

**DRAFT RECOMMENDATIONS
GLAB Final Report to EPA**

Contents

Introduction 3

Theme 1. Seek Advice and Recommendations on Innovative Strategies to Address Legacy Phosphorus... 4

Theme 2. Seek Advice and Recommendation on Managing Excess Nutrients..... 5

Theme 3. Seek Advice and Recommendation on GLRI Outreach 7

Theme 4. Seek Advice and Recommendation on Invasive Species 9

Theme 5. Outcome Based Investments in the Great Lakes..... 10

Theme 6. GLRI’s Role in the Vitality and Reinvestment of Great Lakes Communities 12

GLAB Members 14

References 14

Introduction

Tbd 1 page

Theme 1. Seek Advice and Recommendations on Innovative Strategies to Address Legacy Phosphorus

Legacy phosphorus is defined as phosphorus that is already in the soil and water of the Great Lakes (and tributaries thereto) and that may require different considerations as part of the installation of any new or continuing best management practices to reduce nutrient loads.

Charge Question: Please identify any strategies, using traditional or innovative technologies or methods, to reduce legacy phosphorus within the Lake Erie watershed (and other Great Lakes and tributaries thereto).

Near-term Recommendations

1. Support regional project(s) to identify Critical Source Areas in the watershed that contribute a disproportionately large amount of legacy P to nutrient load. Use Critical Source Area information to prioritize and more effectively target legacy P management strategies to maximize removal of legacy P and excess nutrients (P) from the system. (This recommendation also supports theme 2.)
2. Support and fund projects that evaluate the relative contributions of soil legacy P and applied P to total P loss.
3. Support physical removal or chemical/biological sequestration of legacy P–laden sediments as effective methods to remove legacy P from the environment and lower soil P.

Mid-term Recommendations

4. Coordinate GLRI funding and technical expertise to develop regional tools to implement the most effective combination of Avoiding, Controlling, and Trapping (ACT) practices at federal, state, and local level as identified in the USDA-NRCS ACT program to maximize legacy P and excess nutrient (P) and sediment reduction at HUC-12 watershed scales. (This recommendation also supports theme 2.)
5. Fund and implement a long-term comprehensive monitoring program. (This recommendation also supports theme 2.)
6. Create an endowment to provide a stable long-term funding source to support continued (and new) monitoring and assessment work of GLRI-funded nutrient reduction practices and projects. (This recommendation also supports theme 2.)

Theme 2. Seek Advice and Recommendation on Managing Excess Nutrients

The issue of nutrient (especially phosphorus) loading has been a very significant and public ecosystem health issue in Lake Erie, primarily due to the creation of Harmful Algal Blooms (HABs) that negatively impact drinking water systems, tourism and other commercial activities in the Great Lakes.

Charge Question: Balancing the need for the continued production of agricultural commodities in the Great Lakes region, the contribution to excess nutrient loading in Lake Erie associated with agricultural production activities, and the need to significantly reduce the extent and duration of HABs on Lake Erie, what innovative actions could reasonably be taken to accelerate the reduction of excess nutrients and HABs or duration of HAB events in Lake Erie? Consider if there are new or different applications of traditional federal funding sources, opportunities to partner with the private sector (including tourism, drinking water systems, and others affected by HABs), or community-driven or market-based approaches to financing water quality improvements.

Near-term Recommendations

1. Support and fund the development and implementation of watershed land-use plans and conservation practices that protect and *maintain existing high-quality watersheds* that do not contribute significant (excess) nutrient loads to the basin (i.e., protect and preserve what is already working).
2. Support additional research and funding for innovative technology/nutrient removal systems along with innovative funding strategies to support long-term monitoring and assessment of these technologies to evaluate their effectiveness.
3. Support and fund TMDL implementation using a distributed mass balance approach applied at the HUC-12 subwatershed scale in combination with the funding, development, and implementation of 9-element Nonpoint Source Implementation Strategies as an effective way to link local subwatershed nutrient reduction projects (BMPs) to regional TMDL/distributed load water quality targets.
4. GLNPO to coordinate and GLRI to fund cross-jurisdictional coordination efforts to identify Critical Source Areas (CSAs) and implement regionally coordinated watershed scale structural nutrient reduction practices (by applying landscape conservation design principles) to maximize nutrient removal efficiencies.

Mid-term Recommendations

5. Support and fund regional projects to:
 - identify watersheds where GLWQA target nutrient loads are consistently exceeded (excess P) March–July
 - identify Critical Source Areas within these watersheds that contribute a disproportionately large amount of excess P to nutrient load.
 - Select and fund appropriate larger-scale nutrient reduction projects within lower watershed tributaries of CSAs near, or adjacent to, receiving water bodies to maximize potential nutrient reduction benefits.

6. Encourage, support, and fund large nutrient reduction projects within lower watershed tributaries near, or adjacent to, receiving water bodies to maximize potential nutrient reduction benefits.
7. In watersheds with TMDL requirements, EPA and GLNPO should consider regulatory options within their respective jurisdictions when voluntary and practice-based approaches are deemed insufficient to achieve necessary nutrient reductions to meet GLWQA targets. Considerations could include increased regulation or requirements on septic systems, elevating unregulated NPS discharges to regulated point sources falling under NPDES requirements, and decreasing NPDES permit discharge limits for P.
8. Support the development of an incentive-based ecosystem credit marketplace or program that administers trades between buyers and sellers (or funders and suppliers) of ecosystem services.
 - There may be an opportunity to link these trades to the Conservation Reserve Enhancement Program administered by USDA NRCS or other emerging projects with an emphasis on excess nutrient reduction and water quality improvement (e.g., the Blue Accounting Coastal Wetland Project).
 - EPA and GLNPO should explore opportunities to link Tradable Permit Model to TMDL/Distributed load watersheds and potential regulatory/governance changes in NPDES permits.
9. Support the development of new performance metrics to recognize and document future potential reductions in nutrient loading that may result by implementing land use and watershed plans. The metrics need to be incorporated into land use models to identify potential land use controls or changes that maximize nutrient reduction benefits within a watershed.
10. Support regional policy and management committees to use land-use planning models, SWAT models, and HUC-12 water quality monitoring data to identify critical source watersheds that disproportionately contribute to excess P loads in the Great Lakes. These models could be used by regional policy and management committees to prioritize watersheds for GLRI interventions and to evaluate the appropriate suite of practices, policies, and land-use changes needed to achieve nutrient reduction targets within target watersheds.

Long-term Recommendation

11. Develop mechanisms to leverage public–private and/or pay-for-performance funds to support nutrient reduction practices in the basin.

Theme 3. Seek Advice and Recommendation on GLRI Outreach

Under the GLRI and GLWQA, a number of mechanisms are utilized to inform the general public about activities and efforts underway to improve the health of the Great Lakes ecosystem, including but not limited to, press releases, glri.us; binational.net; asiancarp.gov; annual GLRI Reports to Congress, 5-year LAMPs and annual reports for each Great Lake, triennial Progress Reports of the Parties, triennial State of the Great Lakes Highlight Reports.

Charge Question: How well are EPA and its federal, state and tribal partners communicating the goals, challenges and accomplishments of GLRI? Are there stakeholder groups that could be more effectively communicated with? What additional and/or innovative tools could be used to improve outreach to citizens, elected officials and partners?

The working group was not able to assess the strengths or weaknesses of communication efforts of the EPA and its federal, state, tribal, and private partners. The information was not readily available nor was it apparent to us what strategy exists beyond media efforts. We recommend the Agency establish and track metrics on outreach and communications methodologies and resources that will assess all GLRI funds and impacts, and present this information to Congress and to the GLAB. In the absence of this information, the working group relied on their own professional and personal experience and networks for feedback and recommendations that follow.

In our assessment, GLRI five-year action plans focus on GLRI investment based upon a program strategy that was developed many years ago and prior to the full recognition and threat posed by climate change and extreme weather events. More so, they inadequately recognize or seek to emphasize environmental justice concerns among outreach priorities and environmental grant programs needs for communities of color, indigenous and low-income communities that have often borne the burden of environmental degradation. The GLRI and GLWQA must seek to do a better job of increasing the share of environmental benefits.

Overall, GLRI visibility and recognition among the general population is still limited in both program benefits and resource distribution. This is notable in low-income and environmental justice communities where long-standing legacy problems that are compounded by climate changes have not been prioritized for resolve and funding. At minimum, GLRI outreach should begin with the convening of the stakeholders in EJ communities and continue with an assessment of environmental and climate response needs to improve their awareness and engagement in GLRI initiatives, including Lakewide Management Plans (LAMP).

Near-term Recommendations

1. Provide management assistance funding to States and Tribes to hire boots-on-the-ground staff in technical areas, social sciences, and community engagement.
2. Map Brownfield sites, Opportunity Zones, and other agency and community programs with GLRI project proposals to maximize awareness and leveraging opportunities.
3. Engage more with business and industry to leverage their sustainability plans and vision with GLRI ecological services. Also look at connections between Food, Energy, Water and Transportation instead of addressing these in silos.

4. Develop and implement options to increase GLRI visibility and recognition among the general public and stakeholder communities.
5. Prioritize communications on the impacts of GLRI programs on environmental injustice and climate change as significant environmental and natural resources issues affecting the Great Lakes.
6. Model successful outreach efforts by other Great Lakes-focused collaborations such as the International Joint Commission.
7. Utilize social media platforms to reach diverse audiences and incorporate online feedback in GLRI outreach metrics.
8. Establish a framework for engaging and supporting relevant activities of community organizations, libraries, and non-traditional stakeholders, particularly those in disproportionately impacted areas, through meaningful engagement and communication.
9. Start the process for public engagement on the Great Lakes Restoration Initiative Action Plan IV earlier and prioritize community outreach and engagement with communities of color, Indigenous communities, and low-income communities.
10. Utilize the Area of Concern Public/Citizen Advisory Councils in communication and engagement efforts by establishing standards for outreach, additional funding, and accountability.

Theme 4. Seek Advice and Recommendation on Invasive Species

Invasive species control and prevention continues to be a challenge for the Great Lakes. Perhaps the most visible example are the efforts to control Asian Carp from entering Lake Michigan.

Charge Question: Balancing the need for continued commercial, recreational and other activities on the Great Lakes, what innovative actions could reasonably be taken to accelerate the control of existing invasive species, and what methods or strategies can be deployed to prevent the establishment of future infestations?

Short-term Recommendations

1. Fund strategies to manage AIS that pose the greatest impediment to the restoration of key sites and habitats across the Great Lakes (such as coastal wetlands and coastal spawning reefs) while continuing efforts at the vector and pathway level to maintain a coordinated prevention approach.
2. Improve coordination, information exchange, and database sharing at the federal, state, and local levels.
3. Invest in new technologies. (This is also a mid-term recommendation.)
4. Incentivize the commercial use of AIS. (This is also a mid-term recommendation.)
5. Address vessel discharge by including \$50M/yr in the Great Lakes National Program Office budget request to fund the Great Lakes and Lake Champlain Invasive Species Program authorized by Section 903(g) of the VIDA, giving priority to monitoring and technology development related to vessels.
6. Create an AIS Prize.

Mid-term Recommendations

7. Address vessel discharge by:
 - Working with Canada to align ballast regulations that provide consistent regulatory controls across the Great Lakes.
 - Collaborating with USCG and other stakeholder, including the Great Lakes Carrier's Association, to develop materials to instruct the general public on the AIS laws. Guidance and training materials could include a summary, flow chart, timeline, fiscal impacts, international status.
8. Strengthen, or expand and refine, a system-wide, coordinated, early detection and response system.
9. Coordinate with the IJC in the development of (and implement) an early warning system in the Great Lakes.
10. Initiate a coordinated research and stakeholder engagement program involving aquatic and molecular ecologists, ethicists, social scientists, biotech specialists, and venture capitalists to explore the feasibility, desirability, and legality of gene-drive technology as a control mechanism for AIS.
11. Develop a regional grant program, using both private and public funds, that addresses all AIS and has funding of sufficient size to attract a large pool of applicants.

Theme 5. Outcome-Based Investments in the Great Lakes

This Administration has prioritized outcomes and deliverables from all agency programs. Since its inception in 2010, GLRI has produced measurable results, but are we moving the needle, specifically on AOC delisting, nutrients, invasive species, and habitats.

Charge Question: As we enter the next decade of GLRI funding, what are appropriate annual ecological and community-based outcomes (coupled with appropriate baselines and monitoring) to show that we are making progress in the areas of AOC remediation and delisting, invasive species control and prevention, nutrient reduction, and habitat restoration and protection, such that we can show a good return on investment?

Regarding AOC delisting, nutrients, invasive species, and habitats, the work group is particularly interested in GLRI outcomes and deliverables that focus on the priorities and perspectives of affected communities, impacted residents and tribal governments. Partnerships should seek to improve the capacity-building, skills, training, and workforce development needs of these participants that, in turn, can improve and increase their ability to present and produce their own ecological and community-determined outcomes.

It is not clear to us that GLRI accelerated cleanup of AOCs have been met the EPA's environmental justice determinants of success both through meaningful participation from impacted, frontline, and fence line communities; and their receipt of the benefits of environmental, economic, and social resources. Data and metrics must be transparent and accessible to GLRI partners and communities alike.

Short-term Recommendations

1. Engage State and Tribal partners actively in the identification, prioritization, and selection and funding of projects.
2. Establish a broader set of outcomes that include environmental justice, climate, and public health impacts.
3. Develop and implement metrics to assess progress toward these outcomes.
4. Implement a framework with specific EJ outcomes to guide continued engagement with tribes regarding GLRI to support cohesive Great Lakes programs that recognize and appropriately incorporate the priorities of tribes and traditional ecological knowledge.
5. Allow for better incorporation of qualitative and narrative data, including traditional knowledge, that is difficult to translate into quantitative data without losing context and impact.
6. Reduce inclinations to fund and prioritize projects that can be leveraged with other resources for tribes and environmental justice communities without adequate support for long-term sustainability.
7. Set standards for community representation and inclusion on Public Advisory Councils that include demographic and socioeconomic indicators and traditional knowledge.
8. Present the culmination of these endeavors and outcomes in a special GLRI report and in public forums with impacted communities.

Mid-term Recommendation

9. Support ongoing research & development so that we can get an earlier understanding of emerging challenges., e.g., climate change impacts that may affect the magnitude and/or longevity of restoration efforts.

Long-term Recommendation

10. Seek Congressional support and resources for new and redirected, permanent GLRI funding to address environmental justice and climate change objectives and outcomes.

Theme 6. GLRI's Role in the Vitality and Reinvestment of Great Lakes Communities

This Administration has prioritized clean-up, redevelopment and reuse of abandoned, blighted and contaminated properties. There are numerous examples around the Great Lakes where clean-up of waterways is followed by development and economic prosperity. In addition, under President Trump's Executive Order on "Modernizing America's Water Infrastructure" which formally establishes the Water Subcabinet, there are opportunities for even better leveraging of resources and expertise across the Federal family.

Charge Question: How can GLRI projects and funding be further leveraged across Federal agencies and programs, including Opportunity Zones and Brownfields, to maximize environmental and economic benefits to Great Lakes communities?

It is essential that more GLRI communication and coordination transpire across federal agencies to incorporate programs, projects, and resources with direct benefits to Great Lakes communities. Partnerships hold important opportunities beyond leveraging resources and should include responsibilities to engage and consult with stakeholders in physically adjacent endeavors for environmental and economic cleanup and reuse. Vitality and sustainability objectives, measures, and resources should support native residency and resiliency, and local capacity to adapt to potential economic and demographic changes (including tourism and gentrification) resulting from GLRI investments and benefits.

Finally, the critical role of the Great Lakes Basin to this nation's economic, social, and homeland security are essential to the life of all residents. The element of water must be protected and elevated in the federal government's responsibility to uphold the inherent safeguarding of water, and to meet its treaty obligations with tribal governments. Toward this we believe a new department is required in the presidential Cabinet.

Short-term Recommendations

1. Define GLRI as not just a restoration initiative, but also as a protection and management program that requires a sustained commitment.
2. Focus GLRI on restoring and protecting ecosystem services, including valuation of those services when assessing and forecasting benefits of actions.
3. Engage environmental economists to establish baseline data needs, ecosystem services metrics, evaluation and milestones.
4. Incorporate Justice40 initiatives and priorities into the GLRI Action Plans and investments.
5. Support the assessment of climate change on the Great Lakes Basin that affect environmental and economic benefits, including droughts and floods resiliency and sustainability.

Mid-term Recommendations

6. Leverage GLRI to increase employment and education opportunities locally and to support long-term project operation and maintenance.
7. Update Action Plans to ensure environmental justice and climate change are considered areas.

Long-term Recommendations

8. Establish a Cabinet Level position for water as we do for energy.
9. Develop models that include not only ecosystem dynamics but also policy, public health, and economic forces.
10. Ensure benefits reach and improve disadvantaged communities.

GLAB Members

Co-chairs

Kyle Dreyfuss-Wells | Chief Executive Officer, Northeast Ohio Regional Sewer District

Steve Galarneau | Director of the Office of Great Waters – Great Lakes & Mississippi River, Wisconsin Department of Natural Resources

Members

Larry Antosch | Senior Director, Ohio Farm Bureau Federation

Frank Ettawageshik | Executive Director of the United Tribes of Michigan

Lisa Frede | Director of Regulatory Affairs, Chemical Industry Council of Illinois

John Hull | Founder and Chairman, Hull & Associates Inc.

Val Klump | Retired, Dean and Professor of the School of Freshwater Sciences, University of Wisconsin – Milwaukee

Scudder Mackey | Chief of the Office of Coastal Management, Ohio Department of Natural Resources

Brian Miller | Retired, Illinois–Indiana Sea Grant and Illinois Water Resources Center

Sylvia Orduño | Organizer, Michigan Welfare Rights Organization

Kay Nelson | Director of Environmental Affairs, Northwest Indiana Forum

Laura Rubin | Director of the Healing Our Waters-Great Lakes Coalition

Alan Steinman | Director of Annis Water Resources Institute, Grand Valley State University

Jeff Stollenwerk | Director of Government and Environmental Affairs, Duluth Seaway Port Authority

Jim Williams | Tribal Chairman, Lac Vieux Desert Band of Lake Superior Chippewa Indians

Designated Federal Officer | Edlynzia Barnes

References

tbd

Back cover

tbd