

Summary Minutes
U.S. Environmental Protection Agency
Science Advisory Board
Great Lakes Restoration Initiative Action Plan Review Panel

Panel Members: See Roster – Attachment A

Date and Time: Tuesday, July 12, 2011, 9:00 AM - 5:30 PM
Wednesday, July 13, 2011 8:30 AM - 3:30 PM

Location: The Lake Michigan Room
Ralph H. Metcalfe Federal Building
77 West Jackson Boulevard,
Chicago, IL 60604

Purpose: To review the *Great Lakes Restoration Initiative Action Plan* (FY 2010 - 2014) assess its scientific credibility and provide advice to optimize the Plan's likelihood of successful restoration to the Great Lakes.

Attendees:

Panel Chair: Dr. James Sanders

Members: Dr. Joel Baker
Dr. Tracy Collier
Dr. Robert Diaz
Dr. Kirk Havens
Dr. Joseph Koonce
Dr. Thomas Leschine

Dr. James Oris
Dr. David Sample
Dr. Donald Scavia
Dr. Paul Sibley
Dr. Ron Thom
Dr. Judith Weis

SAB Staff Office: Mr. Thomas Carpenter, Designated Federal Officer
Dr. Vanessa Vu, Director SAB Office

Others Present:

Mr. Cameron Davis, U.S. EPA, Office of the Administrator
Dr. Carl Richards, US EPA Office of Research and Development
Mr. Robert Krska, US Fish and Wildlife Service
Dr. Leon Carl, U.S. Geological Survey
Mr. Paul Horvatin, USEPA Great Lakes National Program Office
Mr. Tim Eder, Great Lakes Commission
Mr. Todd Nettesheim, USEPA GLNPO
Ms. Karen Rodriguez, USEPA GLNPO
Mr. Jamie Schardt, USEPA GLNPO
Dr. Elizabeth Hinchey Malloy, USEPA GLNPO

Mr. Norman Grannemann, USGS
Mr. John Perrecone, USEPA GLNPO
Ms. Nishaat Yunus, ORISE Research Fellow to USEPA GLNPO
Ms. Sarah Neville, ORISE Research Fellow to USEPA GLNPO
Mr. John Haugland, USEPA GLNPO
Ms. Melissa Soline, Great Lakes and St. Lawrence Cities Initiative
Ms. Liz LaPlante, USEPA GLNPO
Ms. Amy McGovern, USFWS & USEPA
Mr. Pete Cassell, USEPA Region 5 Office of the Regional Administrator
Mr. David Cowgill, USEPA GLNPO

Mr. Mark Johnson, Agency for Toxic
Substances and Disease Registry
Mr. Edwin (Ted) Smith, USEPA GLNPO
Mr. William Walter, USEPA GLNPO

Mr. Michael Ruiss, USEPA GLNPO
Ms. Wendy Carney, USEPA GLNPO
Ms. Judy Beck, USEPA GLNPO
Mr. Dan O’Riordan, USEPA GLNPO

Attendees via Conference Call:

Dr. Michael Murray, National Wildlife
Federation
Mr. Matt Doss, Great Lakes Commission
Dr. Marie Colton, National Oceanic
Atmospheric Administration
Mr. Charles Perry, U.S. Forest Service

Mr. Dale K. Phenicie, Environmental
Affairs Consulting
Mr. Randall Kolka, USFS
Mr. Nicholas Vrevich, US FS
Mr. Thomas Schmidt, USFS

Meeting Materials: All meeting materials are available on the SAB Web site at the Great Lake Restoration Initiative Action Plan Review Page:

<http://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/C8309F2C84F1346D85257872007BD6F1?OpenDocument>

Convene Meeting

The meeting was announced in the Federal Register¹ and proceeded according to the meeting agenda, as revised. Mr. Thomas Carpenter, Designated Federal Officer (DFO) for the Great Lakes Restoration Initiative Action Plan Review Panel, convened the meeting at 9:00 a.m. on July 12, 2011. He stated that the EPA Science Advisory Board (SAB) was a chartered federal advisory committee and reviewed Federal Advisory Committee Act (FACA) requirements. He noted the Panel members are in compliance with ethics requirements. Mr. Carpenter stated that as DFO, he would be present during the Panel’s business and deliberations. He stated that summary minutes of the meeting would be prepared by the DFO and certified as accurate by the Chair. He stated that for this review, the SAB Staff Office had convened an ad-hoc panel invited experts to review the Great Lakes Restoration Initiative Action Plan and develop a consensus advisory report. The actions to convene the Panel are summarized on the SAB webpage².

Welcoming Remarks

Dr. Vanessa Vu, Director of the EPA SAB Office, welcomed the Panel members and thanked them for providing advice to EPA on the *Great Lakes Restoration Initiative’s Action Plan*³

Introduction of Members, Purpose of Meeting, and Review of the Agenda

Dr. James Sanders, Chair of the SAB GLRI Action Plan Review Panel, hereafter referred to as the Panel, provided introductory remarks.

Dr. Sanders stated that the meeting was convened to review the *Great Lakes Restoration Initiative Action Plan FY2010 - FY2014 and Implementation Strategy* and provided a brief overview of the Action Plan and the Charge to the SAB⁴. The Charge to the SAB included questions on the overall framework of the Action Plan and specific questions on each of the five focus areas. The EPA requested recommendations and advice to further develop the Action Plan and increase the collaboration among members of the Great Lakes community to meet GLRI goals as progress was made on focus area projects.

Dr. Sanders reviewed the meeting agenda⁵ and provided an overview of how the Panel would develop a consensus advisory report providing advice in response to the charge questions. He noted that after the Panel discussions, the Panel would develop an advisory report for distribution among Panel members for further discussion with the goal of reaching consensus on the recommendation and advice.

Dr. Sanders noted that EPA would introduce the GLRI Action Plan and key issues addressed in the Charge to the SAB. He noted that EPA staff would be available to the Panel throughout the meeting to provide clarification as needed. He also acknowledged the two members of the public that requested to present comments on the Action Plan, after which lead discussants and the Panel members would discuss the specific sections and their comments on the report.

Remarks from EPA and members of the Interagency Task Force

Mr. Cameron Davis, Senior Advisor to the Administrator, thanked the Panel members for their time and for participating in the review of the GLRI Action Plan. He provided background on how the Action Plan was developed in response to the President's GLRI to "protect and restore the chemical, biological, and physical integrity of the Great Lakes" and Congress appropriated \$475 million in new funding for the effort. To guide the GLRI as a coordinated interagency effort, the U.S. Environmental Protection Agency (EPA) and its Federal partners, through the Great Lakes Interagency Task Force (IATF), developed a comprehensive multi-year Action Plan that describes how the Initiative will be executed from 2010 through 2014.

He also noted that in the Appropriations report that included the GLRI funding, Congress specified that they "expect [EPA] to establish a process that engages an independent, scientific panel to review the scientific credibility of the Action Plan" to optimize the likelihood of successful restoration at appropriate scales and that this panel was convened to meet that mandate.

Mr. Davis noted that the Action Plan was developed by an Interagency Task Force not just EPA and he introduced representatives from the IATF that were present. Mr. Robert Krska, U.S. Fish and Wildlife Service; Dr. Leon Carl, U.S. Geological Survey; and Dr. Marie Colton, National Oceanic and Atmospheric Administration each commented on the importance of the review and provided a brief summary of their agency's involvement with the GLRI.

Mr. Davis concluded his remarks by briefly reviewing the charge questions identifying key issues he hoped the Panel would be able to address. He noted that the EPA was looking for ways to address problems and increase the GLRI's ability to implement restoration efforts, coordinate across a large stakeholder network, use an adaptive management framework, and increase the transparency of the Great Lake Accounting Systems..

Public comments

Dr. Michael Murray of the National Wildlife Federation⁶ and Mr. Tim Eder of the Great Lakes Commission⁷ requested time to address the Panel and summarized their written comments, respectively. The written comments are available on the web page.

General Discussion Questions

Panel members asked clarifying question of the Interagency Task Force and EPA staff.

Members noted that the Action Plan contained many laudable goals and substantial implementation efforts. One member noted the lack of scientific background information in the Action Plan and materials provided by the agency. Other members agreed, noting that the target audience for the Action Plan was the general public. This lack of scientific background was appropriate for the audience, yet made responding to the charge questions more difficult. EPA staff pointed to the Scientific Background document⁸ as one tool to help the Panel better understand the scientific underpinnings of the Action Plan.

Members remarked that the measures cited in the Action Plan seem to be more oriented to policy outputs rather than measurements that could provide an understanding of the scientific outcomes and restoration efforts. Members noted that transparency, selection and monitoring of measures are critical components to understanding ecological resulting restoration achieved by the Action Plan. Members also identified the analyses of measures as a critical component to understand trends and the effective implementation of the Action Plan in applying an adaptive management approach. A common question among members was how is EPA measuring progress? EPA staff noted that each of the focus area has a workgroup that develops progress reviews. Additionally peer review panels and the State of the Lakes Ecosystem Conference were important tools the Agency will need to continue to use.

In addition to developing and selecting measures that could be used to understand progress of the restoration efforts, members stressed that a robust monitoring program needs to be in place and was not evident in the Action Plan. Members also noted that an integrated monitoring plan should look across the focus areas rather than being limited to an individual focus area. The EPA staff noted that an integrated approach to monitoring was being developed on a case by case basis to provide a better understanding for larger systems. They also noted that available funding and resources will be an important consideration in selecting measures and monitoring approaches.

Toxic Substances and Areas of Concern

Drs. Joel Baker, Tracey Collier, and Paul Sibley were the lead discussants for this focus area and provided a summary of their respective reviews for the Panel.

These members generally agreed that remediating Areas of Concern (AOC), addressing legacy contaminants and new contaminants are important elements in the Action Plan. They expressed concern over the selection of sites for remediation, loading estimates from contaminated sites, an Agency focus on a few high priority legacy contaminants, and the approaches to address contaminants of emerging concern.

Members noted that while available resources will need to be considered, AOC selection should be based on scientific evaluation of the restoration potential that may be achieved by remediating a site. One member noted that the selection of which AOC sites are remediated should consider what contaminants occur in an AOC and then determine the level of confidence that the source of the contamination will be controlled by remediating that AOC. Another member noted that

AOC's need to be in a steady state to determine the tissue burdens that may result from a contaminants release from the AOC. Panel members also noted that most legacy contaminants are no longer in production and their primary clean up should be relatively easier and there are decision factors discussed in the literature the EPA could use. Panel members asked what occurrence information was used to evaluate AOCs. EPA staff responded that the Great Lakes Water Quality Agreement 2000 baseline monitoring was the data used to support which AOC sites and contaminants were selected.

One member noted that mercury was not discussed as a legacy contaminant in the Action Plan. Another member pointed out the polycyclic aromatic hydrocarbons (PAHs) also were not mentioned. EPA staff cited atmospheric and air pollution control rules as additional tools the agency is using to control mercury. They also noted that site remediation often focuses on one or more of the prevalent contaminants at a site and that clean up of these primary contaminants also reduces exposure to other contaminants on the site. They also noted that many of the AOCs in the Great Lakes are driven by PCB exposure.

Lead discussants noted that there are several well-documented approaches to consider contaminants of emerging concern (CECs) and that the Great Lakes scientific community is very involved in this area of study. Members noted that the ambient concentrations of many of the CECs detected are at very low concentrations and they generally have low toxicological values. Other members also noted that for many of these CECs there is a paucity of data. Members cited the need to base decisions on the toxicology (both ecological and human), the exposure routes, significant pathways and an estimate of the risk from exposure to CECs.

Invasive Species

Drs. Taylor and Weiss were the lead discussants for this section.

The lead discussants noted that the Action Plan sets out a number of laudable long-term goals and objectives designed to eliminate and control invasive species. However, the Action Plan offers relatively few specific details as to what exactly will be done regarding surveillance and, in particular, about the technologies that will be developed, refined, and employed to contain and/or control invasive species. The Charge to the SAB notes that there are separate, parallel actions under way to address specific invasive species (i.e., Asian carp) and vectors (i.e., ballast water controls), and seeks recommendations on additional technologies for detection and surveillance of invasive species. However, Panel members noted that these are all interrelated and difficult to look at separately.

protocols for a basin-wide invasive species surveillance program rapid response protocols need to be coordinated to meet the Action Plan's objectives to develop consistent methodology. Members noted that the protocols need to ensure that the various states, provinces, and other participating organizations use the same methodology and protocols to provide meaningful information and effective rapid response.

One member noted that the current workforce and expertise to identify invasive species was declining. Another member suggested that in order to know which species are potential invaders, information is needed on what has occurred recently in the Great Lakes region and similar

regions. Literature reviews and risk assessments that evaluate potential invaders in the Great Lakes, those that have become invasive elsewhere, and the vectors by which they could arrive will be critical sources of information. Members also agreed that it is important to recognize that climate change is likely to facilitate invasion by many invasive species, including pathogens.

One member pointed out that recent and emerging technologies for measuring environmental deoxyribonucleic acid (eDNA) have great potential for surveillance; however, she noted that probes must be developed for the different species that are of concern. One example is recent research in the Chicago Sanitary & Ship Canal and other water bodies in the area. Using genetic tools, researchers screened samples to find traces of eDNA from species, including Asian carp.

Members noted that there are many control technologies and a literature review should be conducted to identify potential applications. Other members noted that EPA should be careful to evaluate the potential technologies to reduce unwanted consequences from piscicides and herbicides. Members also discussed the implication of climate change introducing new species resulting from shifting habitats for invasive and native species geographically.

Nearshore Health and Nonpoint Sources

Drs. Diaz, Sample, and Scavia were the lead discussants for this focus area

Lead discussants noted the GRLI Action Plan is a five-year plan, so it is time limited, but it will provide the bases for a long-term vision that could guide subsequent renewals, if strategic planning is performed. They identified the synthesis of projects as a very important part of GRLI credibility and outreach.

One member commented that while targeting of coordination and implementation of restoration based on severely stressed habitats is appropriate, projects to restore physical habitat needs to include other stressors acting outside the area that may keep the restored habitat from functioning. For example, headwater habitat for anadromous fish that is restored cannot function to support spawning when migration is blocked by downriver-degraded water quality.

The discussants agreed that monitoring programs are and need to continue to be a strong part of the Action Plan. A balance between monitoring and restoration projects is needed, as adaptive management requires good monitoring to evaluate results and determine appropriate next steps. It would be good for other restoration efforts to include comparable monitoring and assessment efforts. Targeting, especially for BMPs, is a very good idea and may demonstrate value of targeting to a broader community.

Panel members commented that it was difficult to determine whether the GLRI Action Plan and Scientific Background documents are based on best available science or that it is consistent with other strategic plans. Unexplained connections between measures and restoration efforts need to be addressed. For example, it is not clear how the principal actions to achieve progress (page 30 of the Action Plan) “Identify sources and reduce loadings of nutrients and soil erosion” will lead to reduction in “the number and severity of incidences of ecosystem disruptions, including *Cladophora*, HABS, [avian] botulism and other issues associated with eutrophication.”

Members found that the transparency in the selection process to target watersheds that show severe signs of stress was lacking in the Action Plan. For example, the Action Plan did not include a list of all geographically targeted areas, selection criteria, or what is the definition of severe stress? Members however, agreed with the Action Plan's approach. They noted that increased transparency should, at a minimum, address the selection criteria potential watersheds, and the value of this approach may be more apparent after 2014, when the next group of watersheds might be chosen.

Vision, goals, actions, and performance measures need to be made clearer in the Action Plan. Members questioned whether ecological benefit will result from achieving the target numbers in the goals and discussed several examples. They noted that using an across the board reduction in all of the targeted watersheds for soluble reactive phosphorus, may result in a correspondingly different ecological benefit in different habitats within those targeted watersheds. Members also discussed whether the targets for soluble reactive phosphorous are big enough to make a difference? Water quality measurements are highly variable in space and time. This leads to a large degree of uncertainty in assessing performance. Failure to consider this uncertainty increases the likelihood of not reaching the goals. Members discussed whether the measure of progress to increase in the percentage of good beach days (1-2%) or meeting bacteria standards (86% to 90%) are a significant measures of progress.

Habitat

Drs. Thom, Bilby, and Havens were the lead discussants for this focus area. Lead discussants noted that the goal is to implement these restorative measures in a manner that achieves five overarching goals listed on Page 31 of the Action Plan.

Panel members agreed that these are reasonable goals.

To achieve these goals discussants noted that the GLRI will need to develop and apply a range of critical management actions and sound decision-making. These actions will need to focus on the implementation of high priority actions, including the protection and restoration of critical habitats and species, and executing these activities in an environmentally sensitive manner. Members noted that there is an overlap between this and other focus areas, particularly the toxic substances and Areas of Concern remediation.

Members agreed with the discussants that a clear, working definition of resiliency should be developed along with metrics that can be used to track changes in the resiliency over time as restoration measures are implemented. Members believed it is critical that the Action Plan strive not just for resilience in ecosystems but also for resilience that is associated with desirable future ecosystem conditions.

Members discussed whether the GLRI should evaluate climate change model predictions for the region and use this information to develop a habitat restoration strategy that will enhance the resiliency of the Great Lakes ecosystem to climate change. They note that a strategy for the Action Plan to address model predictions should include the consideration of the extent to which climate change may compromise the effectiveness of proposed restoration projects, the

identification of particularly vulnerable, key habitats and the development of methods to secure restoration in these vulnerable areas.

The lead discussants and panel members agreed that the actions in the Action Plan are “restoration” actions, but thought a more relevant charge question is whether or not these actions will enable the GLRI to attain the objectives. Some members thought that the italicized parts of the principal actions (page 34 of the Action Plan) may be more appropriate as goals for the protection and restoration of habitat and wildlife. Members thought that describing these specific actions would more clearly explain and increase the potential efforts to achieve these goals and this change would represent the first step towards addressing the ambiguity in the links between vision, long-term goals, objectives, and principal actions in the Action Plan. Making this change would tie monitoring elements more directly to goals. The more clearly and transparently the Agency can communicate the connection between the monitoring metrics and the goals, the easier it will be to document how well the actions are working to meet the goals.

Accountability, Education, Monitoring, Evaluation, Communication, and Partnerships

Drs. Oris, Koonce, Leschine were the lead discussants for this focus area.

Lead discussants noted that Focus Area 5 should be structured as an integrative/synthesis theme across the focus areas rather than as five separate efforts. Members noted that a programmatic evaluation across all focus areas should integrate monitoring and evaluation in an accountability framework, address focus areas within LaMP framework, and incorporate of education and outreach opportunities for projects conducted under the GLRI. They cited the need for an overarching program management layer that provides this integration across focus areas, monitors and evaluates outputs/outcomes, drives an adaptive management process, identifies uncertainties and data gaps, and examines trade-offs in management decisions. Without this layer of cross focus area program management, the transparency and accountability discussed in the Action Plan will be difficult to achieve and implement.

Discussants noted a need for a strategic science plan and an explicit adaptive management plan that would provide an integration of all of the individual focus area monitoring plans. To achieve accountability for the GLRI, accountability needs to be addressed as a cross cutting issue for all the focus areas. Members suggested the GLRI should consider how to embed accountability, education, outreach, and monitoring in all other focus areas. Accountability addressed in this section should be integrative and focused on desired outcomes across all focus areas. Members noted that the GLRI could be informed by the experiences of other large restoration efforts (e.g., Chesapeake Bay, Puget Sound), and smaller efforts (e.g., Tahoe Basin).

Lead discussants noted that the Action Plan approach to include education and outreach for environmental education curricula is a highly laudable goal, but overall there is a lack of a strategic approach to achieve the stated objectives. Currently, there are no specific indications of the amount or type of resources allocated to these aspects of the program and noted that only one EPA grant funded under 2010 GLRI appears to be curriculum development.

Lead discussants discussed the need to describe allocation of resources to educational efforts and take a systematic approach to building new efforts and tapping into existing efforts (e.g., Centers for Ocean Sciences Education Excellence) to further the GLRI goals.

Members also suggested that incorporating educational/outreach activities within other activities could be a strategy to increase participation. EPA and partners should consider explicit peer review criteria for all activities (internal and externally funded) that include with significant weighting. This is parallel with the peer-review process of the Nation Science Foundation that is based on scientific merit and broader impacts that may include minority involvement, social science activities, or scientific and business ethics training. Members noted that the NSF approach includes evaluation, assessment and data management plans that are critical for GLRI success.

Members noted that the emphasis in this focus area seems to be in K-12 education and outreach. While the implied assumption is that this will extend into higher education and graduate education. The development of human capital, the scientists, engineers, managers, and educators of the future, is an essential part of this program and should be explicitly considered.

Members also pointed to obstacles to develop new K-12 curricula. Unless the curricula help teachers meet assessment standards or state mandates, environmental education is not likely to be incorporated. Efforts should be dedicated toward incorporating these curricula into state requirements. In terms of curriculum development, the early focus should be teaching the teachers to create a foundation for the curricula. Unless the teachers are equipped with this base knowledge, they will not know what to do with the information.

RECESS

At 5:30 p.m., Mr. Carpenter, DFO adjourned the Panel in recess until 8:30 am Wednesday July 13, 2011.

RECONVENE

Mr. Carpenter reconvened the Great Lakes Restoration Initiative Action Plan Review Panel at 8:30 am. Mr. Carpenter called roll and asked that members of the public send an email to document their attendance to the call.

Discussion of General Issues: Charge Questions 1, 2 and 3

Drs. Baker, Koonce, Taylor, Sanders, and Scavia were the lead discussants for this focus area.

Consistency with Other Great Lakes Collaborative Plans and Science

Lead discussants commented that the Action Plan appears consistent with previous plans and strategies, reflecting a continuation of collaborative planning in the region. Discussants noted the actions are consistent with many aspects of previous efforts, but very few of the research, monitoring and integrative assessment needs identified in the earlier documents (e.g., SOLEC 2009) are specifically carried through to the Action Plan.

Members also noted the complexity in compiling the Action Plan and Scientific Background document that directly links the breadth of research, restoration and scientific analyses that are

conducted in the Great Lakes Region. One member noted that the relationship between the Action Plan and lake-specific goals developed through the EPA-facilitated Lake Management Plan (LaMP) processes and the Great Lakes Fishery Commission-facilitated Lake Technical Committee was not clearly discussed in the Action Plan. These efforts provide specific water-quality, fishery and habitat goals have been established through extensive stakeholder processes (i.e., scientific community, policy makers and members of the public) and it is important that the Action Plan supports achieving those goals.

Members also commented that science is only one basis for taking particular action (e.g., others can include availability of matching funds, state and local priorities, and partner development), evaluation of the effectiveness of actions taken is a scientific process and needs to be included more explicitly within the Action Plan.

Members also noted that climate change is only addressed in one focus area of the Action Plan. Restoration efforts at this scale and with the attending complexities will play out over time scales where changes in air and lake temperature, amount and patterns of precipitation, ice cover and lake levels are likely to occur and could significantly alter restoration effectiveness. Further, it is not clear if decadal trends of these properties have been taken into account while developing the actions.

Tracking GLRI Projects and Accountability

Lead discussants recognized that the Great Lakes Accountability System (GLAS) is a work in progress, but noted that the current system appears to be primarily an accounting – as opposed to accountability – system; that is, a system that tracks where the funding is going and who will be responsible for those projects.

Members agreed that the concept of a one-stop-shop for information on Great Lakes restoration, status and trends would be good for GLRI. They also noted that it is very important any accountability system incorporate performance measures and if pursued carefully the system could provide a solid basis for programmatic evaluation across the focus areas. Members noted the complexity and rigor that will be needed to integrate outcomes across hundreds of projects, and expressed concern that an upgrade of the current GLAS is probably not an appropriate vehicle for this type of integration. GLAS appears designed to function at the project level, and the diversity and granularity of those projects would make integration within GLAS difficult.

Lead discussants and members discussed the adequacy of the identified endpoints and measures for the GLRI. Overall members thought the measures should be cognizant of historical context and variability. Metrics to identify change or progress toward restoration should be developed such that they can be detected statistically, are scientifically significant, and attributed to management actions. Metrics identified in the Action Plan measure outputs as opposed to outcomes. Members discussed how the Agency could evaluate and report environmental outcomes integrated across projects at the theme, Lake, and program level.

Recommendations to Improve or Clarify the Action Plan

Lead discussants emphasized the need for a framework that integrates and takes advantage of the synergies and interaction between projects and focus areas to clarify and improve the GLRI.

They noted that the overall scope and framework of the Action Plan addresses many of the important issues and problems. However, they expressed concern that EPA may not be in a position to effectively measure and report on progress toward the overall goal of restoring the Great Lakes unless transparency and cross focus area integration is improved.

Lead discussants and members discussed the need for a comprehensive science plan to demonstrate and document how projects are selected, the need for timely and adequate monitoring data, and assessment of project outcomes. Members noted that other restoration programs have plans that address integration across stressors and individual projects. The integration and analysis provides a mechanism for restoration innovation and increases efficiency and effectiveness. These approaches may also identify key impediments to progress, monitor, assess, and evaluate at project and higher system levels and increase the transparency of decision-making processes. Members discussed the need for multidisciplinary approach that utilizes natural and social scientists and engineers from government, academia, non-governmental organizations, and industry. This approach should create a forward-looking science plan that, when coupled with the Action Plan, creates a framework from which adaptive management may be applied.

One member noted that actions are organized primarily around stressors and mostly narrow geographies, as opposed to being organized at basin- or lake-scale goals that take into account multiple stresses. This may lead to the GLRI not knowing if goals are realized or being approached effectively.

Discussion of Remaining Issues and Next Steps

Dr. Sanders reviewed the points the Panel members identified as key issues and asked the Panel for any additional thoughts. Panel members agreed that the key issues were identified and did not identify any additional issues or comments. Dr. Sanders asked the DFO to summarize the next step for Panel members to develop the Advisory Report

Mr. Carpenter stated that lead discussant would continue as writing teams to develop draft sections of the Advisory Report based on the focus areas of the Action Plan and submit them to the DFO. The DFO and the Chair would develop the draft Advisory report with the Letter to the Administrator and Executive Summary based on key issues from the Panel's discussion and draft submissions. The Panel would then reconvene to review the draft Advisory Report by teleconference in approximately 6 weeks. Based on the discussion a second draft Advisory report would be distributed for consensus review. After consensus, the draft Advisory report would be submitted to the chartered Science Advisory Board for Quality Review prior to finalization. Mr. Carpenter will develop a writing schedule and request available times for the teleconference from Panel members.

Dr. Sanders asked the Panel for any questions or clarifications. He then called upon the DFO to adjourn the meeting

The Designated Federal Officer adjourned the meeting at 2:30 p.m.

Respectfully Submitted:

Certified as Accurate:

/Signed/

/Signed/

Mr. Thomas Carpenter
SAB DFO

Dr. James Sanders
Chair

NOTE AND DISCLAIMER: The minutes of this public meeting reflect diverse ideas and suggestions offered by committee members during the course of deliberations within the meeting. Such ideas, suggestions, and deliberations do not necessarily reflect definitive consensus advice from the panel members. The reader is cautioned not to rely on the minutes represent final, approved, consensus advice and recommendations offered to the Agency. Such advice and recommendations

Endnotes:

All meeting materials are available on the SAB Web site. at
<http://yosemite.epa.gov/sab/sabproduct.nsf/MeetingCal/C8309F2C84F1346D85257872007BD6F1?OpenDocument>

¹ Federal Register Notice Announcing the Meeting (76 FR 40355, 76 FR 34977-34978)

² Determination Memorandum and Biosketches of Candidates

³ Great Lakes Restoration Initiative Action Plan FY2010 - FY2014 and Implementation Strategy

⁴ Charge to the SAB panel reviewing the GLRI Action Plan

⁵ Meeting Agenda

⁶ Comments submitted by Dr. Michael Murray, National Wildlife Foundation

⁷ Public Comments submitted by Mr. Tim Eder, Great Lakes Commission

⁸ Scientific Background of the GLRI Action Plan