

## **Presentations and Research Related to the Great Lakes Governors' and Premiers' Science Strategy Goals**

On December 13, 2005 the Great Lakes Governors and Premiers signed the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement. Among its provisions is Article 302, "Science:"

1. The Parties commit to provide leadership for the development of a collaborative strategy with other regional partners to strengthen the scientific basis for sound Water management decision making under this Agreement.
2. The strategy shall guide the collection and application of scientific information to support:
  - a. An improved understanding of the individual and Cumulative Impacts of Withdrawals from various locations and Water sources on the Basin Ecosystem and to develop a mechanism by which impacts of Water Withdrawals may be assessed;
  - b. The periodic assessment of Cumulative Impacts of Withdrawals, Diversions and Consumptive Uses on a Great Lake and St. Lawrence River watershed basis;
  - c. Improved scientific understanding of the Waters of the Basin;
  - d. Improved understanding of the role of groundwater in Basin Water resources management; and,
  - e. The development, transfer and application of science and research related to Water conservation and Water use efficiency.

Similar commitments were included in Section 1.4 of the Great Lakes-St. Lawrence River Basin Water Resources Compact (Compact) that became State and federal law on December 8, 2008.

Since the signing of the Agreement, and the Compact becoming law, the Governors and Premiers have invited a number of presentations and research related to their science goals:

**"An improved understanding of the individual and Cumulative Impacts of Withdrawals from various locations and Water sources on the Basin Ecosystem and to develop a mechanism by which impacts of Water Withdrawals may be assessed."**

- Tom Crane of the Great Lakes Commission presented "*Opportunities to Improve Ways of Measuring and Estimating Consumptive Uses in Great Lakes Water.*" May 31, 2007 International Association for Great Lakes Research Conference.
- Gillian Walker with Environment Canada presented, "*The Canadian Water Availability Indicators Initiative: Great Lakes Pilot.*" May 21, 2009 International Association for Great Lakes Research Conference.
- Howard Reeves with the U.S. Geological Survey presented, "*A Map to Change the World: Enabling Environmentally Based Water Management Across the Great Lakes Region.*" May 21, 2009 International Association for Great Lakes Research Conference.

- Laura Seaman of the Council of Great Lakes Governors presented, “*Assessing and Managing Water Use Impacts in the Great Lakes Basin.*” May 19, 2010 at the International Association for Great Lakes Research Conference.
- Laura Seaman of the Council of Great Lakes Governors presented, “*Developing a Cumulative Impact Assessment for the Great Lakes Basin.*” June 2, 2011 at the International Association for Great Lakes Research Conference.

**“The periodic assessment of Cumulative Impacts of Withdrawals, Diversions and Consumptive Uses on a Great Lakes and St. Lawrence River watershed basis.”**

- Sam Bellamy of Aqua Resources presented, “*Calculating the Consumptive Use of Water Withdrawals in the Great Lakes Basin – Status of current methodologies and recommendations for enhancement.*” May 23, 2008 International Association for Great Lakes Research Conference.
- Sam Bellamy of Aqua Resources presented, “*Development of a Methodology for Calculating Consumptive Water Use within the Province of Ontario.*” May 21, 2009 International Association for Great Lakes Research Conference.

**“Improved scientific understanding of the Waters of the Basin.”**

- Adam Fox of the U.S. Army Corps of Engineers (USACE) presented on the “*Great Lakes Biohydro Information Base.*” May 31, 2007 International Association for Great Lakes Research Conference.
- Lynne Milford of the Ontario MNR presented, “*A Tiered Water Budget Approach.*” May 23, 2008 International Association for Great Lakes Research Conference.

**“Improved understanding of the role of groundwater in Basin Water resources management.”**

- Sue Cheng from University of Michigan’s School of Natural Resources and Environment presented “*Estimating Groundwater Withdrawal Effects on Instream Temperatures Using a Generalized River Heat Exchange Model.*” May 31, 2007, International Association for Great Lakes Research Conference.
- Mike Shantz of Environment Canada presented “*Watershed Characterization in the Ontario Great Lakes Basin.*” May 31, 2007, International Association for Great Lakes Research Conference.
- Cam Baker of the Ontario Ministry of Environment presented, “*Ontario’s Groundwater Mapping Program.*” May 21, 2009 International Association for Great Lakes Research Conference.
- Ross Kelly of the Ontario Geological Survey presented, “*The Ontario Geological Survey’s Surficial Aquifer 3-D Mapping Program.*” May 21, 2009 International Association for Great Lakes Research Conference.

**“The development, transfer and application of science and research related to Water conservation and water use efficiency.”**

- Glen Pleasance of the Durham Region of Ontario and the Canadian Water and Wastewater Association presented “*Seven Months of Data from Durham Region’s*

- Water and Energy Efficiency Community.*” May 31, 2007, International Association for Great Lakes Research Conference.
- Laura Kaminski of the Great Lakes Commission presented, “*Case Studies of Successful Public Sector Water Conservation Strategies: Technologies and Practices for Conserving Water.*” May 23, 2008 International Association for Great Lakes Research Conference.
  - Jill Jonas of the Wisconsin Department of Natural Resources presented, “*Developing Water Conservation and Efficiency Objectives for the Great Lakes Basin.*” May 23, 2008 International Association for Great Lakes Research Conference.
  - Joe V. DePinto of Limno Tech Inc. presented “*Water Footprint Pilots at Four Great Lakes Industrial Facilities.*” May 16, 2012 International Association for Great Lakes Research Conference.

**IAGLR presentations in multiple categories or on additional topics:**

- Rob Messervey provided an introduction on behalf of Susan Chiblow of the Chiefs of Ontario who had planned to present “*Aboriginal Traditional Knowledge and Source Water Protection: First Nation’s View on Taking Care of Water.*” May 31, 2008 International Association for Great Lakes Research Conference.
- Danielle Kreeger of the Partnership for the Delaware Estuary presented on the “*Development of an Ecosystem-Based Science Strategy for the Delaware Estuary and Watershed.*” May 31, 2007 International Association for Great Lakes Research Conference.
- Kathleen Padulo, on behalf of Sue Chiblow with the Chiefs of Ontario, presented, “*Engaging Ontario’s First Nations in Scientific and Water Policy Initiatives.*” May 23, 2008 International Association for Great Lakes Research Conference.
- Mary DeLeary of the Union of Ontario Indians’ Women’s Water Commission presented, “*Ontario First Nations Perspectives on the Science Strategy of the Great Lakes - St. Lawrence River Basin Sustainable Water Resources Agreement.*” May 23, 2008 International Association for Great Lakes Research Conference.
- John Manitowabi of the Wikwemikong Unceded Nation presented, “*Results of Biophysical Inventory of Species at Risk in the Shoreland Environment of E. Manitoulin Island.*” May 23, 2008 International Association for Great Lakes Research Conference.
- George Duckworth from the Ontario Ministry of Natural Resources (MNR) presented, “*MNR’s Aboriginal Traditional Knowledge Strategy.*” May 23, 2008 International Association for Great Lakes Research Conference.
- Steve Damaia of the Ontario MNR presented, “*Lflow - A Data Collection and Analysis Package to Support Low Streamflow Surveys.*” May 23, 2008 International Association for Great Lakes Research Conference.
- Howard Reeves of the U.S. Geological Survey presented “*Water Availability and Use in the Great Lakes Basin.*” May 23, 2008 International Association for Great Lakes Research Conference.
- Alex Mayer of Michigan Technical University presented, “*Modeling and Analyzing the Use, Efficiency, Value, and Governance of Water in the Great*

- Lakes Region through an Integrated Approach.*” May 23, 2008 International Association for Great Lakes Research Conference.
- Barb Hodgins of the Town of Ajax, Ontario, presented, “*Challenges of Developing Adaptive Environmental Regulatory Policy.*” May 23, 2008 International Association for Great Lakes Research Conference.
  - Jonathan Staples with the Ontario Ministry of Natural Resources presented, “*Great Lakes—St. Lawrence River Basin Sustainable Water Resources Agreement—Information and Science Provisions and Related Initiatives.*” May 21, 2009 International Association for Great Lakes Research Conference.
  - Alex Mayer of Michigan Technical University presented, “*Update on Modeling and Analyzing the Use, Efficiency, Value and Governance of Water in the Great Lakes Region Through an Integrated Approach.*” May 21, 2009 International Association for Great Lakes Research Conference.
  - Fabio Tonto of Pollution Probe presented, “*The Ottawa-Gatineau Watershed Atlas.*” May 21, 2009 International Association for Great Lakes Research Conference.
  - Ron Plain with the Aanishnaabek of Aamjiwnaang presented, “*A Community Tie—The Connection of the Aanishnaabek of Aamjiwnaang with the St. Clair River.*” May 21, 2009 International Association for Great Lakes Research Conference.
  - Trevor Boston with Greenland International Consulting presented, “*Water Balance Quantification in the Trent River Watershed: Validation of Ungauged Tributaries and Impact of Storage Variables.*” May 21, 2009 International Association for Great Lakes Research Conference.
  - David Van Vliet of Aqua Resources presented, “*Water Quantity Risk Assessments in Ontario: A Great Lakes Headwaters Pilot Project.*” May 21, 2009 International Association for Great Lakes Research Conference.
  - Caroline Anderson of Quebec’s Ministère du Développement durable, de l’Environnement et des Parcs (Ministry of Sustainable Development, Environment and Parcs) presented “*Sustainable use of Quebec’s Water Sources Within the Context of the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement.*” May 16, 2012 International Association for Great Lakes Research Conference.
  - Peter Johnson of the CGLG presented “*Linking Science and Policy to Improve Protections for Regional Water Resources*”. May 16, 2012 International Association for Great Lakes Research Conference.
  - Jean-François Cyr of the Centre d’expertise hydrique du Québec (Quebec’s Centre of hydrological expertise) presented “*Assessing the Hydrological Impact of Climate Change on the Quebec Part of the St. Lawrence River Subwatersheds*”. May 16, 2012 International Association for Great Lakes Research Conference.
  - Annie-Claude Parent of Laval University presented “*Climate Analogues as Guides for a Water Conservation Adaptation Study to Climate Change*”. May 16, 2012 International Association for Great Lakes Research Conference.
  - Mike Molnar of the Indiana Department of Natural Resources presented, “*Status of Water Use Registration, Permitting and Water Conservation and Efficiency*

- Efforts as required by Indiana's Implementation of the Great Lakes Compact*". June 3, 2013 International Association for Great Lakes Research Conference.
- Mike Piskur of CGLG presented "*Assessing Cumulative Water Use Impacts for the Great Lakes-St. Lawrence River Basin*". June 3, 2013 International Association for Great Lakes Research Conference.
  - Howard Reeves of the U.S. Geological Survey presented "*Development and Implementation of methods to estimate ungaged streamflows and track water use in the Great Lake Basin*". June 3, 2013 International Association for Great Lakes Research Conference.
  - Caroline Anderson of Quebec's Ministère du Développement durable, de l'Environnement et des Parcs (Ministry of Sustainable Development, Environment and Parks) presented "*Cumulative Impact Assessment of Water Withdrawals in Quebec: Better Protect and Conserve Water Resources of the Great Lakes-St. Lawrence River Basin*". June 3, 2013 International Association for Great Lakes Research Conference.
  - Joe Smith of NOAA-GLERL presented "*Web interface to assist with the periodic assessment of withdrawals, consumptive uses, and diversions per the Great Lakes - St. Lawrence River Basin Sustainable Water Resources Agreement*". May 29, 2014 International Association for Great Lakes Research Conference.
  - Mike Piskur of CGLG presented "*A Cumulative Impact Assessment of Water Uses in the Great Lakes-St. Lawrence River Basin*". May 29, 2014 International Association for Great Lakes Research Conference.
  - Jonathan Staples of the Ontario Ministry of Natural Resources and Forestry presented "*Reporting Ontario's Water Use under the Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement.*" June 9, 2016 International Association for Great Lakes Research Conference.
  - Steve Cole of the Great Lakes Commission presented "*Human Use of the Great Lakes Water Resources: What We Know and Don't Know.*" June 9, 2016 International Association for Great Lakes Research Conference.
  - International Joint Commission staff presented "*Protecting the Great Lakes from Harmful Withdrawals and Diversions: Progress and Prospects.*" June 9, 2016 International Association for Great Lakes Research Conference.
  - Drew Gronewold of NOAA-GLERL presented "*Advances in binational coordination of overlake precipitation data for Great Lakes water management.*" June 9, 2016 International Association for Great Lakes Research Conference.
  - John Dungavell of the Ontario Ministry of Natural Resources and Forestry presented "*Implementation of the Sustainable Water Resources Agreement in the Province of Ontario.*" May 16, 2017 International Association for Great Lakes Research Conference.
  - Mike Piskur of GLSLGP presented "*A Regional Science Strategy for Water Uses from the Great Lakes-St. Lawrence River Basin.*" May 16, 2017 International Association for Great Lakes Research Conference.
  - Steve Cole of the Great Lakes Commission presented "*Human Uses of Great Lakes - St. Lawrence Water: What We Know and Don't Know.*" May 16, 2017 International Association for Great Lakes Research Conference.

- Jim Nicholas of Nicholas h2o presented “Water Use of Thermoelectric Power Production in the Great Lakes-St. Lawrence River Basin.” May 16, 2017 International Association for Great Lakes Research Conference.
- Michael Polich of the Great Lakes Commission presented “*Understanding Uses of Great Lakes - St. Lawrence Water: Trends and Opportunities.*” June 20, 2018 International Association for Great Lakes Research Conference.
- Ann McCammon Soltis of the Great Lakes Indian Fish and Wildlife Commission presented “*Using Traditional Ecological Knowledge for Water Management.*” June 20, 2018 International Association for Great Lakes Research Conference.
- Tim Bruno of the Pennsylvania Department of Environmental Protection presented “*Water conservation and efficiency training and education under the Great Lakes Compact.*” June 20, 2018 International Association for Great Lakes Research Conference.
- Jonathan Staples of the Ontario Ministry of Natural Resources and Forestry presented “*Reporting Ontario's Water Use under the Sustainable Water Resources Agreement.*” June 20, 2018 International Association for Great Lakes Research Conference.