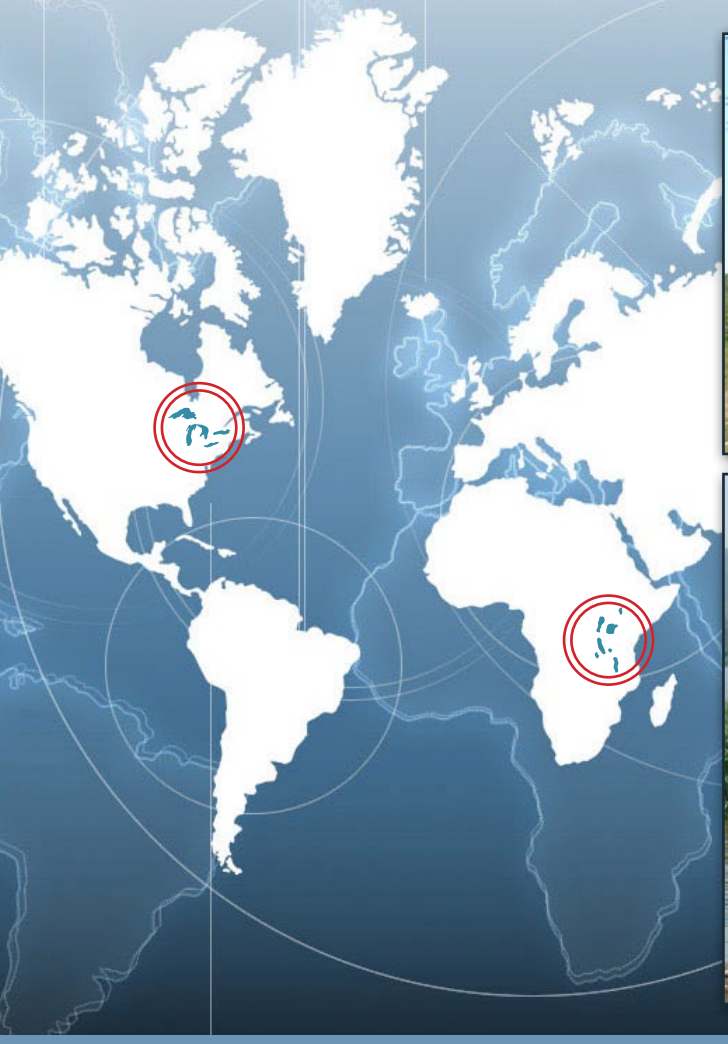
Transboundary Lake Basin Management:

Laurentian and African Great Lakes



Lessons in Lake Twinning: A Synthesis of Dialogues on Transboundary Lake Management

The twinning of lake-governance systems offers unconventional learning opportunities. It allows twinned organizations to learn from each other's mistakes and use that information to explain to stakeholders why a management practice should not be tried. Similarly, they can learn from successes and use these to good advantage. Importantly, the notion of twinning fosters collaboration and information sharing among a wide range of professionals and stakeholders about science and management. Such cross-fertilization of ideas provides decision-makers a stronger base for sound political decisions.

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Twinning helps organizations be more strategic in their initiatives and use of funds and staff. Organizations that engage in collaborative approaches to natural resource management have the benefit of leveraging resources with each other so that scarce time, staff, and funds can be put to best use. Research agendas can be developed in ways that seek solutions to shared problems, not simply focus on local or immediate needs.

SOME LESSONS LEARNED FROM THE LAKE TWINNING EXERCISE:

Institutionalizing science and policy linkages is vital for managers of large lake ecosystems with large watersheds that transcend multiple jurisdictional boundaries. There is clear recognition that science should not be confined to open waters but rather should encompass watershed and socio-economic issues that impact lake water quality and quantity. Socio-economic considerations should include full-cost accounting of shared costs and benefits of resource uses as part of better understanding of the ways and means of achieving sustainability. Institutional arrangements are needed to support development of linkages between science producers and decision makers, and to foster integrated water resources management practices that will catalyze implementation of basin-wide policies to sustain long-term resource protection. These should include a visioning process with the public and stakeholders to obtain buy-in and support for science-based management programs and policies.

African organizations can benefit from studying the North American approach of integrated multi-sectoral management of lake resources, and North American organizations can benefit from co-developing policy appraisal techniques with their younger sister organizations in Africa. The new governance structures being implemented in Lake Victoria provided a useful contrast to the century old structure in the Laurentian Great Lakes. The regular reporting to a tri-national ministerial committee is instructive: something that North American governments and the IJC do not have.

Decision-making in African Great Lakes needs to be expanded to include a wider group of stakeholders. The decision making in North America appears to be a multi-organization and multi-stakeholder process, whereas the opposite is true for African Great Lakes where decisions are made and implemented by relatively much smaller groups. In particular, community engagement is a critical element. The East African lake commissions have just started a coordinated process through development of the shared vision, while the North America process was well entrenched through various voluntary associations and groupings, including academia. Consequently, public influence on policy seems to be more evident in North American lakes than in the East African, though first steps have been taken there.

The beach management units used in African Great Lakes offer a model that could possibly be explored for applicability to situations in the Laurentian Great Lakes. This model goes well beyond the Remedial Action Plan (RAP) program and connected to watershed and sub-watershed management with intense civic engagement supported by government technical expertise. Participants, through participation in the workshops, gained new over-arching perspectives, knowledge, and understanding of global

OUTCOME OF THE LAKE TWINNING EXERCISE: A COOPERATION FRAMEWORK

The Lake Twinning dialogues provided the opportunity for continued comparative analysis of lake management between the North American and African systems. This has led to development a framework for cooperation and collaboration on Great Lakes systems through enhanced science and policy linkages. The following high-priority areas for joint research, studies, and investigations have been identified:

- **Climate change** (adaptation/mitigation), with a focus on modeling change in lake ecosystems, undertaking vulnerability mapping, and developing management strategies for adaptation.
- **Governance structure,** with a focus on comparative analysis of governance structures to facilitate policy, legal and institutional reform for transboundary waters management.




issues in fresh-water natural resource management. These will be important in identifying common theoretical and applied fisheries resource management concepts, defining ecosystem health for the management of large lake systems, and clarifying the relationship between the two.

The principles of Integrated Water Resources Management (IWRM) are being applied in both Great Lakes systems although to quite differing levels of implementation. In the East African region, this principle now forms the basis for administrative water resources management arrangements in the various countries; however this is not the case in North America countries, which base theirs on federal and state systems. The concept of adaptive management was welcomed and could be an added tool to IWRM for resources (fish and water) management in both systems.

Uncertainties regarding fish biomass and fish catches in the African Great Lakes are still too great to form the basis for adaptive management. Therefore the precautionary approach would still be the optimal way of addressing fisheries problems as too many livelihoods and investments are at stake. The (North American) GLFC considers that adaptive management has the potential to allow a greater understanding of how freshwater ecosystems respond to human actions, including fishing and land use in the drainage basin. Adaptive management can lead to effective resource management approaches if there is sufficient scientific and political will to allow truly adaptive management regimes to occur.

It is critical to formulate an agreed methodology for assigning value to environmental benefits so that benefits can be shared fairly and conflict is avoided. By this, riparian countries (or appointed bodies such as commissions) would inventory all the benefits generated for the entire basin, including use of water for drinking, hydro power, tourism fees, fishing permit fees, permits for aquaculture, bio-diversity fees, and cultural importance fees. Rates or fees should be set at the national levels but collected locally, which would encourage broader engagement.

Development of efficient mechanisms for information and data exchange is essential and forms the core of joint monitoring and assessment. Success in developing such mechanisms will require adoption of common terminology among riparian nations; harmonized or comparable methodologies for collecting data and information; uniform reporting procedures; and identifying targets for planning purposes across the riparian nations.

- **Human wellbeing,** with a focus on educating communities on the relationship between their actions and the health of lakes, and the linkages between the status of lakes (water quality) and human wellbeing. It was also suggested that joint research should be undertaken for natural resources evaluation to determine the economic value of the environmental services provided by the Great Lakes.
- **Public-private partnerships,** with a focus on systematic analysis of partnerships, engagement of the private sector, fostering public-private partnerships, and sustainability of these partnerships.
- **Gender equity,** with a focus on involving women when developing a new water management regime or water policies.
- **Ecosystem approaches and management,** with a focus on integrated management of land, water and living resources to promote conservation and sustainable use of resources. Some topics that need detailed research are groundwater aquifer management, invasive species, pollution control, water quality standards, and effective monitoring strategies for ecologically complex interactions.

SUCCESSFUL TWINNING: A MODEL

The Lake Victoria Fisheries Organization (LVFO) and the Great Lakes Fishery Commission (GLFC) have twinned for nearly two decades, to their mutual benefit.

Similarities and Shared Challenges

Lake Victoria and the Laurentian Great Lakes both have thriving freshwater fisheries and resident populations dependent on the resources for food and water. They are both integrated into global economic markets. Both regions face similar challenges such as sustaining fish stocks, dealing with changing water levels, managing habitat loss, preventing and controlling invasive species, integrating land use decisions into ecosystem management, and addressing negative externalities of globalization. With Lake Victoria shared by three countries and the Laurentian Great Lakes by two countries (including eight states, the Province of Ontario, and indigenous populations), sustainable management of the fisheries involves biological and political complexities.

How it is Done

The two organizations signed a memorandum of understanding that formally twins them and outlines areas for collaboration. It provides a formal, non-binding linkage between these two major fishery institutions and is designed to help them better understand the fisheries resource of large bodies of freshwater; improve interactions and outreach with the people who depend on the resources; enhance contributions to scientific and other forums; and encourage research and student mentoring.

Scientific Exchange

The LVFO and the GLFC have committed to the free exchange of social and natural science information, when appropriate, to improve their mutual understanding of the natural processes of large freshwater ecosystems and their fisheries. Both organizations have agreed to designate staff liaisons to keep the relationship fresh and consistent with the memorandum and have agreed to meet periodically to exchange information and conduct other business of mutual interest.

Collaboration Amongst Officials

Scientists in both organizations pledged to collaborate on scientific papers and presentations, with the goal of publication in respected journals or delivery at professional conferences. Professional staff members at the LVFO and the GLFC are active members of the scientific community. They are called upon regularly to contribute to the peer-reviewed literature and to present their research findings to the broader community during symposia and conferences. Papers and presentations are consistent with the research direction outlined in either organization's research programs or in the large lakes research theme to be developed jointly by the LVFO and the GLFC. The overall intent is to bring more transboundary, cross-continental thinking into the literature.

Identification of and Commitment to a Shared Research Agenda

The twinned organizations agreed to work together to develop a "research theme" for large freshwater lakes and their fisheries and to provide a set of research questions to guide solicitation and development of meaningful research projects. They have also agreed to encourage research by fostering student mentoring, supporting student exchange, providing student access to office space and archives, and making senior scientific staff available to mentor researchers.

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