

# **Use of Sediment Quality Goals and Related Tools for the Assessment of Contaminated Sediments**

A SETAC-Sponsored Pellston  
Workshop

Presentation to the RTDF Sediment Task Group  
Baltimore, MD  
March 11, 2002



# **A SETAC-Sponsored Pellston Workshop**

**A meeting of international experts involved in assessment and management of contaminated sediments focused on:**

- Current state of the science on SQGs**
- Predictive ability of SQGs for aquatic biota**
- Frameworks for assessing sediment contamination**
- Use of different assessment tools to evaluate sediment**
- Approaches to evaluating large, complex aquatic ecosystems**

# Why a Pellston Workshop?

**Need**: Considerable debate among stakeholders about the scientific credibility of several current approaches to evaluating sediments, including attempts to apply SQGs more broadly than may be currently defensible.

## **Opportunity**:

- Growing body of information from ecological assessments, research, monitoring programs, etc.;
- Scientific advances in biology, chemistry, and ecotoxicology related to ecological assessment; and
- Growing demand for guidance.

# Workshop Goals:

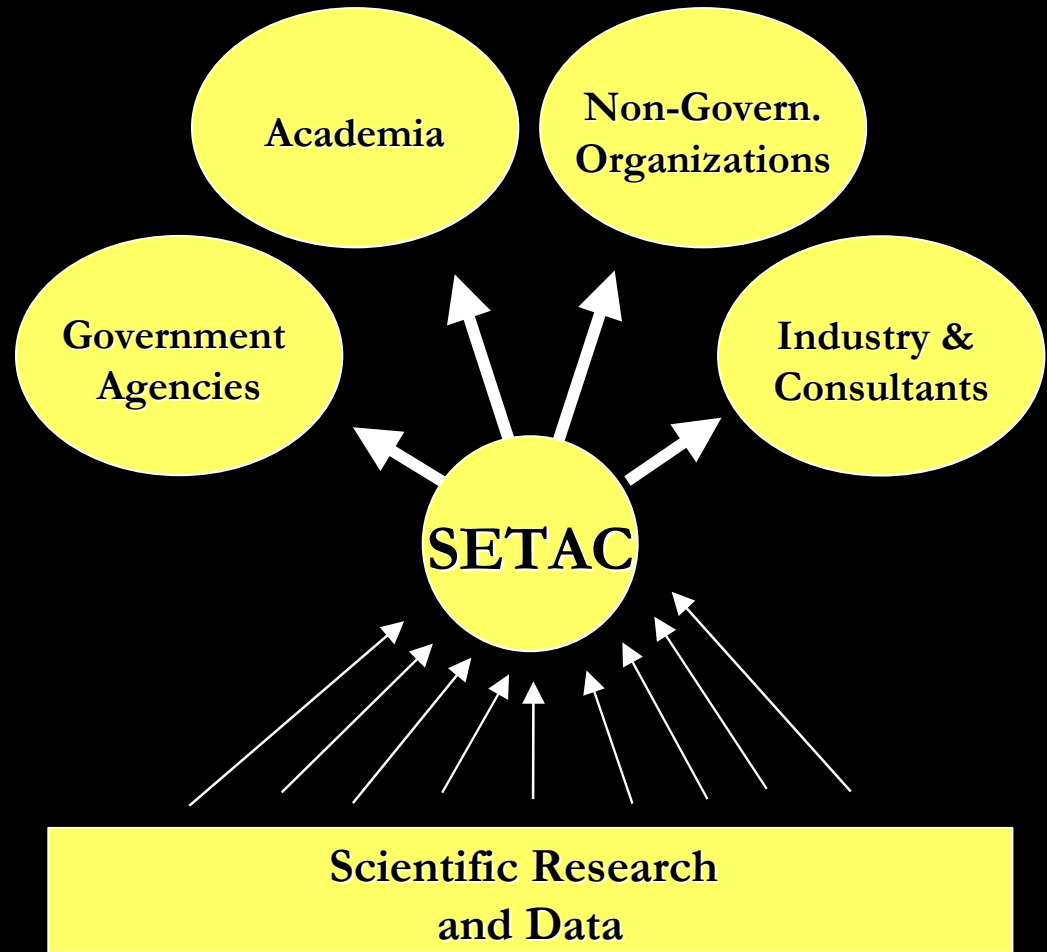
Identify technical issues and approaches that meet decision-maker needs

Build scientific consensus among the experts

Strengthen environmental understandings among stakeholders

Support regional, national, and international activities

Stimulate research targeted at practical needs



# Workshop Organization

SETAC Board

SETAC Liasons

G. Schiefer, R. Parrish, W. Landis

Steering Committee (R.J.Wenning, Chairperson)

WG # 1

G. Batley  
R. Stahl

WG # 2

C. Ingersoll  
D. Moore

WG # 3

W. Berry  
B. Engler

WG # 4

B. Adams  
A. Burton

WG # 5

W. Birge  
S. Douglas

Work Group Chairpersons

S. Luoma

J. Word

T. Bridges

A. Green

P. Chapman

Invited Participants

# **Five Technical Work Groups**

**Workshop participants will tackle issues by participation in one of five focus groups:**

- 1. Review of the Science Underpinnings of SQGs**
- 2. Use of SQGs to Estimate the Potential for Effects / No Effects to Sediment-Associated Contaminants**
- 3. Role of SQGs in Different Assessment Frameworks**
- 4. Other Assessment Tools for Evaluating Sediment Quality**
- 5. Considerations for Addressing Particularly Complex Sediment Systems**

## **Work Group # 1**

### **Review of the Science Underpinnings of SQGs**

- 1. What are the strengths and limitations of empirically-derived SQGs?**
- 2. What additional qualifiers of SQGs are required to account for bioavailability?**
- 3. What are the strengths and limitations of SQGs derived from equilibrium partitioning?**
- 4. Are there important issues of changing sediment chemistry, organism uptake pathways, feeding strategies and trophic levels?**
- 5. Has the scientific basis for the various uses of SQGs been field validated?**

## **Work Group # 2**

# **Use of SQGs to Estimate the Potential for Effects/No Effects to Sediment-Associated Contaminants**

- 1. How well do SQGs represent the potential for effects, or no effects, observed in laboratory toxicity tests?**
- 2. How well do SQGs represent the potential for effects, or no effects, observed in field studies of benthic communities?**
- 3. How well do SQGs represent the potential for effects, or no effects, in organisms as a result of contaminant uptake and / or trophic transfers?**



## **Work Group # 3**

### **Role of SQGs in Different Assessment Frameworks**

- 1. What are the required elements and decision points of a sediment assessment framework?**
- 2. How can these elements best be assembled in an assessment or weight-of-evidence decision?**
- 3. What is the utility of different SQG schemes as part of a weight-of-evidence approach to contaminated sediment assessment and management?**
- 4. How can SQGs be used within risk-based frameworks to provide advice at appropriate levels, including screening disposal alternatives, no-action determinations, and clean-up decisions?**

## **Work Group # 4**

# **Other Assessment Tools for Evaluating Sediment Quality**

- 1. How can we reduce uncertainties associated with the more conventional assessment methods used to derive many empirical and mechanistic SQGs?**
- 2. How can we use our understanding of the methods used to derive SQGs to make them more site-specific?**
- 3. Can the accuracy of assessing sediment quality be improved using biologically based thresholds in a weight-of-evidence process?**
- 4. What are the uncertainties, deficiencies, strengths, and limitations of biologically based thresholds?**

## **Work Group # 5**

# **Considerations for Addressing Particularly Complex Sediment Systems**

- 1. What are the “complex issues” that confound or increase uncertainty in the application of SQGs or other sediment assessment tools? What factors are unique to marine, freshwater, and estuarine systems?**
- 2. How do we best address physical, chemical, and habitat heterogeneity in sediment systems? Furthermore, to what extent do multiple sources / stresses, biodiversity, resource use patterns, or differences in temporal and spatial scales affect the precision of SQGs?**
- 3. How should uncertainty in the sediment assessment process be addressed in complex aquatic ecosystems?**

# What will the Workshop Produce?

## ➤ Executive Summary Booklet

## ➤ Technical Book

- Workshop goals and objectives overview
- Summary of Workshop findings
- Consensus position papers from each working group (5)
- Supplemental technical papers
- Selected case studies
- Recommendations