the DSM2 hydro and calibrated DO elements for modeling the SJR upstream of Vernalis.

Both modeling teams will work with CALFED staff to write draft contract scopes of work based on their proposals, CALFED examples, and this meeting's discussion.

**Action Items:**

<b>Who</b>	<b>What</b>	<b>By When</b>
HydroQual & Stanford U.	- Identify data needs for Summer 2002	1/25/02
HydroQual & Stanford U.	- Tasks for DWR Delta Modeling Section?	1/25/02
Pete	Bathymetry Grid (R. Smith) availability (Can we get a common data set for both modeling teams?)	1/18/02
Sam H.	Additional resources for monitoring and modeling	1/25/02
Modeling teams	Synopsis of WQ model details (equations, algorithms, references) to all	
Stanford U.	What time windows are available for this year's field work and when do we need to confirm?	1/25/02
HydroQual & Stanford U.	Scopes of work	1/25/02