Sediment Quality Objectives (SQO) Plan

Presentation to SCAP
March 20, 2008

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(Credit to SWRCB and SCCWRP for many slides)
Overview

• Background

• Overall SQO approach

• Draft Plan and Phase 1 SQO approach

• Questions?
What are Sediment Quality Objectives?

• SQOs provide “a means to differentiate sediment impacted by bioavailable toxic pollutants from those that are not”

• Similar to water quality objectives
Why do SQO now?

• 1989 amendments to California Water Code required SQO development
• 1999-2001: lawsuit filed, consent decree entered, with following schedule:
  – June 2003: work plan
  – August 2006: first draft SQO
  – February 29, 2008: SWRCB must adopt SQO and implementation policy, forward to OAL (with extension)
Who’s involved?

- SWRCB leads effort (Chris Beegan)
- Science team (SCCWRP and SFEI) develops
- Scientific Steering Committee (SSC)
- Advisory Committee
SQOs will be phased

- **Phase 1 (February 2008)**
  - Narrative objectives for direct and indirect effects
  - Methods for evaluating direct effects SQO for enclosed bays and harbors
- **Phase 2 (February 2009)**
  - Methods for evaluating direct effects SQO for estuaries, including Delta
  - Methods for evaluating indirect effects SQO for human health
- **Phase 3 (TBD)**
  - Methods for evaluating indirect effects SQO for wildlife
Overall Sediment Assessment

Benthic organisms

Human Health

Wildlife

Sediment Chemistry

Toxicity

Benthic Community

Methods in development

Direct Effects SQO

Phase 1

Indirect Effects SQO

Phase 2
MLOE Approach (direct effects)

1. Sediment chemistry
2. Sediment toxicity laboratory bioassays
3. Benthic community composition
Why MLOE?

10-Day Amphipod Survival vs. DDT in Southern California Embayments

Toxicity ≠ f(chemical concentration)
Why MLOE?

Benthic community composition ≠ f(chemical concentration)
MLOE process

Collect and analyze samples
Chemistry, Toxicity, Benthos

Compile and summarize data
QA review, means/sums

Apply Indicators for each LOE
Indices and thresholds

Determine LOE Category
Integrate indicators

Station impact assessment
Compare LOEs
Station assessment

- Unimpacted
- Likely Unimpacted
- Possibly Impacted
- Likely Impacted
- Clearly Impacted
- Inconclusive
Application of MLOE
San Francisco Bay

SQO Sites
Assessment Category
- Unimpacted
- Likely Unimpacted
- Possibly Impacted
- Likely Impacted
- Clearly Impacted
LA/LB Harbor Area
Statewide Assessment Results

Figure 5. Percent area of sediment quality classification for regional MLOE assessments.
Steps following SQO exceedance

- Apply 303(d) listing test
- Conduct stressor identification
  - Are toxic pollutants causing impact?
  - Which toxic pollutants?
- Following pollutant ID
  - Modify listing
  - Identify sources
  - Develop management guidelines
Site-specific management guidelines

- Determine site-specific level of stressor pollutant that will meet SQO

- Do not use sediment quality guidelines (ERMs, TELs, etc.)

- Regional Boards to determine implementation actions
Who is responsible?

• Current NPDES permittees with discharges to regulated waterbodies must conduct monitoring

• Monitoring coalitions may be formed

• Regional Boards must approve sampling and stressor ID work plans
Major comments: regulated community

- SQO may be overbroad (if Possibly Impacted stations exceed)
- Unclear how SQOs will be implemented as receiving water limitations in permits
- Concern about legacy contaminants
- Regional Boards are given too much discretion
- Support for requiring stressor ID prior to management action
- Support for scientific approach, with reservations
Major comments: environmental community

• Some would like chemical-specific thresholds
• Receptor (benthic organisms) is too narrow
• Process is too complicated: may be too time-consuming and inconclusive
• Will result in more study, not action
• Regional Boards are given too much discretion
Next steps

• Phase 1 SQO were adopted February 19, 2008
  – Issues that may require clarification include
    • Handling of “Possibly Impacted” sediments
    • 303(d) listing decisions
    • Future revisions to SQO evaluation framework

• Phase 2 development continues
  – Adoption target February 2009

• Phase 3 development uncertain