# Ripple Effects

*Volume 5, August 2003*

## Contents



*Dear Friend of Lake Ontario and the St. Lawrence River:*

*The Public Interest Advisory Group has had a busy spring. We held public meetings in Cornwall and Niagara-on-the-Lake, Ontario, and in Wilson, New York. Thank you to those that attended these meetings. We also had a members meeting in Greece, New York, where we mapped out our communications plan for years four and five of the Study.* One of the highlights of the plan is that we will be holding 15 public meetings in the summer of 2004! By then, we will be presenting you with different plan options developed by the Plan Formulation and Evaluation Group.*

*We are having meetings this summer and fall in the following locations:*

*Sodus Bay, New York .....September 10, 2003*

*Montreal, Quebec .....September 24, 2003*

*Please visit the Study website at www.losl.org as the meeting dates approach for information about the time and location of the meeting nearest you.*

*The opinions expressed at our meetings by community members provide valuable information to the Study Team. If you would like to request a PIAG presentation for your interest group, please contact one of our communications representatives.*

*Sincerely,*

*Dan Barletta, D.D.S.*
*U.S. Lead*
*Public Interest Advisory Group*

*Marcel Lussier*
*Canadian Lead*
*Public Interest Advisory Group*

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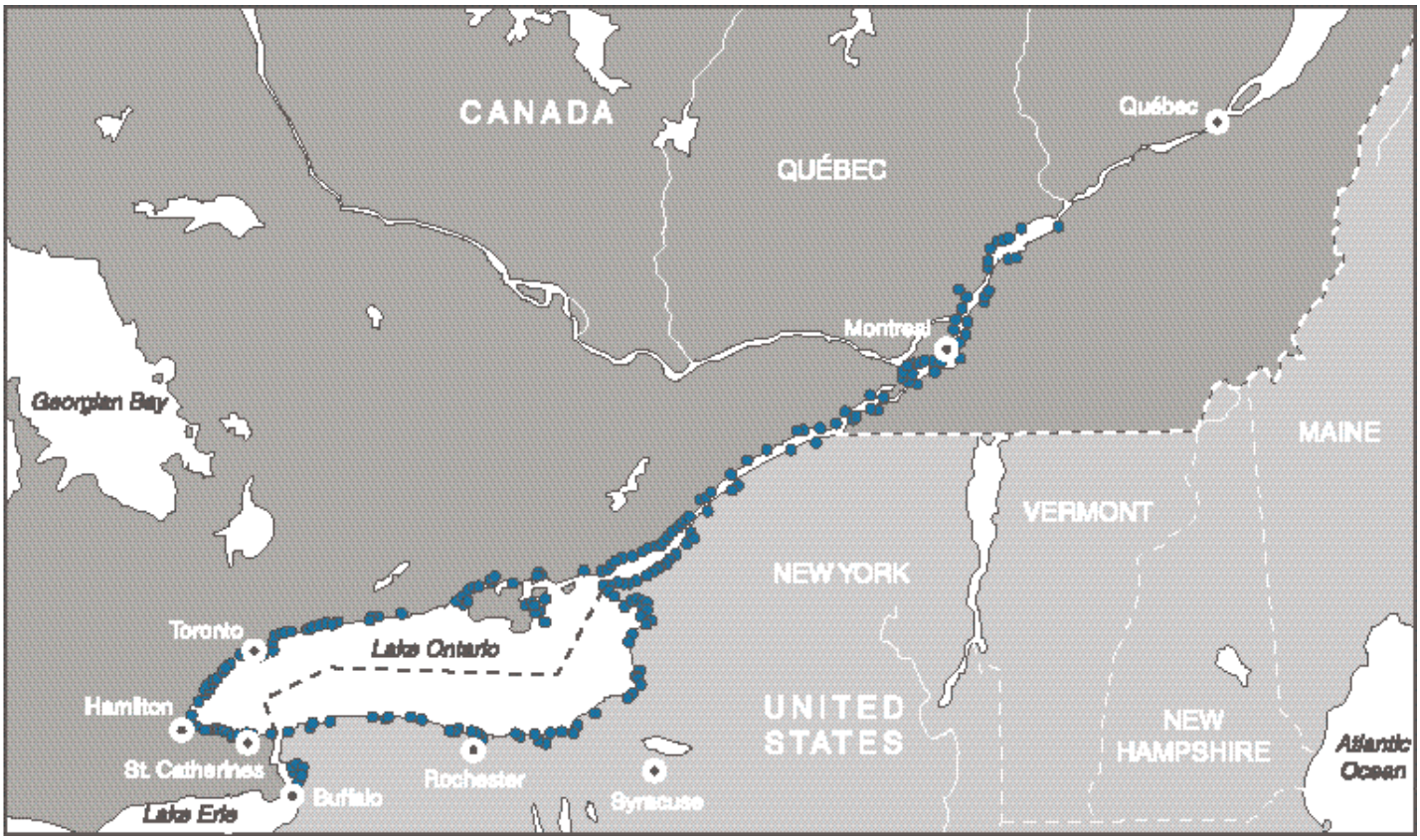
*The International Lake Ontario-St. Lawrence River Study was set in motion in 2000 by the International Joint Commission to assess and evaluate the Commission's Order of Approval used to regulate outflows from Lake Ontario through the St. Lawrence River. The current Order of Approval requires that the St. Lawrence Seaway Power Project be operated to meet certain conditions and criteria to protect the interests in both countries, including shoreline communities, domestic and industrial water uses, commercial navigation and hydropower production. In addition, the Study is evaluating the impacts of changing water levels on environmental factors, shore erosion, flood damages, recreational boating, and tourism. The Study will also take into account the forecasted effects of climate change.

The Public Interest Advisory Group is a volunteer group appointed by the International Joint Commission to ensure effective communication between the public and the International Lake Ontario-St. Lawrence River Study Team. This newsletter is published by the Public Interest Advisory Group to help keep you informed about the Study.

# Marina Locations Studied by Recreational Boating and Tourism Technical Work Group



# Results of Marina Surveys: Low Water has Higher Impact

*By Kara Dunn and David White, New York Sea Grant*

The Recreational Boating and Tourism Technical Working Group has completed an inventory of marinas and yacht clubs in the U.S. and Canada that are impacted by fluctuating water levels in Lake Ontario and the St. Lawrence River. Results indicate that marina operators would prefer higher water levels on Lake Ontario and the St. Lawrence River to help sustain waterfront businesses. Furthermore, surveys of the impacts of changing water levels since 1998 are offering data on the desired water levels by marina and yacht club operators and on the expenses the businesses incur when dealing with high and low waters.

On the American side of the River and Lake, surveyors studied the financial impacts of high and low waters levels. High water levels caused dock (71%) and property (29%) damage, prompting marina and yacht club operators to spend thousands of dollars for repairs to docks and reinforcement of perimeters.

Low water levels in the fall seasons of 1999 and 2001 caused greater problems, according to the study which drew a 95% response rate from the 168 marinas and yacht clubs located on the New York side of the St. Lawrence River, Lake Ontario, and the lower Niagara River. Together, the facilities represent 10,648 seasonal slips or moorings for rent and 1,366 transient slips.

"Eighty-two percent of the New York-side marinas reported problems with low water with more Lake Ontario businesses affected in 1999 and more St. Lawrence River businesses affected in 2001," says David White, Group member and Great Lakes Program Coordinator for New York Sea Grant.

*Problems included weed growth and shallow depth. Smaller marinas (fewer than 60 berths) lost more revenue due to their customers never arriving, while loss of midseason boat slips and boats moving to other marinas affected 76 percent of all reporting businesses. Miscellaneous losses of gas, food, and lodging sales followed.*

More than half (54%) of the affected businesses took some mitigating action in response to low water conditions. The larger marinas dredged; the smaller marinas tended to repair or build docks.

"The Canadian-side surveys indicate that the lowest water levels in 2001 were on average 19 inches (48 cm) below the minimum depth marina operators say they need. Fifty-one percent of the Canadian marinas want more than 12 inches (30 cm) of additional depth; about one quarter would like an additional 12 inches or less," says White.

Seventy-three percent of Ontario business owners reported the recent effect of low water to be moderate, minimal or none. Surveyors say this may be due, in part, to earlier actions taken to address problems. One quarter (27%) of marinas reported major or severe effects due to low water levels.

The Canadian survey report suggests that, in lieu of adding water, anything that can be done to keep water levels constant, or to moderate water level declines, during the boating season would help marina operators.

"We are continuing to analyze the data. We know that low water conditions affect a larger number of businesses and create a greater economic loss," says White.

The Recreational Boating and Tourism TWG is currently compiling the results of their recent recreational boater surveys. Look for the results of these surveys in a future issue of Ripple Effects! The preferences indicated in the surveys will be used to develop the performance indicators* for the group, which will in turn be used in the Shared Vision Model to evaluate the effectiveness of new recommendations for criteria and plans.

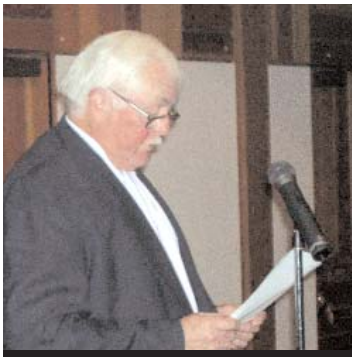
* Performance indicators are a measure of economic, social or environmental health. In the context of the Study, performance indicators relate to impacts of different water levels in Lake Ontario and the St. Lawrence River.

**Boats sitting in silt during low water in August of 2001 in North Sandy Pond area**

*Photo by Jonathan Brown*

www.losl.org

# Public Interest Advisory Group Holds Meetings in Cornwall



**Dalton Foster comments on the Study's decision-making process.**

*Photo - Tony Eberhardt*

**Lynn Cleary Canadian Study Board member responds to comments about alien invasive species in the St. Lawrence River.**

*Photo - Michelle Tracy*

The Public Interest Advisory Group (PIAG) of the Lake Ontario-St. Lawrence River Study held two meetings in Cornwall on May 15th, 2003. The meetings drew together stakeholders as far away as Khanawake and Kingston, with representatives from many localities in between. Some of the interests present were the St. Lawrence River Restoration Council, the Kingston Power and Sail Squadron, the Beaconsfield Yacht Club, Ontario Power Generation, the Township of South Stormont, the International Water Levels Coalition, the Mohawk Nation at Khanawake, and marina and coastal property owners.

*The participants provided the Study with valuable input. Many concerns were expressed, including:*

- *Evaporation rates off Lake Ontario;*
- *Lower levels and fish spawning in tributary mouths;*
- *Shoreline erosion;*
- *Boating docks/lower water levels in the fall;*
- *The Study's decision-making process; and*
- *Low water levels in Khanawake.*

Representatives from the different Technical Working Groups, from the Study Board, and from the International Joint Commission responded to these questions and concerns. The meeting transcripts have been provided to the Study Team for their consideration and incorporation.

If you were unable to attend the public meeting and would like a copy of the meeting transcript, please contact Michelle Tracy at tracym@ottawa.ijc.org, by telephone (613) 992-5727, or by fax (613) 995-9644.

**André Carpentier, member of the Study Board and the Plan Formulation and Evaluation Group, responds to questions from stakeholders.**

*Photo - Michelle Tracy*

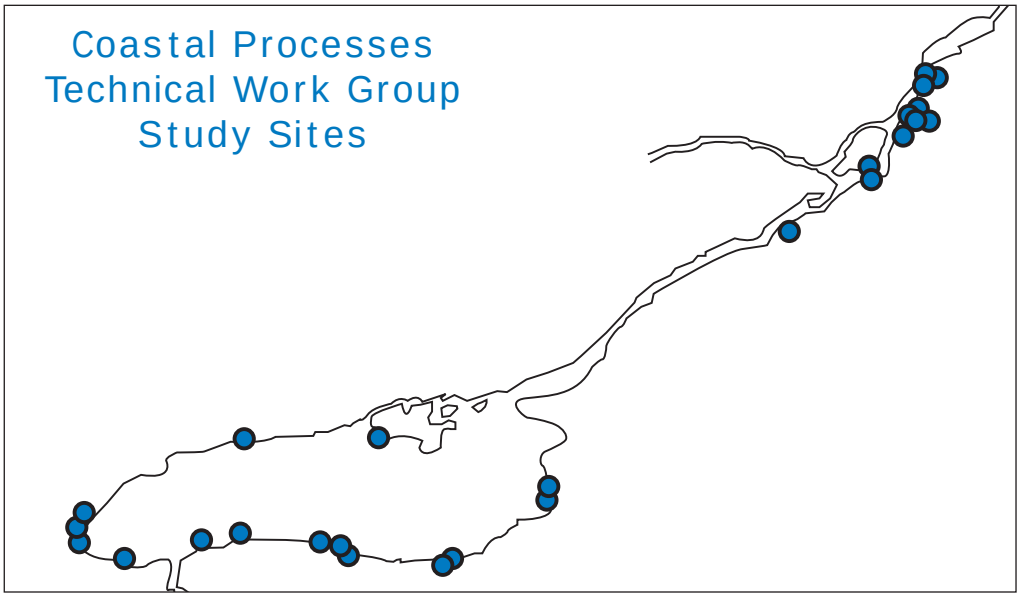
**Brad Parker, Canadian Environmental TWG Lead responds to concerns about fish spawning and low water levels.**

*Photo - Tony Eberhardt*

# Coastal Processes Technical Work Group Hard at Work

*By Ralph Moulton, Coastal Processes Technical Work Group Co-Lead*

The Coastal Processes Technical Work Group (TWG) is studying two large geographic areas: Lake Ontario and the St. Lawrence River upstream of the Moses-Saunders Power Dam (Lake and upper River), and St. Lawrence River from Moses-Saunders Power Dam to Trois-Rivières (lower River).



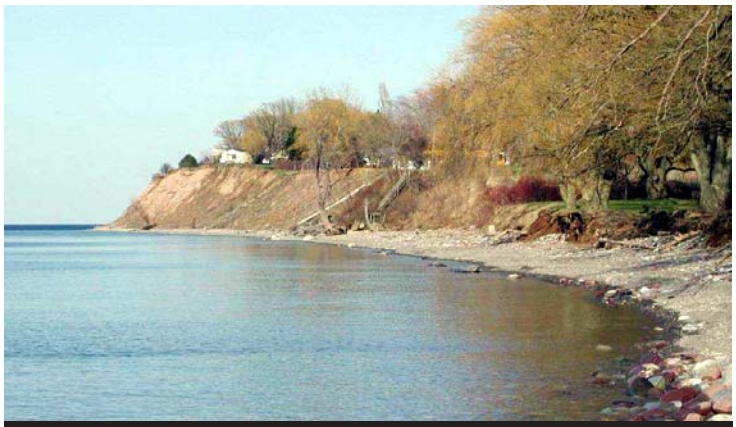

Significant effort has been made to collect and combine erosion data along the shores of both geographic areas. We will have enough information on flood and erosion impacts to put a dollar value on them. Using a computer model, we have calculated detailed River flows and resulting flood levels. We have also been collecting information to map the profile of the near-shore River bottom.

In the fall of 2002, we went into the field to take direct measurements of wind waves and ship waves. A number of computer models have been refined, including one that predicts how river banks are affected by river flow, wind waves and ship waves. We are performing much of the ongoing work to develop tools that will predict the effects of possible regulation plans on shore erosion and flooding.

While there are differences in the coastal analysis for the Lake and upper River compared to the lower River, the basic approach is similar. We have nearly completed an extensive database for Lake Ontario and upper St. Lawrence River and have completed an extensive database for the Lower River. Information in the database includes wave data, detailed near-shore depths, high-resolution photographs, individual land parcel boundaries, property values, shore protection data, and historic erosion information.

Sixteen sites around the Lake and upper River, representing a variety of shore types and levels of development, have been selected for detailed study. Examples of study sites include a heavily developed beach prone to flooding, bluffs experiencing erosion, a residential area with well-designed shore protection, and a recreational beach formed through the deposit of sand. The analysis underway at these sites increases our knowledge of how the shoreline responds to fluctuating water levels and is facilitating the development of a model to evaluate the impacts.

The Coastal Processes TWG will continue to develop performance indicators for erosion and flooding and will apply different water-level management scenarios to the shoreline-damage evaluation models. This information will become increasingly important as the Study Team works to develop its recommendations to the International Joint Commission.



**Chimney Bluffs, East of Sorus Bay, Wayne County, April 11, 2002**

*Photo* - Baird

**Edgemere Drive, Greece, Monroe County, Winter 1973**

*Photo* - Dr. Martin

# Bringing It All Together: The Plan Formulation and Evaluation Process

*By Bill Werick and Wendy Leger, Plan Formulation and Evaluation Group Co-Leads*

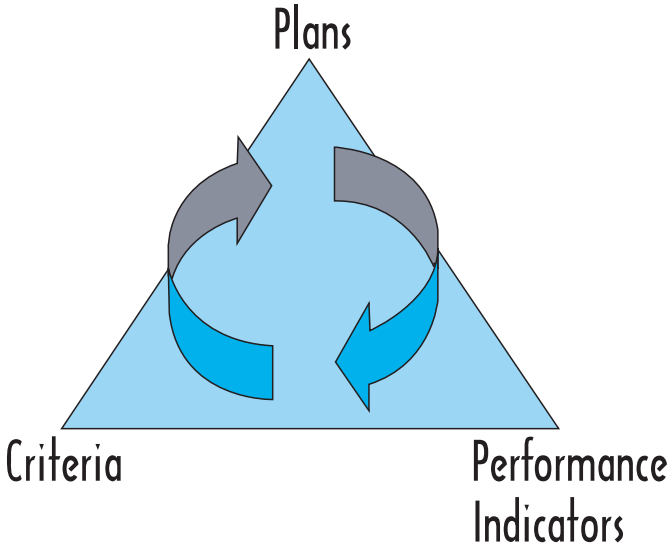
As the Study progresses, the Plan Formulation and Evaluation Group (PFEG) will develop and test many possible regulation plans, or written rules, used to control levels on Lake Ontario and the St. Lawrence River. When we test these plans, we will try out different combinations of rules; criteria, expressed in desired levels and flows; and performance indicators. We will use the existing "Orders of Approval Criteria" from Plan 1958-D (see graphic), but will also develop a revised set of criteria based on what we learn from the Study. Performance indicators are a measure of economic, social or environmental health. In the context of the Study, performance indicators relate to impacts of different water levels in Lake Ontario and the St. Lawrence River. For example, performance indicators would be 'economic damages to marinas', or 'muskrat winter survival rates'.

The PFEG will consider possible plans, criteria and performance indicators using the triangular model shown here. We will go around the triangle a number of times until we achieve a desirable result.

Why not skip the criteria and just use the performance indicators that are developed by the Technical Work Groups? There are several reasons.

- It is much easier to design a plan based on desired levels and flows than on economic impacts.
- It is easier for stakeholders to express what water levels they would like.
- The performance indicators will not all be in the same unit of measurement (muskrat survival rates vs. flood and erosion dollar damages), so the PFEG would not get a single number that indicates how a possible plan performs for the environment, recreation, shorelines, hydropower, commercial navigation and water supply.

The PFEG will use this testing process to continue to refine possible regulation plans. We will keep you informed as this progresses to ensure that your input is considered as part of this process.




## Existing Criteria within Regulation Plan 1958-D

(a) "The regulated outflow from Lake Ontario from 1 April to 15 December shall be such as not to reduce the minimum level of Montreal Harbour below that which would have occurred in the past"

(b) "The regulated winter outflows from Lake Ontario from 15 December to 31 March shall be as large as feasible and shall be maintained so that the difficulties of winter operations are minimized"

(c) "The regulated outflow from Lake Ontario during the annual spring break-up in Montreal Harbour and in the river downstream shall not be greater than would have occurred assuming supplies of the past"

(d) "The regulated outflow from Lake Ontario during the annual flood discharge from the Ottawa River shall not be greater than would have occurred assuming supplies of the past"

(e) "Consistent with other requirements, the minimum regulated outflows from Lake Ontario shall be such as to secure the maximum dependable flow for power"

(f) "Consistent with other requirements, the maximum regulated outflow from Lake Ontario shall be maintained as low as possible to reduce channel excavation to a minimum"

(g) "Consistent with other requirements, the levels of Lake Ontario shall be regulated for the benefit of property owners on the shores of Lake Ontario in the United States and Canada so as to reduce the extremes of stage which have been experienced"

(h) "The regulated monthly mean level of Lake Ontario shall not exceed elevation 247.29 feet (75.37 metres) with the supplies of the past"

(i) "Under regulation, the frequency of occurrences of monthly mean elevations of approximately 246.29 feet (75.07 metres) and higher on Lake Ontario shall be less than would have occurred in the past"

(j) "The regulated level of Lake Ontario on 1 April shall not be lower than elevation 243.29 feet (74.15 metres). The regulated monthly mean level of the lake from 1 April to 30 November shall be maintained at or above elevation 243.29 feet (74.15 metres)"

(k) "When supplies are less than supplies of the past, all possible relief shall be provided to commercial navigation and hydropower. When supplies are greater than supplies of the past, all possible relief shall be provided to riparian interests"

# Information Management Technical Work Group Unveils New Mapping Tools

*By Roger Gauthier, Co-Lead, Information Management Technical Work Group*

The Information Management Technical Working Group unveiled new Web pages that provide access to information about the geography of the Lake Ontario-St. Lawrence River area. These Web pages can be accessed at: **www.great-lakes.net/loslrs** or through the "Study Data" link provided on the Study's website: **www.losl.org**.

The new Internet site provides Study participants, and others interested in the region, with the ability to discover what information is available and with directions on how to access the information. Current information showcased includes: political units, transportation features, watersheds, river and hydrology features, elevation information, photography and selected environmental themes.

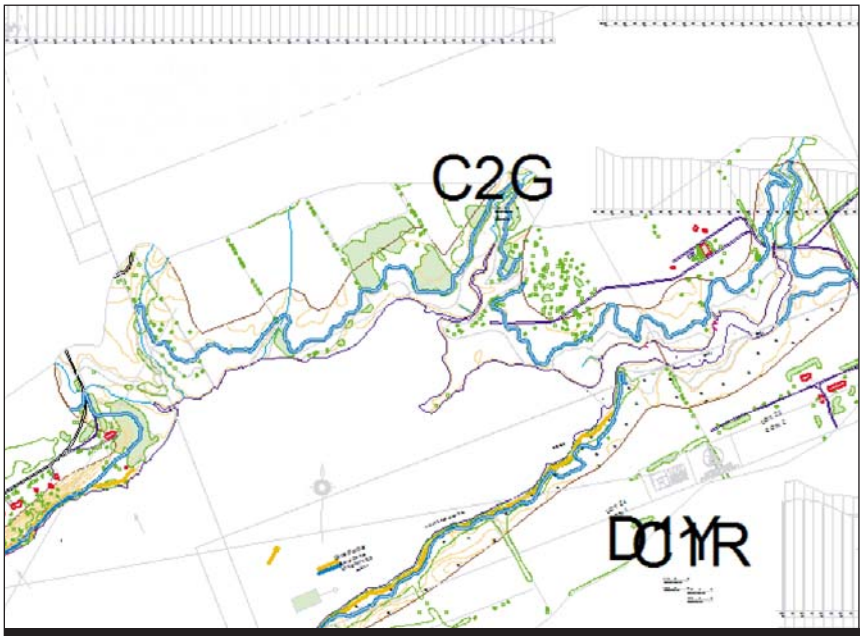
The information is in layers and is accessible through an Internet mapping interface where users can search for data and associated background information and view these data " on-line." If any users want to "download" these data, links are provided to facilitate this purpose.

"This project will serve as a template for future projects of this nature where large amounts of mapping and other environmental and scientific data need to be easily accessed across the Great Lakes" says Roger Gauthier U.S. lead of the Information Management TWG.

This site will be continually updated as new information is gathered by the Study. Please visit the site through the "Study Data" link on the Study website to view the latest information!

**Orthoimagery - Recent black and white and color Infrared digital orthophotography has been collected in a number of locations and is being used for various data collection and analysis activities.**

**Transportation - This includes all major and secondary roads and railways.**



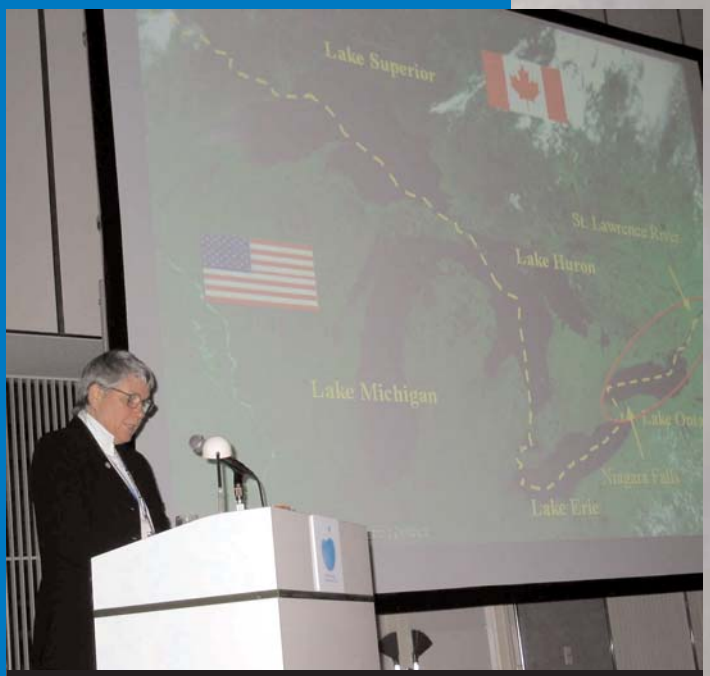

**Flood Zones - Flood zone data includes FDRP Mapping from the Province of Ontario as well as FEMA (Federal Emergency Management Agency) Q3 Flood Zone Data.**

# Study Showcased in Kyoto

*By Russ Trowbridge, International Joint Commission Study Liaison*

The International Joint Commission (IJC) showcased the Lake Ontario-St. Lawrence River Study at the World Water Forum held in Japan from March 16-23. The Forum was the third in a series of global-scope water management conferences organized by the World Water Council, and was a broad-reaching venue for discussing and exploring of workable solutions to manage world water resources.

Commissioner Irene Brooks, the Lead U.S. Commissioner for the Study, presented the Study under the Forum's "Water for Peace" theme. She focused on the mechanics of the Lake Ontario-St. Lawrence River System, the activities of the Study's Technical Work Groups, and the process for gathering information and developing a shared vision model, emphasizing the importance of public engagement.




**Commissioner Brooks at Kyoto**

*Photo - John Nevin*

Dr. Gerry Galloway, U.S. Secretary to the Commission, explained the collaboration of the Study's Public Interest Advisory Group (PIAG) and the Technical Work Groups in his presentation on "Public Participation in Basin Management." Attendees expressed considerable interest in the PIAG concept. Through the PIAG, the Study is committed to improving stakeholder understanding through their education on watershed issues and encouraging their participation.

# Experts Provide Advice on the Economics of Water Regulation

*By Paul King-Fisher, Plan Formulation and Evaluation Group Member*

Fluctuating water levels and flows affect a host of economic values. High lake levels cause flooding and erosion damages to coastal properties, while low levels make it more difficult and expensive for recreational boating. High releases of water can make navigation more difficult and costly and can increase shoreline erosion. Higher lake levels and flows enable more hydroelectricity to be produced, but high flows reduce lake levels and may threaten some municipal and industrial water uses.

Some of the economic values associated with Lake Ontario and the St. Lawrence River are expressed in markets, such as the prices people are willing to pay for goods and services. Other economic values, such as people's willingness to pay to enjoy a day of pleasure boating, or criteria or plans that would improve environmental health, may not translate well into market values.

Left to right - Paul King-Fisher, Dr. Geoffrey Hewings, Dr. John Hoehn, Dr. Atif Kubursi, and Dr. Jean-Thomas Bernard

*Photo - Jon Brown*

To help the Study Board evaluate how different regulation plans would affect economic well-being, the Plan Formulation and Evaluation Group has established a committee comprised of four leading economists:

- **Dr. Jean-Thomas Bernard**, Professor of Economics at Laval University in Québec City, QC, and a member of the University's Research Group on Energy Conservation, Environment and Natural Resources;
- **Dr. John Hoehn**, Professor of Environmental and Resource Economics at Michigan State University in East Lansing, MI, where he has taught since 1984;
- **Dr. Geoffrey Hewings**, Professor of Geography, Regional Science, Economics and Urban and Regional Planning, and Director of the Regional Economics Applications Laboratory, at the University of Illinois in Urbana-Champaign, IL; and
- **Dr. Atif Kubursi**, Professor of Economics at McMaster University in Hamilton, ON and President of Econometric Research Limited.

The Economics Advisory Committee is providing expert advice on, among other things:

- the role of economic analysis in the study, including standards for the conduct of economic analysis;
- indicators for measuring the performance of criteria and plans in economic terms; and,
- methods for estimating economic values and assessing changes in benefits and costs to the various interests.

The economic analysis will yield information on how people's interests are affected by alternative water-level criteria and regulation plans. The Study will examine where there are beneficial trade-offs that may be made among the various criteria. This information will enable the Study Board to make "informed judgments" about the relative benefits of choosing alternative criteria and plans.

## PIAG Speakers Bureau

The Public Interest Advisory Group membership would like to meet with you. A representative in your area can give a presentation about the Study to your group. Please contact the communications staff listed on the next page to request a presentation.

Marcel Lussier, Canadian Co-Chair, Public Interest Advisory Group

*Photo - Michelle Tracy*

### United States

**Dr. Dan Barletta** - Rochester, NY
**Paul Finnegan** - Albany, NY
**Thomas McAuslan** - Oswego, NY
**Tony McKenna** - West Amherst, NY
**Jon Montan** - Canton, NY
**Henry Stewart** - Rochester, NY
**Max Streibel** - Rochester, NY
**Scott Tripoli** - Mannsville, NY
**Stephanie Weiss** - Clayton, NY

### Canada

**Marcel Lussier** - Brossard, QC
**Larry Field** - Downsview, ON
**Michel Gagné** - Montreal, QC
**John Hall** - Burlington, ON
**Marc Hudon** - Trois-Rivières, QC
**Elaine Kennedy** - St. Andrews W, ON
**Anjuna Langevin** - Montreal, QC
**Sandra Lawn** - Prescott, ON
**Michel Turgeon** - Montreal, QC
**Paul Webb** - North Augusta, ON
**Al Will** - Hamilton, ON

# Study Announcements

## Congratulations to:

**Dr. Dan Barletta, PIAG Co-Lead for the U. S.** Dan received the Friends of Education Award from the Hilton School Board for being a role model and hero to the students of Northwood Elementary School. Dan helped the school receive $1,500 for science equipment and taught first aid and CPR to the teachers.

Dan Barletta, U.S. Co-Chair, Public Interest Advisory Group

*Photo - Arleen Kreusch*

Elaine Kennedy, Public Interest Advisory Group

*Photo - Michelle Tracy*

**Elaine Kennedy, PIAG Member**, is the recipient of the Queen's Golden Jubilee Medal. This prestigious award is granted to Canadians who have made a significant contribution to Canada, their community and to their fellow Canadians. Elaine has long been active in many committees to improve the environment locally, regionally and internationally. Congratulations, Elaine!

## Team Arrivals

U.S. Acting-Director for the Study Board

Board member Pete Loucks is currently acting as U.S. Director for the Study Board during Eugene Stakhiv's temporary overseas assignment. Pete is Professor of Civil and Environmental Engineering at Cornell University, specializing in Environmental and Water Resources System Engineering.

## We welcome the following member to the Public Interest Advisory Group:

Anjuna Langevin is also the Canadian lead of the Commercial Navigation Technical Work Group. Anjuna has worked as a navigation officer on commercial vessels transiting on the Great Lakes and International waters. After three years as a Fleet Operator for Fednav International, she joined the Shipping Federation team in 2002 as Director, Navigation and Environment.

## Next Issue

Our next issue will include a review of the progress made by the Hydroelectric Power and Environment Technical Work Groups.

*Please share this newsletter with a friend. They can tear out and mail back the next page to recieve future editions of this newsletter and notifications of meetings.*

## Contacting Us

If you are interested in sharing your concerns about water levels in Lake Ontario and the St. Lawrence River, would like to receive more information about the Study, or would like to participate in one of our meetings, please contact the communications representative in your country.


### U.S.

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*Visit the Study website at:* ***www.losl.org***

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Hello!

❑ *I am interested in being added to the Study mailing list; my name and address are below:*

Name: _____

Organization: _____

Address: _____

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