

**Summary Minutes of the  
U.S. Environmental Protection Agency Science Advisory Board  
Lake Erie Phosphorus Objectives Review Panel  
Public Teleconference  
October 13, 2016**

**Date and Time:** Thursday, October 13, 2016, 1:00 – 5:00 p.m.

**Location:** By teleconference

**Purpose:** To discuss the Science Advisory Board (SAB) Lake Erie Phosphorus Objectives Review Panel’s draft report on Lake Erie nutrient load reduction models and targets.

**Participants:**

*Members of the U.S. Environmental Protection Agency Science Advisory Board Lake Erie Phosphorus Objectives Review Panel*

(Panel roster is provided in attachment A):

Dr. William Schlesinger  
Dr. Meryll Alber  
Dr. James Ammerman  
Dr. Steven Bartell  
Dr. Celia Chen  
Dr. John Connolly  
Dr. Richard Di Giulio  
Mr. Douglas Endicott  
Mr. James Fitzpatrick  
Dr. Robert Heath  
Dr. Lucinda Johnson  
Dr. Douglas McLaughlin  
Dr. Emma Rosi-Marshall  
Dr. Eric Smith  
Dr. William Stubblefield

*EPA Science Advisory Board (SAB) Staff:*

Dr. Thomas Armitage, Designated Federal Officer

*EPA Representatives:*

Ms. Santina Wortman, EPA Great Lakes National Program Office

*Other Attendees:*

(List of others who requested access to the teleconference)

Valerie Baron, NRDC  
Jan Ciborowski, University of Windsor  
Douglas P. Clark, City of Bowling Green, OH  
Jean Chruscicki, EPA Region 5  
Andrea Ferrenz, Innophos, Inc.  
Ken Gibbons, Great Lakes Commission  
Sandra Kosek-Sills, Ohio Lake Erie Commission  
Russel Kreis, EPA/ORD  
Jim Lang  
Sandra A. Orlando, Ohio Sea Grant Program  
Mekela Panditharatne  
Michelle Seizer, Michigan Office of the Great Lakes  
Craig Stow, NOAA  
Don Tuxill, NYSDEC  
Donald Wiggins, Ohio Environmental Council

### **Teleconference Summary:**

#### **Convene the Teleconference**

Dr. Thomas Armitage, Designated Federal Officer (DFO) for the SAB Panel, convened the teleconference at 1:00 p.m. Eastern Time. He identified Committee members who were on the call. He noted that the Panel operates as part of the EPA Science Advisory Board (SAB), which is a chartered Federal Advisory Committee under the Federal Advisory Committee Act (FACA) and is empowered by law to provide advice to the EPA Administrator. He stated that the teleconference was a continuation of the Panel's meeting held the previous day. He stated that summary minutes of the teleconference would be prepared and posted on the SAB website after they were certified by the Chair. Dr. Armitage indicated that meeting materials were available on the SAB web site. These meeting materials included: the Federal Register Notice announcing the teleconference,<sup>1</sup> teleconference agenda,<sup>2</sup> Panel roster,<sup>3</sup> the Panel's draft (9-1-16) report to the EPA titled *SAB Review of Lake Erie Nutrient load Reduction Models and Targets*,<sup>4</sup> compilation of Lake Erie Phosphorus Objectives Review Panel Member Comments on the Panel's Draft (9-1-16) Report (as of 9-27-16),<sup>5</sup> and written public comments from David Baker, Heidelberg University.<sup>6</sup> Dr. Armitage noted that time had been included on the agenda to hear oral public comments but no requests to speak had been received from members of the public. He also indicated that public access to the teleconference had been provided through a conference line and live audio webcast. He asked members of the public listening to the webcast to send him an email at [armitage.thomas@epa.gov](mailto:armitage.thomas@epa.gov) indicating that they were on-line.

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

Dr. William Schlesinger, Chair of the SAB Panel, reviewed the teleconference objectives and agenda. He indicated that the teleconference was a continuation of the one held the previous day to discuss the Panel's draft report on Lake Erie nutrient load reduction models and targets. He indicated that the purpose of the call was to discuss and reach agreement on any changes needed in the draft report.

#### **Discussion of the Panel's Draft Report**

Dr. Schlesinger noted that on the call held the previous day the Panel had discussed the responses to charge questions one through five and had also begun discussing the response to charge question six

(focusing on adaptive management). He indicated that the Panel would complete the discussion of charge question six and then discuss any revisions needed in the executive summary and the letter to the Administrator.

#### *Section 3.4.2 – Response to Charge Question 6 – adaptive management*

The Panel continued its discussion of revisions needed in the response to Charge Question 6. Revisions addressing the following issues were discussed: (1) indication of the importance of measurements that provide an early warning of climate change impacts, (2) the need to gather data to support calibration of mechanistic models of sediment nutrient diagenesis, nutrient flux, and sediment oxygen demand, (3) the importance of considering differences between Lake Erie and other Great Lakes when evaluating hypotheses. Members agreed upon other edits that were included in the written compilation of members' comments.

The Chair noted that on the previous teleconference members had agreed that part of the response to Charge Question 6 should be rewritten to clarify the hypotheses to be tested. A member commented that this part of the response to the charge question should be reframed. She proposed that the draft be revised to identify issues to be addressed (rather than the specific hypotheses to be tested) along with research and monitoring tasks to be undertaken. She indicated that the concepts included in the current draft of the report would be retained but the report would not explicitly identify all of the hypotheses to be tested. Members agreed with the proposed revision. Dr. Schlesinger asked the lead writer to revise the text as discussed. He noted that a subgroup of Panel members had been identified to review the revised text before it was sent to the DFO for incorporation into the next draft of the report.

#### *Discussion of Ranking the Recommendations in the Report*

Dr. Schlesinger noted that the Panel had previously decided it would be useful to provide an indication of whether EPA should complete recommended work in the short, intermediate, or long term. He stated that Dr. Johnson had sorted the recommendations into these three categories. He noted that her suggested grouping of the recommendations had been sent to Panel members and posted on the SAB meeting webpage.<sup>7</sup> He asked members to consider using Dr. Johnson's groupings as a starting point to develop their suggested s of the priority of recommendations. He asked member to submit these listings to the DFO so he could compile the information and revise the draft report to reflect the input provided. Members indicated that this would be useful.

#### *Discussion of the Executive Summary*

The Panel discussed the executive summary in the draft report and agreed upon revisions. A member recommended that the executive summary state that models should be run over longer time periods. Another member commented that the executive summary should indicate that the link between hypoxia and algal blooms in the Western Basin is not well understood. A member called for clarification of the statement in the executive summary indicating that additional information was needed to include missing components in the models. A member suggested that the executive summary state that the models should account for factors affecting the uptake of phosphorus by algae. Members discussed the report text indicating that algae blooms may continue to occur even with the proposed phosphorus load reduction. Members expressed support for continuing to include this statement.

Other specific changes in the executive summary were discussed. These included: (1) indicating that the SAB recommends that EPA identify the data needed to reduce uncertainty in the models, (2)

incorporating a clarifying statement concerning the formation of beach muck from growth and decay of *Cladophora*, (3) indicating that agricultural best management practices for phosphorus control may not be sufficient to control nitrogen, (4) indicating that the growth of nuisance benthic algae in Lake Erie is fueled by loading of nitrogen and phosphorus, (5) indicating that *Cladophora* growth is a developing basin-wide problem in need of immediate action, (6) adding a statement indicating that EPA should determine the reduction of nitrogen that results from control of phosphorus, (7) adding a statement emphasizing that nutrient loading determines concentration.

The Panel discussed whether to include additional text in the report to further support the need for phosphorus load reductions to reduce *Cladophora* biomass levels. Some members indicated that they did not think additional text was needed.

The panel discussed a section of the executive summary that addressed adaptive management. A member suggested that the executive summary state that long term monitoring of nitrogen and phosphorus loading was needed. A member suggested revising the text to emphasize the importance of evaluating future scenarios. A member commented that there was some redundancy in the recommendations in the executive summary. He suggested editing to remove redundancy. Other editorial changes were discussed and agreed upon.

#### *Introduction of the Report*

The Panel discussed the introduction of the report and agreed to include a statement indicating that the models were run individually rather than as an ensemble. Members noted that an ensemble approach had been proposed by EPA.

#### *Letter to the EPA Administrator*

The Panel discussed the letter to the EPA Administrator in the draft report. Members discussed whether the recommendations concerning model selection precluded use of more than one model. Members commented that the report should recommend the use of process-based models and also indicate that the Western Lake Erie Ecosystem Model could be further developed and used. Other editorial changes were discussed.

### **Clarifying Comments from EPA Staff and Members of the Public**

Dr. Schlesinger thanked Panel members for their comments and called for brief clarifying comments from EPA staff and members of the public.

Ms. Santina Wortman of EPA's Great Lakes Program Office requested clarification of the Panel's recommendations concerning model selection. She asked whether the Panel was recommending that the EPA use a single model.

In response to Ms. Wortman's comments, panel members further discussed whether to recommend that one model should be selected for use. A member commented that the decision to use of a smaller number of models or perhaps a single model should be based on which models were most reliable as well as the difficulty of integrating multiple models.

Members further discussed whether the report should recommend that a single model be developed. A member commented that the report should be clarified to indicate that the EPA should consider

developing one model for use, but the Agency should also draw upon the appropriate components of other models. Another member commented that it made sense to focus on using the process models and to identify one model that could be used. A member commented that he had reservations about recommending the use of one model. He noted that each model had strengths and limitations. He noted that the report suggested that EPA consider using a smaller number of process based models, and indicated that one could be developed as a consensus model. He stated that he agreed with the wording in the draft report. Other members expressed support for the wording in the draft report. The Panel discussed the wording in the report. Members discussed recommending that a smaller number of models be used and that consideration be given to further developing the Western Lake Erie Ecosystem Model. The Chair thanked the members for their comments and asked the lead writer to revise the report to incorporate the points discussed.

### Summary and Next Steps

Dr. Schlesinger noted that it was time to adjourn the teleconference. He thanked Panel members for their comments and discussed the next steps to complete the report. He indicated that the DFO would send Panel members a list of assignments that had been discussed. He asked members to send revised text to the DFO by Monday, October 24<sup>th</sup>. He also noted that the DFO would send Panel members a list of the key recommendations in the report. He asked that members group the recommendations into short, intermediate, and long term categories. Dr. Schlesinger indicated that he would work with the DFO to incorporate the revisions and into the report and to group the recommendations based on the input provided by members. He noted that the revised report would be distributed to the Panel for review and concurrence and at that time any final edits could be provided. He asked members if they had questions. There were no further questions so Dr. Schlesinger asked the DFO to adjourn the conference call.

Dr. Armitage thanked the members for their comments, indicated that he would be sending them a list of assignments, and stated that the teleconference was adjourned.

Respectfully Submitted:

/s/

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Dr. Thomas Armitage  
Designated Federal Officer

Certified as Accurate:

/s/

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Dr. William H. Schlesinger, Chair  
SAB Lake Erie Phosphorus Objectives  
Review Panel

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by Panel members during the course of deliberations within the meeting. Such ideas, suggestions and deliberations do not necessarily reflect consensus advice from Panel members. The reader is cautioned to not rely on the minutes to represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations may be found in the final advisories, commentaries, letters or reports prepared and transmitted to the EPA Administrator following the public meetings.

## ATTACHMENT A: PANEL ROSTER

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### U.S. Environmental Protection Agency Science Advisory Board Lake Erie Phosphorus Objectives Review Panel

#### CHAIR

**Dr. William H. Schlesinger**, President Emeritus, Cary Institute of Ecosystem Studies, Millbrook, NY

#### MEMBERS

**Dr. Merryl Alber**, Professor, Department of Marine Sciences, University of Georgia, Athens, GA

**Dr. James Ammerman**, Long Island Sound Study Science Coordinator, New England Interstate Water Pollution Control Commission, Stamford, CT

**Dr. Steven Bartell**, Principal, Vice President, and Technical Director, Cardno ENTRIX, Greenback, TN

**Dr. Hunter Carrick**, Professor, Biology, Central Michigan University, Mount Pleasant, MI

**Dr. Celia Chen**, Research Professor, Department of Biological Sciences, Dartmouth College, Hanover, NH

**Dr. John P. Connolly**, Principal, Anchor QEA, LLC, Woodcliff Lake, NJ

**Dr. Richard Di Giulio**, Professor, Nicholas School of the Environment, Duke University, Durham, NC

**Dr. Robert Diaz**, Professor Emeritus, Department of Biological Sciences, Virginia Institute of Marine Science, College of William and Mary, Gloucester Pt., VA

**Mr. Douglas Endicott**, P.E., Great Lakes Environmental Center, Traverse City, MI

**Mr. James J. Fitzpatrick**, Project Principal Engineer, HDR Engineering, Mahwah, NJ

**Dr. Robert T. Heath**, Professor Emeritus, Department of Biological Sciences, Kent State University, Kent, OH

**Dr. Lucinda Johnson**, Associate Director, Natural Resources Research Institute, University of Minnesota Duluth, Duluth, MN

**Dr. J. Val Klump**, Professor and Dean, School of Freshwater Sciences, Great Lakes Water Institute, University of Wisconsin-Milwaukee, Milwaukee, WI

**Dr. Thomas W. La Point**, Professor Emeritus, Department of Biological Sciences, University of North Texas, Denton, TX

**Dr. Douglas McLaughlin**, Principal Research Scientist, Northern Regional Center, National Council for Air and Stream Improvement, Mattawan, MI

**Dr. Ramesh Reddy**, Graduate Research Professor, Soil and Water Science, University of Florida, Gainesville, FL

**Dr. Emma Rosi-Marshall**, Senior Scientist, Cary Institute of Ecosystem Studies, Millbrook, NY

**Dr. Eric P. Smith**, Professor, Department of Statistics, Virginia Tech, Blacksburg, VA

**Dr. William Stubblefield**, Senior Research Professor, Department of Molecular and Environmental Toxicology, Oregon State University, Corvallis, OR

**Dr. Maurice Valett**, Professor of Systems Ecology, Division of Biological Sciences, University of Montana, Missoula, MT

**SCIENCE ADVISORY BOARD STAFF**

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

## Materials Cited

The following meeting materials are available on the SAB website, [www.epa.gov/sab](http://www.epa.gov/sab). Meeting materials for both the on the October 12th and 13<sup>th</sup> teleconferences of the Lake Erie Phosphorus Objectives Review Panel are on the October 12<sup>th</sup> meeting page of the SAB website.

<https://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/150AB78DDAB990B5852580180076194A?OpenDocument>

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<sup>1</sup> Federal Register Notice

<sup>2</sup> Agenda

<sup>3</sup> Panel Roster

<sup>4</sup> SAB Review of Lake Erie Nutrient Load Reduction Models and Targets

<sup>5</sup> Compilation of Lake Erie Phosphorus Objectives Review Panel Member Comments on the Panel's Draft (9-1-16) Report (As of 9-27-16)

<sup>6</sup> Comments from David Baker, Heidelberg University

<sup>7</sup> Dr. Lucinda Johnson's Suggested Ranking of Recommendations in the Panel's draft (9/1/16) report (10/13/16)