

**Summary Minutes of the  
U.S. Environmental Protection Agency (EPA)  
Science Advisory Board (SAB)  
Ecological Processes and Effects Committee  
Geographic Information System Screening Tool Review Panel Public Meeting  
May 2, 2006**

Panel Members: See Panel Roster – Appendix A

Date and Time: Tuesday, May 2, 2006

Location: By telephone only

Purpose: The purpose of this teleconference was to discuss the draft report of the review the SAB Geographic Information System Screening Tool Review Panel

Attendees: Chair: Dr. Virginia Dale

Panel Members: Mr. DeWitt Braud  
Dr. Ivan Fernandez  
Dr. Carol Johnston  
Dr. William Mitsch  
Dr. James Oris  
Dr. Mark Ridgley  
Dr. Amanda Rodewald  
Dr. James Sanders  
Dr. David Stoms  
Mr. Timothy Thompson  
Dr. Robert Twiss

EPA SAB Staff: Thomas Armitage, Designated Federal Officer

Other EPA Staff: Sharon Osowski, U.S. EPA Region 6

Others Present: David Valentine, University of California, San Diego

**Meeting Summary**

The discussion followed the issues and timing as presented in the meeting agenda (Appendix B).

### **Convene Meeting, Call Attendance**

Dr. Thomas Armitage, Designated Federal Officer (DFO) for the SAB Geographic Information System Screening Tool Review Panel opened the teleconference at 2:00 p.m. He stated that the Science Advisory Board (SAB) is a chartered federal advisory committee whose meetings are public by law. He reviewed Federal Advisory Committee Act (FACA) requirements, the Panel's compliance with federal ethics and conflict-of-interest laws. He stated that records of Panel discussions are maintained, and that summary minutes of the meeting would be prepared and certified by the Panel Chair. Dr. Armitage then asked the Panel members and members of the public to identify themselves and their affiliations.

### **Purpose of the Call and Review of the Agenda**

Dr. Virginia Dale, Panel Chair, reviewed the purpose of the call and the agenda. She stated that the purpose of the call was to discuss the draft report of the Geographic Information System Review Panel. The Chair stated that, with the concurrence of the Panel, the report would be sent to the chartered Science Advisory Board for review and transmittal to the EPA Administrator. The Chair noted that the draft report had been reviewed by the Panel prior to the call and that comments had been provided by Panel members. Proposed changes in the report had been developed in response to the comments. The changes had been discussed with individual Panel members and sent to the entire Panel. The Chair noted that several of the comments needed further discussion on the teleconference.

### **EPA Comments**

Before calling for discussion of the draft report, the chair asked EPA staff to provide comments. Dr. Sharon Osowski of EPA Region 6 thanked the Panel for the draft report. She stated that the report addressed the charge questions and that it accurately reflected the discussion at the face-to-face meeting of the Panel. In response to statements in the report indicating that the GISST should be used for preliminary assessment, Dr. Osowski noted that the GISST is not the only tool that EPA uses in the National Environmental Policy Act (NEPA) process, but it is used as a tool for initial assessment purposes. She stated that she had no additional comments on the draft report.

### **Public Comments**

The Chair asked whether any members of the public wished to comment on the report. There were no public comments.

### **Discussion of the Draft GISST Panel Report**

The Chair stated that the first issue to be discussed was the need to use more precise terminology in parts of the report. The Chair noted that the term "screening level evaluation" was used in several places in the report. She stated that it might be better to

use a different term such as “high level evaluation.” A Panel member agreed, noting that screening was synonymous with filtering, and that the GISST was not intended to be used as a filter. A member asked EPA staff whether the term “screening” had special meaning in the NEPA process. EPA staff responded that this was not a term of art in the NEPA process. She stated that EPA used the GISST for initial or preliminary assessment. Another Panel member stated that it appeared that the GISST was to be used for “rapid initial environmental reconnaissance.” Several Panel members agreed that this terminology reflected the use of the GISST. Another member suggested that the tool was used for a rapid assessment to identify potential environmental and societal impacts.

A Panel member stated that certain important impacts might not be identified using the GISST because the tool could not identify every impact. Other members agreed that there was a risk of false negatives associated with the GISST. The Panel agreed to add a sentence concerning false negatives to the report. Another Panel member stated that the term “red flagging” that was used in the report should be clarified. It was agreed that use of the term “detecting potential ecological impacts” would be more precise.

The Chair stated that the second issue to be discussed concerned the need to include in the report a description of the kinds of decision-making associated the NEPA process. A member had suggested that the report should describe three kinds of decision making: scoping, reviewing NEPA documents for adequacy, and identifying alternatives that have the least environmental impact. EPA staff agreed that these were the kinds of internal decisions that were supported by the GISST.

The Panel then discussed statements that might be included in the report concerning these kinds of decisions, and the support that the GISST provided. Several members suggested that because of the possibility of false negatives, the GISST was better suited for providing information to assist in scoping, rather than other kinds of decisions. A member noted that the GISST could not be used to evaluate alternatives for decision-making unless it reflected the values of decision-makers. Several members stated that, in its present form the GISST was not adequate for regulatory decision-making. A Panel member stated that the report could mention that the GISST can be used to assist in evaluating alternatives, but it should not be used for making final decisions. Members agreed that the kinds of decision-making associated with the NEPA process could be mentioned in the report, but it should be stated that the GISST is a tool for initial environmental reconnaissance.

The Chair stated that the third issue to be discussed was clarification of the report text describing operations on variables that were reported on different kinds of scales (i.e., interval, ratio, and ordinal). A member stated this text referred to measurement scale not geographic scale. Mark Ridgley stated that the important point to be made was that, in order to be mathematically legitimate, criteria scores used in the GISST algorithm must be measured on appropriate scales. Mark Ridgley stated that he would provide a suggested revision to clarify this text.

The Chair stated that another issue to be discussed was whether the report should recommend that weights be derived for the GISST criteria. Several Panelists noted that without knowing the values of decision-makers, it would be difficult to develop weights for the GISST criteria. EPA staff stated that without clear direction for developing weights, the Agency could be accused of being arbitrary and capricious. Several Panel members stated that the discussion of weighting should recommend that EPA provide optional models for weighting and aggregating the criteria for exploratory analyses, and that any intentional or unintentional weighting of the criteria should be clearly communicated to users of the tool. The Panel discussed the specific changes in the text that should be included in this part of the report..

Other Panel member comments on the report were then discussed. Panel members noted that the report should clearly state that additional statistical expertise is needed to further develop the GISST. Several editorial changes were suggested to strengthen other parts of the report. A member suggested that sensitivity analyses could be very helpful in developing the GISST and a revision was suggested to incorporate this recommendation.

The Chair then summarized the changes and action items discussed on the call (listed in Appendix C) and asked whether Panel members had additional comments. There were no additional comments so the chair stated that the DFO would send an email to the Panel summarizing the changes to be made in the report. A revised draft of the report would then be sent to the Panel with a request for concurrence to send it to the chartered Science Advisory Board. The Chair then adjourned the meeting at 4:30 p.m..

Respectfully Submitted:

Certified as True:

*/Signed/*

*/Signed/*

---

Dr. Thomas Armitage  
Designated Federal Officer

---

Dr. Virginia Dale, Chair  
Geographic Information System  
Screening Tool Review Panel

## **APPENDICES**

---

Appendix A: Roster of SAB Ecological Processes and Effects Committee

Appendix B: Meeting Agenda

Appendix C: Draft GISST Report Revisions Discussed on the Teleconference

## Appendix A – Panel Roster

---

### **U.S. Environmental Protection Agency Science Advisory Board Ecological Processes and Effects Committee Geographic Information System Screening Tool Review Panel**

#### **CHAIR**

**Dr. Virginia Dale**, Corporate Fellow, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN

#### **MEMBERS**

**Mr. DeWitt Braud**, Director, Academic Area, Coastal Studies Institute, Louisiana State University, Baton Rouge, LA

**Dr. Ivan J. Fernandez**, Professor, Department of Plant, Soil and Environmental Sciences, University of Maine, Orono, ME

**Dr. Carol Johnston**, Professor, Center for Biocomplexity Studies, South Dakota State University, Brookings, SD

**Dr. William Mitsch**, Professor, Olentangy River Wetland Research Park, The Ohio State University, Columbus, OH

**Dr. Thomas C. Mueller**, Professor, Department of Plant Sciences, University of Tennessee, Knoxville, TN

**Dr. Michael C. Newman**, Professor of Marine Science, School of Marine Sciences, Virginia Institute of Marine Science, College of William & Mary, Gloucester Point, VA

**Dr. James Oris**, Professor, Department of Zoology, Miami University, Oxford, OH

**Dr. Charles Rabeni**, Leader, Missouri Cooperative Fish and Wildlife Research Unit, U.S. Geological Survey, Columbia, MO

**Dr. Mark Ridgley**, Professor and Chair, Department of Geography, University of Hawaii at Manoa, Honolulu, HI

**Dr. Amanda Rodewald**, Assistant Professor, School of Natural Resources, The Ohio State University, Columbus, OH

**Dr. James Sanders**, Director, Skidaway Institute of Oceanography, Savannah, GA

**Dr. David Stoms**, Associate Researcher, Institute for Computational Earth Systems Science, University of California at Santa Barbara, Santa Barbara, CA

**Mr. Timothy Thompson**, Senior Environmental Scientist, Science, Engineering, and the Environment, LLC, Seattle, WA

**Dr. Robert Twiss**, Professor, The Graduate School, University of California-Berkeley, Ross, CA

**SCIENCE ADVISORY BOARD STAFF**

**Dr. Thomas Armitage**, Designated Federal Officer, U.S. Environmental Protection Agency, Washington, D.C.

## Appendix B – Teleconference Agenda

---

### SCIENCE ADVISORY BOARD

Ecological Processes and Effects Committee  
Geographic Information System Screening Tool Review Panel  
Public Teleconference  
May 2, 2006, 2:00 p.m. – 5:00 p.m. (Eastern Daylight Time)

#### Agenda

2:00 p.m.	Convene Meeting, Roll Call of Meeting Participants	Dr. Thomas Armitage Designated Federal Officer EPA Science Advisory Board
2:10 p.m.	Purpose of the Call and Review of the Agenda	Dr. Virginia Dale, Chair
2:15 p.m.	EPA Comments	Dr. Sharon Osowski, EPA Region 6
2:25 p.m.	Public Comments	Dr. Thomas Armitage
2:35 p.m.	Discussion of SAB GISST Panel Draft Report	Dr. Virginia Dale and Panel
4:45 p.m.	Discussion of Next Steps and Schedule for SAB Approval of the Report	Dr. Virginia Dale
5:00 p.m.	Adjourn	

## Appendix C – Draft GISST Report Revisions Discussed on the Teleconference

---

1. In describing the GISST, the Panel report should state that the GISST is a rapid assessment tool for identifying potential environmental and societal impacts of certain types of projects. The Chair will make appropriate revisions in the cover letter, executive summary, and introduction.
2. The report should discuss how the GISST should be used in the decision process (as an exploratory tool to identify potential impacts that are likely to be important). It should also caution users that the GISST is data driven and therefore some potential impacts may be missed. The Chair will make appropriate revisions in the text.
3. Mark Ridgley will provide a suggested revision to clarify the following sentence on page viii lines 29-31: "In addition, to be mathematically legitimate, criteria scores used in the algorithm must be measured on scales that reflect the operations effected by the algorithm." Clarification is needed to indicate that the sentence refers to measurement scale not geographic scale, and that it refers to arithmetic operations.
4. The following sentence on page viii, line 28 will be deleted: "The criteria used in the algorithm should be weighted according to their relative importance to decision makers in order to express acceptable tradeoffs." Mark Ridgley will provide several sentences to insert in this part of the executive summary to summarize the key points concerning weighting in the paragraph on page 4, lines 3-15 (first bullet on the page).
5. Mark Ridgley will provide a revision of the paragraph on page 4 (lines 3-15) that discusses weighting of the criteria. The paragraph will be revised to remove the recommendation that the criteria be weighted, incorporate clarifications in point #3 above, and state that combination of the criteria may result in intentional or unintentional weighting and that this should be made clear to users of the GISST.
6. The last paragraph on page 4 (line 43) will be revised to state that in order to conduct sensitivity analyses and further explore uses of the GISST for rapid environmental assessment and reconnaissance, EPA should develop optional models of aggregating and weighting the criteria.
7. Changes will be made on page viii line 32 and page 3 line 22 to remove the reference to spatial statistics and include a reference to decision science. The sentence will state that, "It is recommended that the GISST algorithm be re-evaluated taking advantage of additional expertise in decision science and statistics."

8. The sentence on page 7 line 14, suggesting that a graduate student in statistics be engaged in the process of further developing the GISST, will be removed.