CIGLR Summit/Working Group Final Report

Summit title
Discerning the "bricks and mortar" required to implement the societal components of comprehensive Great Lakes restoration

Summit lead and affiliation
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Steering committee members and affiliations
Mike Shriberg, UM-SEAS Visiting Professor of Practice and Engagement; Katie Mika, CIGLR Postdoctoral Research Fellow; Casey Godwin, Assistant Research Scientist at CIGLR; Katie Williams, USEPA Great Lakes Toxicology and Ecology Division

Summit dates
May 17-19, 2023

Background
The Healing Our Waters-Great Lakes Coalition (the Coalition) is developing an inclusive, and more broadly representative, vision for engaging and investing in ecosystem restoration and revitalization within the Great Lakes region. Top Coalition goals are to maintain the nation's commitment to Great Lakes restoration and protection, to ratchet up federal investment, and to ensure that the communities most impacted by pollution and harm are prioritized in the Great Lakes Restoration Initiative. While the Great Lakes Restoration Initiative has been a successful program, it can be strengthened through: a greater community-based focus of investments on local conservation priorities; the agencies being held accountable to this focus; and, ultimately, all communities within the region benefitting from Great Lakes and clean water investments.

The Coalition's intention is to broaden the narrative of Great Lakes environmental programs beyond the traditional focus on biological and physical dimensions of the ecosystem, to also recognizing and addressing social and organizational dimensions. To catalyze this change, the Coalition seeks foundational, social science- evidence-based insights to advance its work to broaden Great Lakes restoration, community resilience, and other ecosystem-based environmental programs across a broad spectrum of governmental agencies and non-governmental entities (e.g., US Congress, US federal agencies, Tribal and First Nations and Métis, state and provincial agencies, foundations, grassroots organizations, and concerned individuals).

The "Discerning the 'bricks and mortar' required to implement the societal components of comprehensive Great Lakes restoration" Summit was held to help the Coalition meet these goals.

Summit/Working Group Summary
A notable transformation is occurring across the US, Canada, and the globe, reframing "ecosystem restoration" as more than technical actions that improve the environment, but also as collective actions that explicitly acknowledge and include the human and social systems that coexist with biophysical

systems. There is also increasing attention directed towards involving local communities in regional landscape restoration and conservation for both planning and long-term stewardship, to help ensure that ecosystems and their component communities are more resilient in the face of increasingly challenging stressors (e.g., legacy contamination, climate change effects, severe weather, and economic instability).

The Great Lakes region is experiencing this sea change, having made significant (and continuing) progress towards addressing legacy biophysical contamination and now transitioning to adapt to a 21st century knowledge economy, where community access to nature and agency (e.g., power and choice) are increasingly important. This involves working to address long term social impairments resulting from historical and ongoing injustices experienced by Black and Brown communities, Indigenous communities, and other peoples.

Exceptional recent federal investments are expected to complete most planned environmental remediation and restoration projects in Great Lakes Areas of Concern within the coming decade. However, researchers and practitioners are finding that social and organizational dimensions of community revitalization must be integrated into environmental restoration work throughout its life cycle to realize the full social-environmental benefits of these investments. This awareness, plus a growing recognition of the importance of relationships, has led to a need to better reinforce and document success stories so that this type of change can be implemented more systematically and on the appropriate scale and timeline.

Therefore, this work provides:

(1) an expanded science-, knowledge-, and practice-based narrative for Great Lakes Restoration that includes emphasis on community revitalization (i.e., increasing community agency and vitality, and fostering equity), based on integrated socio-ecological visions for the region; and
(2) a set of prioritized implementation strategies to facilitate the systemization of this work.

To do this, we convened a workshop in May 2023 and invited twenty-five scholars of social science, or adjacent disciplines, with expertise in co-production of knowledge, collaboration, and community dynamics. These scholars brainstormed pathways to fundamentally broadening the environmental program narrative in the Great Lakes to include community dimensions, climate change, and Indigenous knowledge. Together, we discerned a core list of desired social outcomes linked to ecosystem restoration, while centering social equity and considering Indigenous sovereignty and knowledge systems in the process. In addition to these workshop products, we intended to initiate and foster enduring relationships among the diverse group of scientists, scholars, and thought leaders working on social systems throughout the region.

Our workshop design employed an overarching logic model, where attendees first brainstormed a core list of desired social outcomes for Great Lakes restoration and then created lists of the factors that enabled or constrained progress towards these outcomes. Finally, groups identified activities and strategies to progress towards the desired social outcomes, in response to the named enabling and constraining factors. Participants and the workshop leadership team then refined the top activities and strategies into 6 sets of priority, implementable SMARTIE (Specific, Measurable, Ambitious, Relevant or Realistic, Timebound, Inclusive, Equitable) recommendations.

Participants identified five core desired social outcomes:

(1) **Restoration and revitalization actions explicitly contribute to equitable human well-being;**
(2) **Communities are prepared, and receive support, for ongoing adaptation to change;**
(3) **Multiscale, equitable governance processes are operating;**
(4) **Restoration and revitalization actions and investments are contextual to place; and**
(5) **Environmental programs actively build a multigenerational and multicultural stewardship ethic that respects 'all our relations,' identities, and roles 'in a good way.''**

The group identified factors that enable and constrain progress towards the desired outcomes. These factors represented the groups' collective understanding of the relevant social conditions and dynamics of the Great Lakes system based on their experience and expertise. This experience and expertise likewise informed subsequent development of a list of activities and strategies. To reduce repetition and improve clarity, the list of activities and strategies were consolidated to remove duplicates and analyzed to identify themes. Repeated enabling themes included: authentic engagement with communities, supporting increased capacity for important components (e.g., boundary spanning organizations, awareness, and diverse local economies) of implementing these changes, the importance of community stories, and access to public green and blue spaces. Repeated constraining themes included: a lack of capacity and technical resources, structural racism, and a mismatch between the time scale of projects and the timelines required for building trust.

Most identified activities and strategies supported multiple desired outcomes, while some supported only one. Priority activities and strategies represented a range of themes, including: capacity building (i.e., increased capacity for communities to identify and achieve their goals); administrative culture shift (i.e., change in the culture of granting to ease the burden on applicants); place-based relationships with Tribal and First Nations and Métis and local communities; new progress metrics; and strengthening Great Lakes values, outreach, education, and stories. Participants felt strongly that it is a requirement to spend significant time and resources on relationship and trust building, program planning, and building capacity for communities to fully participate in remediation and restoration programs. Furthermore, these activities should be recognized by funding and implementing entities as critically important.

Each SMARTIE recommendation includes an overarching strategic recommendation, followed by multiple, tactical actions to implement the recommendations. **The six sets of strategic SMARTIE recommendations that were identified can be summarized as follows:**

(1) **Improve collaborative social infrastructure by strengthening boundary spanning organizations;**
(2) **Broaden the scope of environmental education through investments in local narrative infrastructure;**
(3) **Provide institutional support and funding for Indigenous stewardship methods, concepts, and practices with co-development of metrics;**
(4) **Co-develop core social values related to the Great Lakes;**
(5) **Create space within Great Lakes programs to better consider community dimensions and invest in community capacity; and**
(6) **Invest in the research and practice of developing quantitative and qualitative human and environmental well-being indicators and metrics.**

Through this process we produced a rich, in-depth agenda that includes practical, immediate, and long-term steps that are bold and far reaching. These steps have the potential to build space and capacity for communities to exercise their agency in choosing their futures, as well as change the narrative of the roles of communities and governments in the remediation and restoration of ecosystems — a narrative that contributes to not only ecosystem resilience but also to community resilience. This agenda provides government agencies, organizations, and individuals with tools to not only improve environmental quality, but to also repair social relationships that were damaged at the same time our ecosystems were degraded during the intensive industrial era.

We also identified aspirational values that were overarching across desired outcomes and important to any activity or strategy. These 'meta principles' include: Tribal sovereignty, justice and equity, adaptive management, and robust infrastructure to recognize multiple ways of knowing. They are important because environmental restoration that actively considers community values has more potential for communities to realize the potential benefits of the remediation and restoration.

Finally, we recognize the importance of harnessing this moment in time, a point when there is a convergence of catalysts including both historic and novel funding opportunities, and an increasing awareness of the importance of prioritizing social systems in these restoration efforts. There are both external opportunities to grow these practices (e.g., novel funding opportunities) and a strong internal interest among agencies, academic institutions, and NGOs to engage more deeply with and integrate community into ongoing projects (e.g., knowledge co-production), develop 'Centers of Excellence' that can serve these communities, and build and support a working community of practice of social science scholars working in Great Lakes spaces. We have the potential to write a future where we see that humans are part of the ecosystem, not as stressors, but as protagonists building a vibrant, sustainable, and equitable future for Great Lakes coastal communities.

Outcomes and Impacts

The most impactful outcome of the summit was the production of a white paper that has been widely disseminated. The report can be found in the USEPA Science Inventory at https://cfpub.epa.gov/si/si_public_record_Report.cfm?dirEntryId=359202&Lab=CCTE and on the Healing Our Waters Website at https://www.healthylakes.org/social-indicators-report. A summary of the workshop can be found at the USEPA Science Matters newsletter at https://www.epa.gov/sciencematters/rewriting-coexistence-and-sustainable-futures.

Future Plans

There is a group from the authors list who are interested in furthering the work that is presented in the report. They are developing a method for brainstorming how to implement recommendations through presenting the report and following the presentation with a session to list resources, opportunities, and barriers. This method has been piloted in the St. Louis River Estuary and will be tested in other venues when opportunities arise. The Coalition is using the recommendations and outcomes in their outreach and advocacy to the federal agencies implementing Great Lakes restoration and clean water initiatives, in Coalition materials and strategies, and with partners and funders.

Other efforts to implement this work include the publication of a journal article and beginning a community of practice. These efforts will continue.

Participant List

Participant's Name	Position	Expertise
Kathryn (Katie) Mika, PhD (co-lead, facilitator)	Postdoctoral Research Fellow in Urban Water Policy, NOAA CIGLR and School for Environment and Sustainability, University of Michigan, Ann Arbor, MI	Coastal water quality, Water policy, Sustainable water systems, urban water infrastructure, biodiversity, resilience
Kathleen (Katie) Williams, PhD (co-lead, facilitator)	Geographer, USEPA Great Lakes Toxicology and Ecology Division, Duluth, MN	Community engagement in environmental management, knowledge systems, place, ecosystem services, boundary work
Paul Seelbach, PhD (co-lead)	Professor of Practice (retired), School for Environment and Sustainability, University of Michigan, Ann Arbor, MI	Community engagement in restoration, coastal ecosystems
Andrea Armstrong, PhD	Conservation Social Scientist, The Nature Conservancy, Keene Valley, NY	Rural community dynamics, collaboration practice, DEIJ in conservation practice, coastal conservation
John Bratton, PhD	Senior Science Officer, Limnotech, Inc., Ann Arbor, MI	Great Lakes biophysical science, Co-lead of 2022 Great Lakes Science Advisory Board's, Great Lakes Science Strategy for the Next Decade
Natalie Chin, PhD	Climate and Tourism Outreach Specialist, Wisconsin Sea Grant, University of Wisconsin - Superior, Superior, WI; Duluth Parks Commission, MN	Actionable social science, climate change and recreation, environmental justice
Patrick Doran, PhD	Michigan Associate Director, The Nature Conservancy, Lansing, MI	Conservation ecology and planning, DEIJ in coastal conservation practice
Tim Ehlinger, PhD	Associate Professor Emeritus, Systems Change and Peacebuilding, UW-Milwaukee, WI	Policy implications for ecosystem services and effects on environmental health, human well-being and conflict
Deanna Erickson, MEd	Director, Lake Superior NERR; Superior, WI	Environmental education, knowledge co-production with communities, Tribal partnerships
Lissy Goralnik, PhD	Assistant Professor, Community Sustainability, Michigan State University, East Lansing, MI	Environment ethics, and experiential and environmental learning; self, communities, and place; environment and humanities; Great Lakes coastal communities
Elaine Ho-Tassone, PhD	Director, NORDIK Institute; Adjunct Professor, Life Sciences and Environment, Algoma University; Sault Ste. Marie, ON	Social and ecological sustainability, community bridge building, water resources, Indigenous community co-creation

Ryan Holifield, PhD	Professor and Chair, Department of Geography, University of Wisconsin - Milwaukee, WI	Governance, policy, and social and environmental justice; Great Lakes communities
Donna Kashian, PhD	Professor, Director of Department of Environmental Science, Director, United Nations Regional Centre of Expertise on Education for Sustainable Development (focus on Detroit/Windsor), Wayne State University, Detroit, MI	Disproportionate exposure of minority groups to aquatic contaminants, transformative research in urban sustainability
Meghan Klasic, PhD	Postdoctoral Associate, Minneapolis–St. Paul Long-Term Ecological Research (LTER) program, Department of Forest Resources, University of Minnesota, Minneapolis, MN	Environmental and collaborative governance, climate change adaptation, social-ecological systems, environmental justice
Chris McLaughlin, PhD	Executive Director, Bay Area Restoration Council, Hamilton, ON; Canadian Co-chair IJC Great Lakes Water Quality Board	Non-profit leadership, community engagement, governance, and policy related to Great Lakes restoration
Sarah Mills, PhD	Senior Research Specialist, Graham Sustainability Institute; Lecturer in School for Sustainability and Environment, University of Michigan, Ann Arbor, MI	Urban and regional planning, energy policy and climate change, rural community engagement in land use planning and policy
David Michener, PhD	Curator, University of Michigan Botanical Gardens; conducts research in braiding Indigenous knowledges and science, Ann Arbor, MI	Repatriation of Indigenous heritage, empowering and braiding (with Western ways) Indigenous ways of knowing
Rebecca Nixon, PhD	Assistant Professor, Geography and Spatial Sciences, University of Delaware, Newark, DE (previously at Purdue University, West Lafayette, IN)	Factors driving revitalization in Great Lakes coastal communities, social adaptation to climate change, water governance, environmental justice
Richard Norton, PhD, JD	Professor, Urban and Regional Planning, University of Michigan, Ann Arbor, MI	Planning law, sustainable development, land use and environmental planning, and coastal shorelands management
Deidre Peroff, PhD	Social Science Outreach Specialist, Wisconsin Sea Grant and Adjunct Professor, School of Freshwater Sciences, University of Wisconsin - Milwaukee, WI	Access to water resources among underserved communities, environmental justice and literacy, place-based environmental education, well-being and resiliency of Great Lakes coastal communities.
David Porter, PhD	Professor, English Language and Literature; University of Michigan, Ann Arbor, MI	Narrative as essential technology for community identity and communication, engaging students and local communities in the rich literary, environmental, and sociocultural

		histories of the Great Lakes region - examples - the [Detroit River Story Lab] and the [Great Lakes Writers Corps]
Jen Read, PhD (facilitator)	Director, Water Center, Graham Sustainability Institute, University of Michigan, Ann Arbor, MI	Great Lakes environmental history and governance, knowledge co-production (leads NOAA's National Estuarine Research Reserves (NERRS) Science Collaborative), exploring TEK via co-leading regional wild rice restoration
Mike Shriberg, PhD (facilitator)	Professor of Practice & Engagement; Director of Engagement, Cooperative Institute for Great Lakes Research and Michigan Sea Grant; School for Environment & Sustainability, University of Michigan	Water issues in Great Lakes, local and state energy policy, organizational change and leadership for sustainability
Emily Tyner, PhD	Director of Freshwater Strategy, University of Wisconsin - Green Bay, WI	Quantitative social science, citizen science, establishing new NERR that serves local communities including tribes
Julia Wondolleck, PhD (facilitator)	Associate Professor Emerita School for Environment and Sustainability Research Fellow Graham Sustainability Institute University of Michigan, Ann Arbor, MI	Inter-organizational and community-based collaborative processes that encourage and sustain ecosystem management initiatives, environmental dispute resolution
Jan Adamowski, PhD (reviewer)	Professor, Bioresource Engineering; Director, Integrated Water Resources Management Program, McGill University, Montreal, QC; Adjunct Professor, Institute for Water, Environment and Health, United Nations University	Integrated water resources management, participatory coupled human-natural-water systems, empowering marginalized communities
J Stuart Carlton, PhD (reviewer)	Research Assistant Professor, Director Coastal and Great Lakes Social Sciences Lab; Associate Director, IL-IN Sea Grant; Purdue University, West Lafayette, IN	Relationships between knowledge, values, trust, and behavior in Great Lakes coastal communities
Valoree Gagnon, PhD (reviewer)	Assistant Professor, Forest Resources and Environmental Science; Director, University-Indigenous Community Partnerships, Great Lakes Research Center; Michigan Technological University, Houghton, MI	University-community partnerships, research engagement, environmental Justice and Policy, toxic substances and holistic health, treaties and the government-to-government relationship, Indigenous wisdom in the Great Lakes region, environmental stewardship and the Seven Generations Philosophy
Joel Hoffman, PhD (reviewer)	Chief, Ecosystem Services Branch, National Health and Environmental	Sustainable, ecosystem-based management of Great Lakes coastal

	Effects Research Laboratory, USEPA, Duluth MN	ecosystems, assessing ecosystem services, coastal community revitalization
Sara Hughes, PhD (reviewer)	Associate Professor, Environmental Policy and Planning; Associate Director, NOAA Cooperative Institute for Great Lakes Research (engagement focus); School for Environment and Sustainability, University of Michigan, Ann Arbor, MI	Drinking water equity, infrastructure and climate finance, justice-centered climate policies, stormwater governance and green infrastructure, hazard management planning
Lucinda Johnson, PhD (reviewer)	Associate Director/Initiative Director for Water, Natural Resources Research Institute, University of Minnesota - Duluth MN; U.S. Co-chair of the Science Advisory Board - Science Priority Committee, International Joint Commission	Multidisciplinary study of aquatic ecosystems, decision making in the environmental sciences, indicators of coastal ecosystem integrity, communicating science to end users
Michael Waasegiizhig Price, MS (reviewer)	TEK Specialist, Great Lakes Indian Fish and Wildlife Commission Anishinaabe, Enrolled member of Wikwemikong First Nations, Canada	Integration of Anishinaabe language and cultural perspectives into research methods and resource management to make science more culturally relevant