

Sediment Quality Objectives
For California Enclosed Bays and Estuaries

Overview and Objectives

Scientific Steering Committee Meeting
July 10, 2007

Mandate To Develop Sediment Quality Objectives

- **In 1989, California Water Code was amended, requiring the SWRCB to develop SQOs for bays and estuaries.**
- **SQOs were not developed under this program for variety of reasons.**
- **In 1999, SWRCB was sued and lost. In 2002, Court mandated the SWRCB develop SQOs within a relatively tight time frame.....**

Project Schedule

- **Scoping Document adopted in June 30 2003**
- **Phase I: Direct effects assessment in marine bays**
 - **Submit SQO policy to Office of Administrative Law by February 28, 2008**
- **Phase II: Direct effects assessment in estuaries and indirect effects assessment**
 - **Revised policy in 2010**

Proposed Approach

- **Water Board staff are proposing narrative SQOs to protect:**
 - Benthic community from direct effects
 - Humans and wildlife from indirect effects due to consumption of contaminated prey
- **SQOs will be supported by quantitative tools and numeric thresholds**
 - Toolbox of indicators
 - Multiple lines of evidence
 - Consistent assessment framework

SSC's Role

- **Improve the scientific foundation of the SQO policy**
 - Technical review of plans, data, and interpretation
- **Minimize false starts and missteps**
 - Utilize lessons learned from other studies
- **Help guide new directions for indicators and implementation**
 - MLOE framework
 - Selection and development of indicators
 - Thresholds and data integration strategies
 - Resolve science/policy conflicts

Today's Meeting Objectives

- **Review statewide analysis results**
 - Is the SQO application and interpretation correct?
- **Consider public technical concerns**
 - Are the responses appropriate?
- **Review planned activities**
 - Is the approach reasonable?

Meeting Agenda

- **Tuesday (9:30-5:00)**
 - Short- and long-term project needs
 - Statewide SQO analysis
 - Summary of comments on scoping document
 - Advisory committee comments and discussion

- **Wednesday (9:00-12:00)**
 - Phase II plans
 - SSC changes?

Meeting Agenda

- **Wednesday afternoon**
 - Closed session

- **Thursday morning (9:00-11:00)**
 - Initial summary of SSC comments
 - Discussion of additional issues
 - Action items and future meetings

SSC Meetings

- **August 2004**
 - Objectives and workplan development
- **April 2005**
 - Revisions and additions to workplans
- **July 2005**
 - Mid-term progress reports
- **February 2006**
 - Final results and recommendations
- **July 2007**

SSC Conference Calls

- **May 25, 2006**
 - Benthic index evaluation
- **June 16, 2006**
 - MLOE refinement and use with incomplete tools
- **June 23, 2006**
 - Chemical indicator development and evaluation
- **July 17, 2006**
 - MLOE final validation
 - Chemical indicator application

Key SSC Recommendations

- **August 2004**
 - **Strong endorsement for MLOE approach**
 - **Retain scientific information as much as possible**
 - **Use magnitude of response and multiple categories to integrate LOEs**
 - **Independence of LOE calibration important**

Key SSC Recommendations

- **April 2005**

- **Bioaccumulation not ready as a fourth direct LOE**
- **Calibrate Chem SQGs to California data**
- **Use suite of lethal and sublethal toxicity tests**
- **Focus on bulk sediment toxicity tests**
- **Benthos LOE should have equal or greater weight**
- **Caution against use of chem/tox data to calibrate benthic indices**
- **Use statistical or biological criteria for LOE thresholds**
- **Pursue equal-weighted MLOE framework for now; reserve judgment to weight benthos more for future**

Key SSC Recommendations

- **July 2005**

- **Periodic updates/revisions of SQO tools needed**
- **Indirect effects framework development is slower than direct. Keep elements separate during project**
- **Insufficient resources available for indirect effects element**
- **Use of Kappa statistic supported, even if we don't fully understand it; use more conventional measures also**
- **Supported development of new chem-benthos SQG**
- **TOC & iron normalization of chem data not warranted at present**
- **Supported use of biologist BPJ for benthic index evaluation**
- **Requirement of 3 LOE strongly supported**
- **Directed science team to consider use of alternative MLOE framework based on two elements: chemical exposure and biological effects**

Key SSC Recommendations

- **February-July 2006**
 - Use chemical mixture SQG approach
 - Use combination of toxicity- and benthos-based SQGs
 - Include option to include “nonstandard” toxicity tests
 - Endorsed use of benthic index combinations
 - Recommended use of alternative MLOE approach with greater benthic weighting
 - Add inconclusive categories to MLOE framework
 - Supported use of expert judgment for MLOE framework validation
 - Indirect effects framework development making progress; not ready for Phase I

Short- and Long-Term Project Needs

- **2007**

- **Complete Phase I project document drafts and revisions**
- **Provide technical support for SWRCB staff report development and review**

- **Future**

- **Phase I implementation assistance**
- **Phase II data collection and interpretation**

Documents

- **Technical reports (Science Team)**
 - Provides foundation for assessment methods included in Staff Report
 - Conceptual basis for method
 - Indicator development and selection
- **Guidance manuals (Science Team)**
 - Provides information for use of each indicator
 - Method description
 - Data analysis and interpretation
- **Staff report and draft policy (SWRCB)**
 - Provides information for policy review
 - Issues, alternatives, recommendations
 - Economic analysis
 - Draft policy and implementation plans

Technical Report Status

Title	Draft	SSC Review	Revised
Toxicity indicator development	Oct. 2006	Nov. 2006	March 2007
BPJ assessment of benthic communities	June 2007	July 2007	
Benthic index evaluation	June 2007	July 2007	
Benthic community assemblages	July 2007		
Chem:tox indicator development	July 2007		
Chem:benthos indicator development	In prep		
MLOE assessment framework	July 2007		
BPJ MLOE integration	July 2007		
Draft indirect effects framework	June 2007		
Sediment quality database and user's guide	Oct. 2006	NA	March 2007

Guidance Manuals

- **Sediment sample collection**
- **Chemical analysis**
- **Toxicity testing**
- **Benthic community analysis**

SSC review optional

Short- and Long-Term SSC Activities

- **2007**

- Document review and revisions
- Feedback regarding technical issues arising from policy review

- **Future**

- Phase II workplan guidance
- Phase II data interpretation and review