The International Lake Ontario - St. Lawrence River Study was set in motion in December 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 Study evaluated the impacts of changing water levels on shoreline communities, domestic and industrial water uses, commercial navigation, hydropower production, the environment, and recreational boating and tourism. The Study also took into account the forecasted effects of climate change.

Candidate Plans

The table below describes three candidate options, which the Study Board considers promising and which will be presented in detail during the presentation today. These three plans will continue to be refined. The Study Board will incorporate comments received during today's meeting and in the mail into the their report to the Commission, so please remember to return your feedback questionnaire.

Plan A: Balanced Economic Plan

- *Designed to maximize overall economic benefits.*
- *Provides some improvement for the environment especially on Upper St. Lawrence River*
- *Has losses to shoreline interests on Lake Ontario and the River.*
- *Provides recreational boating benefits.*

Plan B: Balanced Environmental Plan

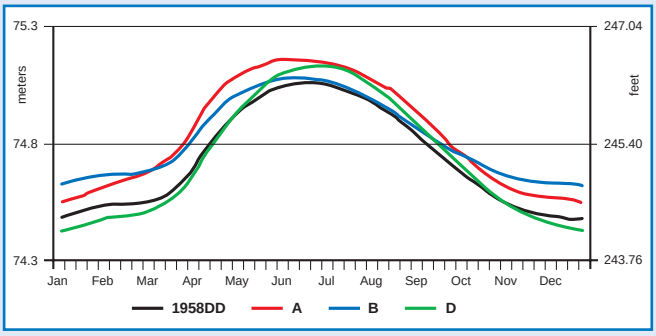
- *Designed to simulate more natural conditions and provide overall economic benefits.*
- *Improves the environment on the Lake and Upper River.*
- *Has losses to shoreline interests with significant flooding potential around Montréal.*
- *Has losses to recreational boating, especially on the Lake.*

Plan D: Blended Benefits Plan

- *Designed for balanced performance, with overall economic benefits and minimizes losses.*
- *Little change from 1958D with deviations (1958DD) for the environment.*
- *No overall losses for shoreline interests, but some flooding potential.*
- *Provides recreational boating benefits.*

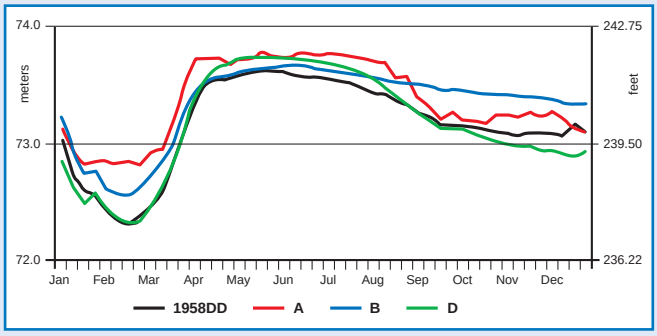
Average Lake Ontario Levels
Three Candidate Plans compared to 1958DD (status quo)

This plot shows the average of levels for Lake Ontario through the year. In the comparison, Plan A has higher average levels throughout the year. Plan B has about the same levels in the summer but higher levels in the fall, winter and spring. Plan D for the most part has lower average levels than the base case 1958DD, but higher summer and later peak level. The difference from the average winter low to the summer high is least with Plan B and greatest with Plan D.



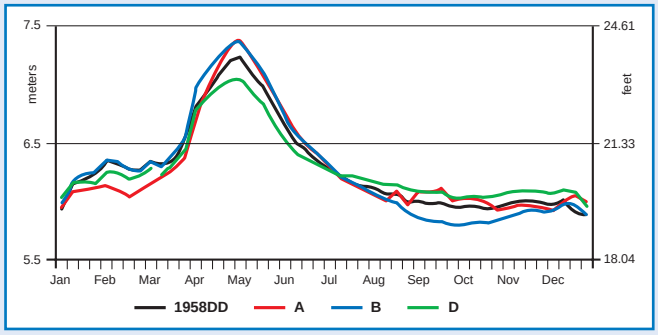
Average Long Sault Levels
Three Candidate Plans compared to 1958DD (status quo)

This plot shows the average levels for Lake St. Lawrence at Long Sault through the year. In the comparison, Plan A has the highest average levels throughout most of the year followed by Plan B. Plan D has higher average levels in the spring and summer than 1958DD but lower average levels in the late fall. On average, Plan B has the most gradual decline in levels from the spring to the fall.



Average Port of Montréal Levels
Three Candidate Plans compared to 1958DD (status quo)

This plot shows the average levels for Montréal Harbour through the year. In the comparison, Plan A has the lowest average levels in the winter while Plan B has the lowest average levels in the summer and fall. Both have higher peak levels than 1958DD. Plan D has lower average levels than 1958DD in the Spring but higher average levels in the summer and fall. Plan D on average has more gradual decline from the spring through the summer and fall. The difference from the spring peak to the fall low is the least with Plan D and greatest with Plan B.



Environmental Performance Indicator Results (Ratios)

The table below shows the performance of the three candidiate plans in relation to environmental indicators as compared to 1958D with deviations (Plan 1958DD). Also shown are a natural flow plan, interest-specific plans and reference plans for information. The numbers indicate whether a plan is better or worse than 1958DD. For example, 1.43 means the candidate plan improves conditions by 43% and 0.86 means the candidate plan is 14% worse than 1958DD.

Lake Ontario	Candidate Plans			Natural Flow	Interest Specific		Reference Plans	
Indicator	Plan A	Plan B	Plan D	Plan E	OntRip3	RecBoat	1998	1958D
Wetland meadow marsh community	1.14	1.43	1.17	1.56	1.13	0.41	1.06	1.24
Low vegetation - spawning habitat at 18 C (64 F)	0.89	0.95	0.92	0.88	1.05	1.03	1.00	0.96
High vegetation - spawning habitat at 24 C (75 F)	1.04	1.00	1.02	1.07	0.99	1.08	1.00	1.03
Low vegetation - spawning habitat at 24 C (75 F)	1.00	1.03	1.01	***1.11***	0.95	0.93	1.00	1.01
Northern Pike - young of year recruitment	1.01	1.00	1.04	1.03	1.02	1.01	1.01	1.01
Largemouth Bass - young of year recruitment	0.95	0.98	0.97	0.96	1.07	0.99	0.99	0.98
Least Bittern - reproductive index	0.91	1.07	0.95	***1.13***	0.71	0.21	1.03	1.01
Virginia Rail - reproductive index	0.96	1.11	0.95	***1.15***	0.72	0.44	1.03	1.04
Black Tern - reproductive index	0.99	1.12	0.97	***1.16***	0.77	0.48	1.03	1.04
Yellow Rail - preferred breeding habitat	0.97	1.01	0.98	1.01	1.05	0.92	1.00	1.00
King Rail - preferred breeding habitat	1.05	1.10	1.04	***1.27***	0.93	0.82	1.02	1.09
Upper St. Lawrence River								
Low vegetation - spawning habitat 18 C (64 F)	1.01	1.01	1.02	1.04	0.96	1.00	1.01	1.00
High vegetation - spawning habitat at 24 C (75 F)	1.02	1.01	1.03	1.02	1.00	1.00	1.01	1.00
Low vegetation - spawning habitat at 24 C (75 F)	1.01	1.01	1.02	1.04	1.01	0.99	1.00	1.00
Northern Pike - young of year recruitment	1.04	1.03	1.01	1.06	1.00	1.07	1.00	1.01
Largemouth Bass - young of year recruitment	1.00	1.00	1.01	1.00	1.05	1.04	1.00	0.99
Northern Pike - young of year net productivity	3.17	2.16	1.02	***4.08***	0.57	5.29	1.21	1.94
Virginia Rail - reproductive index	1.23	1.25	1.31	1.33	0.93	0.99	1.15	1.33
Muskrat - house density in drowned river mouth wetlands	2.52	5.22	1.04	***36.42***	0.24	0.00	1.01	17.83
Lower St. Lawrence River								
Golden Shiner - suitable feeding habitat area	1.03	1.03	1.00	1.03	1.03	1.00	0.94	0.81
Wetlands fish - abundance index	0.94	0.87	0.84	0.94	0.87	1.10	1.00	0.94
Migratory wildfowl - habitat area	1.03	1.00	0.94	1.00	0.97	1.10	1.00	1.00
Least Bittern - reproductive index	1.03	1.06	1.00	1.06	1.00	1.03	0.97	1.03
Virginia Rail - reproductive index	0.94	0.97	1.03	0.97	1.00	1.00	1.00	1.06
Migratory wildfowl - productivity	1.06	1.00	1.00	1.03	1.00	1.10	1.00	1.03
Black Tern - reproductive index	0.81	0.77	1.03	0.77	0.97	0.74	0.94	1.03
Northern Pike - reproductive area	0.94	0.97	0.90	0.94	1.00	0.87	0.97	0.94
Frog species - reproductive habitat surface area	0.77	0.90	1.06	0.94	1.03	0.77	0.94	1.06
Eastern Sand Darter - reproductive area	1.13	1.06	1.06	1.06	1.10	0.94	1.00	1.13
Spiny Softshell Turtle - reproductive habitat surface area	1.06	1.06	1.03	1.03	1.03	0.94	1.00	1.10
Bridle Shiner - reproductive habitat surface area	1.03	0.97	1.00	1.03	0.97	0.90	0.94	***1.13***
Muskrat - surviving houses	0.96	0.72	0.88	0.76	0.80	0.20	0.96	***1.20***
Overall Environmental Index								
Environmental Performance	1.15	1.41	1.03	3.97	0.90	0.70	1.01	2.44

Key

Light blue shading in these charts identifies a species at risk.

Blue numbers (>1) are better than 1958DD. ***Bold blue numbers are the best***

Yellow shaded areas are essentially the same as 1958DD

Red numbers (<1) are worse than Plan 1958DD

Net Economic Benefits

The table below indicates the net economic benefits or losses of each of the candidate plans for the interests as compared to 1958DD. Also shown are a natural flow plan, interest-specific plans and reference plans for information. The numbers are the average annual benefits or losses in millions of U.S. dollars over a time series of historic water levels.

Coastal Processes (Shoreline Interests)	Candidate Plans			Natural Flow	Interest Specific		Reference Plans	
Indicator	Plan A	Plan B	Plan D	Plan E	OntRip3	RecBoat	1998	1958D
Lake Ontario	-$0.59	-$0.71	$0.18	-$29.50	$0.55	$0.99	-$0.61	-$27.45
Shore protection maintenance	-$0.30	-$0.66	$0.20	-$11.62	$0.46	$1.63	-$0.50	-$10.55
Erosion to unprotected developed parcels	-$0.04	-$0.04	$0.00	-$0.09	$0.07	-$0.06	$0.00	-$0.09
Flooding	-$0.25	-$0.01	-$0.02	-$17.79	$0.02	$0.02	-$0.12	-$16.81
Upper St. Lawrence River	-$0.25	-$0.18	-$0.11	-$9.12	$0.06	$0.14	-$0.19	-$8.90
Shore protection maintenance	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Erosion to unprotected developed parcels	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Flooding	-$0.25	-$0.18	-$0.11	-$9.12	$0.06	$0.14	-$0.19	-$8.90
Lower St. Lawrence River	-$0.26	-$1.99	$0.07	-$1.79	$0.01	-$4.66	-$0.59	-$1.17
Flooding	-$0.20	-$2.05	-$0.03	-$1.72	-$0.06	-$4.56	-$0.63	-$1.09
Shore protection maintenance	-$0.06	$0.05	$0.10	-$0.07	$0.07	-$0.10	$0.05	-$0.08
Coastal Processes Overall	-$1.10	-$2.88	$0.13	-$40.41	$0.62	-$3.54	-$1.39	-$37.52
Commercial Navigation								
Lake Ontario	-$0.03	-$0.02	-$0.01	-$0.01	-$0.07	-$0.22	-$0.01	-$0.01
St. Lawrence Seaway	$2.27	$2.05	$1.93	$3.71	$0.49	-$3.72	-$0.04	$2.65
Montréal down	-$0.05	-$0.07	$0.03	-$0.03	$0.02	-$0.44	-$0.01	-$0.02
Commercial Navigation Overall	$2.19	$1.96	$1.95	$3.66	$0.45	-$4.38	-$0.06	$2.61
Water Uses								
St. Lawrence River - One time infrastructure costs	$0.00	$0.00	$0.00	$0.00	$0.00	-$0.05	$0.00	$0.00
Lake St. Lawrence - Water quality investments	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.20	$0.20
Water Uses Overall	$0.00	$0.00	$0.00	$0.00	$0.00	-$0.05	$0.20	$0.20
Hydroelectric Power								
New York Power Authority - Ontario Power Generation	$4.18	$4.79	$1.07	$10.43	-$5.21	-$3.70	$0.11	$3.60
Hydro Quebec	$0.79	$1.32	-$0.04	$3.54	$0.59	-$14.94	-$0.50	$1.56
Hydroelectric Power Overall	$4.97	$6.11	$1.02	$13.96	-$4.62	-$18.64	-$0.39	$5.16
Recreational Boating and Tourism								
Above the Moses-Saunders Dam	$1.07	-$0.87	$0.36	-$6.82	-$6.18	$2.33	$0.94	-$3.09
Lake Ontario	$0.60	-$0.77	$0.13	-$5.35	-$4.14	$1.79	$0.63	-$2.26
Ogdensburg	-$0.26	-$0.10	-$0.17	-$0.62	$0.03	$0.21	-$0.01	-$0.17
Alexandria Bay	$0.73	$0.00	$0.40	-$0.85	-$2.07	$0.33	$0.31	-$0.66
Below the Moses-Saunders Dam	$2.11	$0.00	$1.59	$1.27	$1.01	$1.48	$0.04	$0.31
Lake St. Louis	$1.14	$0.17	$0.81	$0.77	$0.56	$0.82	$0.10	$0.17
Montréal	$0.73	-$0.06	$0.60	$0.41	$0.37	$0.62	-$0.02	$0.15
Lake St. Pierre	$0.24	-$0.11	$0.18	$0.08	$0.08	$0.05	-$0.04	$0.00
Recreational Boating and Tourism Overall	$3.18	-$0.87	$1.95	-$5.55	-$5.17	$3.81	$0.98	-$2.78
Net Economic Benefits								
Net Economic Benefits	$9.25	$4.32	$5.05	-$28.33	- $8.72	-$22.79	-$0.66	-$32.32

Key

All numbers are average annual benefits or losses in millions of dollars

Blue numbers signify a gain in economic benefits compared to 1958DD

Red numbers signify a loss in economic benefits versus 1958DD

$0.00 indicates no benefit or loss.

Before the Study Board prepares its final report with recommendations for candidate plans to regulate the outflows from Lake Ontario through the St. Lawrence River, we need to hear from you! Please complete and return the survey card distributed tonight with your comments before August 5, 2005.

Interest Specific Plans and Reference Plans

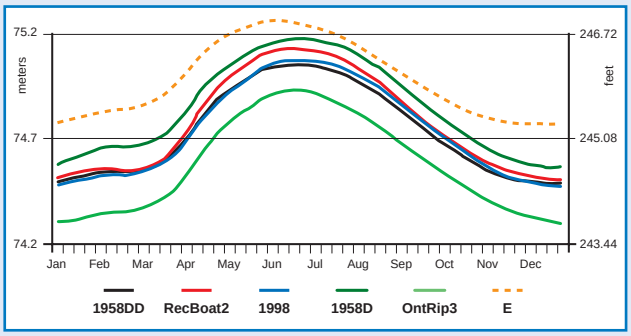
The Study's Plan Formulation and Evaluation Group also developed a natural flow plan and interest-specific options for the Study Board to consider. Although these plans provide better conditions for singular interests, namely the environment, Plan E; shoreline properties, Plan OntRip3; and recreational boating, Plan RecBoat2, it was found that these resulted in disproportionate losses or would require substantial mitigation, and were not considered viable in view of the Study Board s guidelines.

For reference, the Study Board used Plan 1998, a plan developed during the last regulation study; Plan 1958D, the present plan used by the International St. Lawrence River Board of Control; and 1958D with the deviations made by the Control Board (1958DD). 1958DD is the basis to which all other plans, including the candidate plans, are compared.

Average Lake Ontario Levels

Five Non-Candidate Plans compared to 1958DD (status quo)

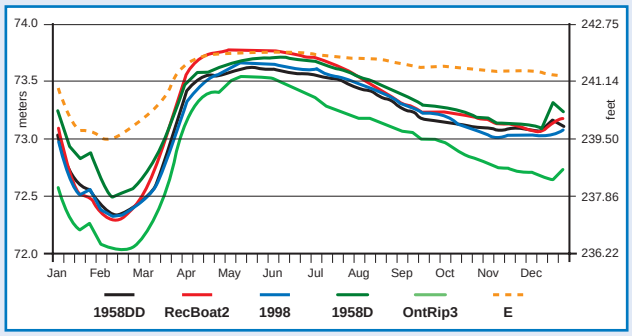
This plot shows the average levels for Lake Ontario. In the comparison, Plan E has the highest average levels throughout the year followed by Plan 1958D. The Shoreline Interest Plan (OntRip3) has the lowest average levels.



Average Long Sault Levels

Five Non-Candidate Plans compared to 1958DD (status quo)

This plot shows the average levels for Lake St. Lawrence at Long Sault. In the comparison, Plan E has the highest average levels throughout most of the year. Plan 1958D generally has the next highest levels, and OntRip3 the lowest.



Contact Us

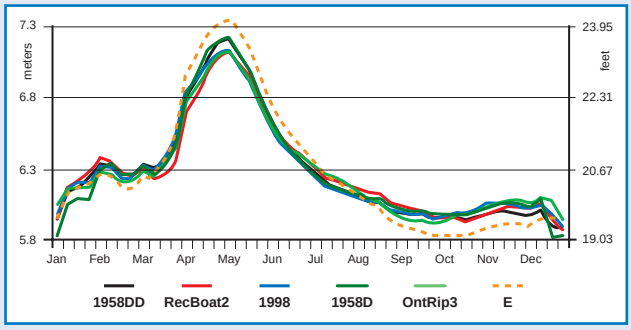
Visit the Study website at www.losl.org!

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

Average Port of Montréal Levels

Five Non-Candidate Plans compared to 1958DD (status quo)

This plot shows the average for Montréal Harbour. For most of the year there is less than 15 centimeters difference separating the plans, but Plan E is clearly higher in the spring, and clearly lower in the fall.



United States

Arleen K. Kreusch
Public Affairs Specialist
1776 Niagara Street
Buffalo, NY, 14207-3199
Tel: (716) 879-4438
Fax: (716) 879-4486
arleen.k.kreusch@lrb01.usace.army.mil

Canada

Greg McGillis
Public Information Officer
234 Laurier Avenue West, 22nd Floor
Ottawa, ON, K1P 6K6
Tel: (613) 992-5727
Fax: (613) 995-9644
McGillisG@ottawa.ijc.org

Étude internationale sur le lac Ontario et le fleuve Saint-Laurent
International Lake Ontario - St. Lawrence River Study