



Environment
Canada

Environnement
Canada

Canada

The Lake Winnipeg Basin Initiative: Update on Deliverables



Lake Winnipeg Research Consortium
Science Meeting
March 24, 2010

Nancy Hnatiuk, Lake Winnipeg Basin Office

Purpose of Today's Presentation

To provide an update on the Lake Winnipeg Basin Initiative (LWBI).

- Background and Context
- Review of LWBI Objectives and Expected Results
- Update on Activities and Progress



Background and Context for the LWBI

- In 2004, Manitoba requested federal assistance in addressing science needs within the Lake Winnipeg Basin and to facilitate the coordination of stakeholder efforts in this transboundary watershed.
- In 2005, a \$1.1 million annual investment announced to enhance water quality monitoring on the Red River and south basin of Lake Winnipeg.
- Budget 2007 - Action Plan on Clean Water, including \$17.7 million in funding for the Lake Winnipeg Basin Initiative (LWBI).



LWBI - Expected Results

Near-Term

- A model watershed management approach for the Lake Winnipeg Basin that can be applied in other key inter-jurisdictional watersheds in Canada;
- An improved science-based understanding of the dynamics of Lake Winnipeg and its Basin for more informed decision making;
- A Canada-Manitoba Agreement to establish a long-term collaborative and coordinated approach between both governments, to support the sustainability of the lake.



LWBI Expected Results

Long-Term

- Reduction in the magnitude and extent of harmful algal blooms;
- Reduced beach closures and improved water quality for recreation;
- Restoration of the ecological integrity of Lake Winnipeg;
- A sustainable fishery.



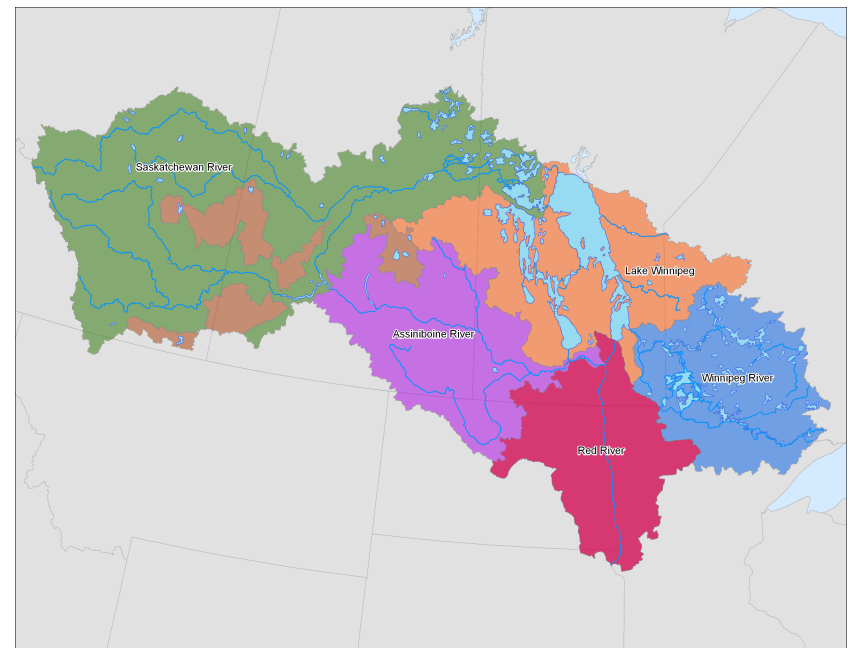
LWBI Components

- Three components to the LWBI:
 - Facilitating governance;
 - Lake Winnipeg Basin Stewardship Fund;
 - Science (Research, information and monitoring).



Facilitating Governance - Expectations

- Work with existing water governance mechanisms to foster integrated approaches to protect the health of the lake.
- Explore the need for an overarching basin mechanism to contribute to a basin-wide strategy for water management.
- Work with Manitoba to negotiate a CA-MB Agreement on Lake Winnipeg.



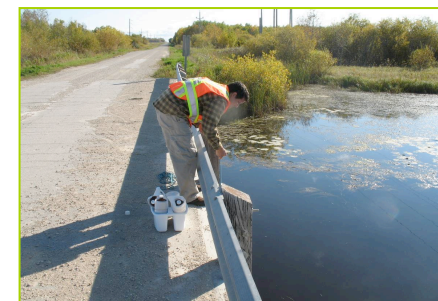
Facilitating Governance - Progress

- A Lake Wpg Basin Office was established to provide a forum for communication and coordination.
- Environment Canada (EC) participates on Manitoba's Lake Wpg Stewardship Board (ex-officio).
- EC co-chairs a fed/prov Lake Winnipeg Basin Committee and science sub-committee.
- A Canada-Manitoba Agreement on Lake Winnipeg is being finalized with Manitoba.



LW Basin Stewardship Fund (LWBSF) - Expectations

- Supports projects having concrete, demonstrable results in reducing pollutants, particularly nutrients.
- Targets a one-third federal contribution.
- Projects must meet one of the following priorities:
 - reducing nutrient inputs from rural and urban sources;
 - controlling point and non-point sources of pollution;
 - rehabilitating priority aquatic ecosystems that support nutrient reduction and sequestration; and
 - enhancing research and monitoring capacity to assist in decision making.



Stewardship Fund - Progress

- Technical advisory committee established to review the technical feasibility of proposals.
- Public advisory committee provides funding recommendations.
- Calls for letters of intent due October 1 and April 1.
- Seventeen projects totalling \$1.23 M approved in first two rounds. Third round is in final review. Round 4 deadline for letters of intent is April 1, 2010.
- Projects from across the watershed – SK, MB, Ont.



Lake Winnipeg Basin Stewardship Fund Time Table

Activities	(Round 4) Spring 2010 Submissions	(Round 5) Fall 2010 Submissions
Deadline for Letters of Intent	April 1st, 2010	October 1st, 2010
For Approved letters of Intent – request for detailed proposal sent to applicants For Letter of Intent Not Approved – letter of explanation	April 16th, 2010	October 15th, 2010
Deadline for Proposals	May 31st , 2010	November 30th, 2010
Estimated Date for Notifying Successful Candidates	September 30th, 2010	April 15th, 2011

Projects submitted for the Fall round of funding should be planned for a start date of no earlier than April 1st of the following calendar year. Projects submitted for the Spring round should begin no sooner than October 1st of the same calendar year. Environment Canada's fiscal year runs April 1st to March 31st. Funding for the Lake Winnipeg Basin Stewardship Fund ends March 31, 2012



LWBI Science Expectations

Develop and implement a science plan for Lake Winnipeg that provides the necessary research to inform policy and programs; and supports decision making related to nutrient management issues of the Lake.



Environment
Canada

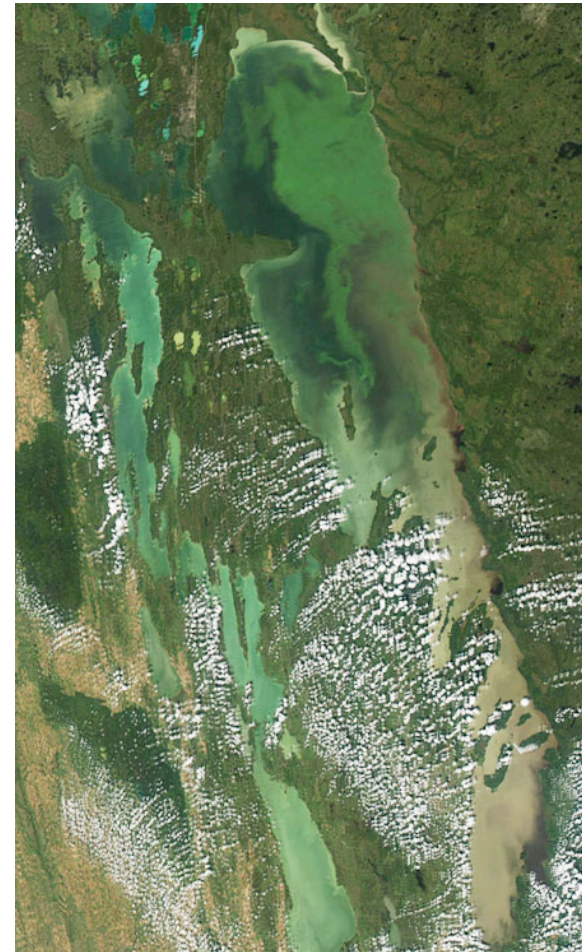
Environnement
Canada

Science Plan – Deliverables and Progress

1. Characterize the physical, chemical and biological nature of Lake Winnipeg.

Activities:

- Physical limnology and hydrodynamic models for Lake Winnipeg and Lake of the Woods (LoW). (Yerubandi, Booty)
- Study of eutrophication, chemical hydrology, and food web dynamics of Lake Winnipeg. (Wassenaar)
- Remote sensing to assess algal blooms. (Binding, Bukata)
- Nutrient bioavailability in Lake Winnipeg and major rivers. (Watson et al)
- Nutrient dynamics in LoW (Watson, Wassenaar)
- Spatial-temporal dynamics of phosphorous in LW (Hiraert-Baer, Wassenaar, Watson)

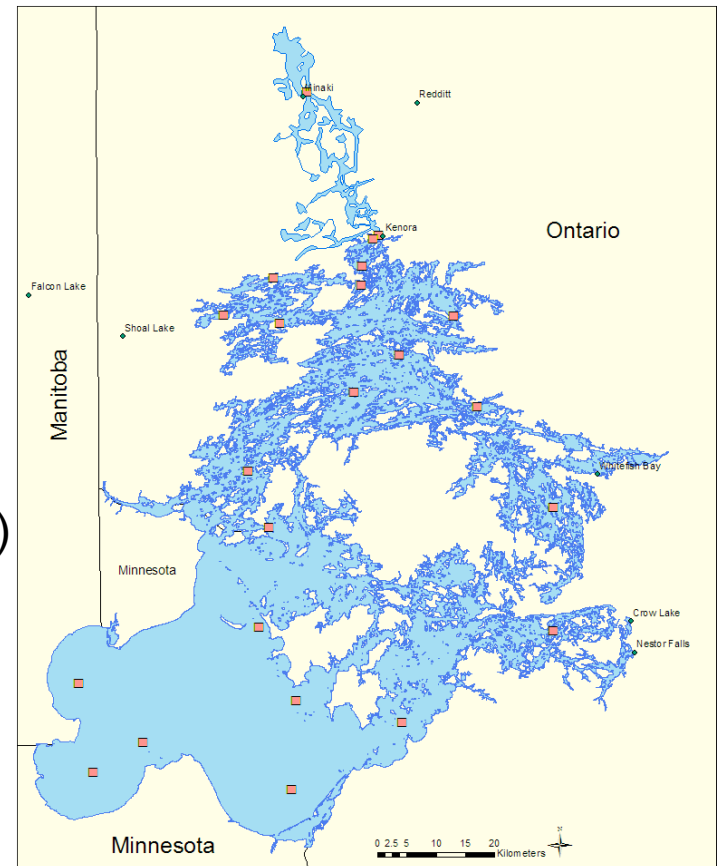


Science Plan – Deliverables and Progress

2. Establish watershed and in-lake nutrient budgets.

Activities:

- Monitoring and surveillance initiated on Lake of the Woods (Neilson, Klawuun, et al)
- Lake of the Woods nutrient surveys (Neilson et al)
- WQ Monitoring Site Comparisons and F-P data quality assessments (Donald)
- Bio-monitoring activities (CABIN) in sub-basins (Donald, Glozier, et al)
- CABIN based diagnostic indicators development (Baird)
- Reservoir Nutrient Sequestration Study (Parker)



Science Plan – Deliverables and Progress (cont'd)

3. Assess and manage non-point source contributions of nutrients in the watershed and ultimately to the lake, and the efficacy of agricultural Beneficial Management Practices (BMPs) on the landscape.

Activities:

- Investigate nutrient sources in snowmelt runoff from agricultural fields (Chambers, Culp, et al)
- Quantify the transport of nutrients from agriculturally-dominated watersheds through tributaries of the Red and Assiniboine rivers (Chambers, Culp, Elliott, Benoy)
- Evaluate how ecological conditions modify removal of nutrients from tributaries of the Red and Assiniboine rivers (Culp, Grapentine, Chambers)
- Quantify the nature and variability of hydrologic inputs to Lake Winnipeg (Marsh, Bonsal, Spence)
- Investigate climate change impacts on hydrology/nutrient transport in LW watershed. (Prowse, Dibike, Bonsal)

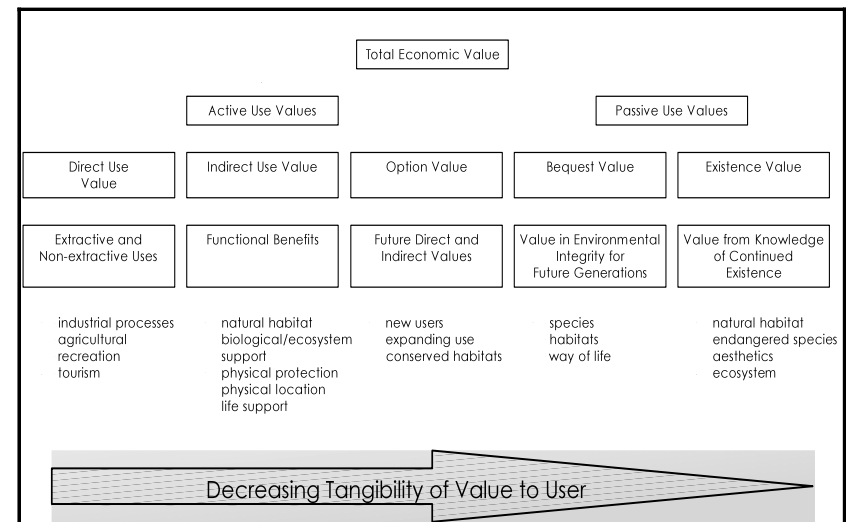


Science Plan – Deliverables and Progress (cont'd)

4. Assess the economic value of water, and how effective regulatory instruments and social policies are in managing nutrient inputs on a watershed scale.

Activities:

- Report “*Status of Current Work – Measurement and Valuation of Ecological Goods and Services in Canada*” completed.
- Analytical framework developed



Science Plan – Deliverables and Progress (cont'd)

5. Develop a single window information portal to promote data sharing with key federal partners and ensure consistent and reliable delivery of relevant information. (Hall, Booty, et al)

Activities:

- Beta version developed and being tested by partners
- Workshops to obtain input on user needs
- Ongoing capacity building and feedback from partners

6. Results of LWBI research and monitoring will be used to establish nutrient objectives for Lake Wpg and major tributaries. Performance indicators will be developed to assess the ecological health of Lake Wpg and the watershed.

Activities:

- *State of the Lake* report (Conly, Donald, Levesque, et al)
- Network Optimization assessment and analysis of lake sampling networks (Conly et al)
- Nutrient objectives/indicators development (Bibeault, Donald, Parker, Glozier)



Science Priorities for 2010-11

- Finalize and publish *State of the Lake* report with Manitoba
- Testing and adjustments to information portal
- Report outlining the spatial extent of monitoring network for Lake Winnipeg
- Interim report to assess nutrient loads in major rivers and potential link with algal blooms in Lake Winnipeg
- Continued Monitoring and Research:
 - Reservoir nutrient sequestration
 - Snowmelt simulations to measure nutrient contributions
 - Nutrient sampling of streams in the LaSalle and Morris watersheds
 - Completion of global and regional climate model scenarios for the watershed
 - Validate hydrodynamic and water quality model
 - Assessment of Lake Winnipeg thermal structure and potential water quality issues under climate scenarios
- Begin work to develop nutrient objectives and performance indicators



EC Research Plans on the MV Namao - Summer 2010

- Water Quality Monitoring (Parker)
 - Bottom trawling on the south basin during each of the spring, summer and fall cruises
 - Implementation of full shoreline/littoral sampling program at 15 sites in south Basin (5 shoreline, 5 littoral, 2 Netley Marsh, 2 Libau Marsh)
 - Potential night operations to explore diurnal vertical migrations of various taxa
- Eutrophication, chemical hydrology, and food web dynamics of Lake Winnipeg (Wassenaar)
 - Depth profiling of water quality parameters (all cruises, all stations)
 - Fish, benthos and cormorant sampling (isotopes, Hg, trace metals)
Enhanced focus on foodweb data collections with extensions to waterbirds (cormorants)
 - Isotopic profiling of lake water



EC Research Plans on the MV Namao Summer 2010

- Physical Limnology and Modeling (Yerubandi)
 - Continue Lake Winnipeg physical limnology & water quality measurements at fixed moorings.
 - Field measurements of meteorology and lake thermal conditions
 - Assessment of Lake Winnipeg thermal structure and potential water quality issues under climate scenarios.
- Continued collection and analysis for nutrient bioavailability and influence on water quality, food webs and harmful cyanobacterial blooms. (Watson)
 - extent, intensity and trends in algal/cyanobacterial blooms, spatial and temporal dynamics, physiological status, indigenous and invasive species and major toxins in LW
 - biological community at algal and other key trophic levels (zooplankton, benthos), and the impact of nutrient enrichment and invasive species on foodweb.





Thank you!



Environment
Canada

Environnement
Canada