

# on the LEVEL



## IN THIS ISSUE:

PIAG  
Announcements ..... 2

Adaptive Management:  
Overview ..... 3

History of the  
Chicago Diversion ..... 4

Report on  
Site Selections ..... 6

IJC Public Consultation  
Times and Locations ..... 7

Lake Levels  
Charts.....(insert)

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## The IJC Plans Public Consultation on St. Clair River Report

The International Joint Commission (IJC) has announced that it will hold public consultations from March 22–31, 2010 to invite comment on the International Upper Great Lakes Study Board report, *Impacts on Upper Great Lakes Water Levels: St. Clair River*. The consultations will be held in six locations, three on each side of the border, followed by two teleconference sessions for those unable to attend in person. Comments are also being collected via email and the internet via a webpage dedicated to the consultation process: <http://www.ijc.org/en/activities/st-clair-river>.

The IUGLS report concludes the first phase of the Study and examines the physical changes in the St. Clair River since 1962. The Study Board recommends that measures to remediate the increased conveyance, or water-carrying capacity, of the river not be undertaken at this time. It also recommends that mitigation measures in the St. Clair River be examined as part of the comprehensive assessment of the future effects of climate change in the second phase of the Study.

Each public consultation will pair a location in Canada with one in the United States, linked by telephone and video display to allow the public at each location to hear comments from the other location.

“Our two nations share the St. Clair River and the water that flows through it from the upper lakes,” said Canadian IJC Chair Joe Comuzzi. “It is vital that the public on both sides of the border has a say in its future.”

U.S. IJC Chair Irene Brooks added, “We invite the public to join us by telephone conference the following week or on our blog and Facebook pages up until our April 9<sup>th</sup> deadline for comment.”

Teleconference Phone Number: 877-413-4814

- On Tuesday, March 30 at 1:00 pm E.D.T, enter code 5323416 for English (4888722 for French)
- On Wednesday, March 31 at 7:00 pm E.D.T, enter code 5834113 for English (9990570 for French)

In person public consultations will be held at the dates and locations found on page 7.

Written comments may also be submitted to the IJC for receipt by April 9, 2010 to either address below:

**U.S. Section Secretary  
International Joint Commission**  
2401 Pennsylvania Avenue, NW, Suite 400  
Washington, DC 20440  
Fax: 202-254-4564  
Email: [Commission@washington.ijc.org](mailto:Commission@washington.ijc.org)

**Canadian Section Secretary  
International Joint Commission**  
234 Laurier Avenue West, 22nd Floor  
Ottawa, ON K1P 6K6  
Fax: 613-993-5583  
Email: [Commission@ottawa.ijc.org](mailto:Commission@ottawa.ijc.org)

The IJC will consider the views of the public on the recommendations of the Study Board before it reports to the governments of

*continued on page 7*

## New U.S. Co-Chair takes Helm of the Public Interest Advisory Group (PIAG)



The International Joint Commission has appointed David Powers as the new U.S. co-chair of PIAG. Powers is a long-time Michigan resident and has practiced law in the Bay City area for more than 20 years. Powers was co-founder and vice-chairman of Save Our Shoreline, a non-profit organization of more than

3,200 Great Lakes property owners. He has been nationally recognized for his work as an attorney representing property owners' riparian rights along Michigan's Great Lakes shoreline. He has served on PIAG since the inception of the Study in 2007.



After more than two years of dedicated service, Kay Felt has stepped down as U.S. co-chair. During her tenure, PIAG helped the Study hold more than 30 public meetings and other workshops. Since she will remain a member of PIAG, the Study will continue to benefit from her wise counsel.

## PIAG Welcomes Three New Members

The IJC has appointed three new members to the binational Public Interest Advisory Group (PIAG) that advises the IUGLS on issues of communications and outreach to the public.



**Frank Ettawageshik** joins the PIAG to provide advice on outreach to Native American and First Nation groups. Ettawageshik is the Executive Director of the United Tribes of Michigan and previously served as Tribal Chair of the Little Traverse Bay Bands of Odawa Indians. He has represented both U.S. and Canadian tribal interests on

many Great Lakes related advisory boards including the Great Lakes Compact and related binational agreements.



**Glen Nekvasil** is the Vice-President of Corporate Communications for the Lake Carriers' Association, which represents U.S. Flag vessels on the Great Lakes. Nekvasil is also the Secretary of the Great Lakes Maritime Task Force and Director of Media Relations for the Washington DC-based Maritime Cabotage Task Force.

As a member of PIAG, he will represent commercial navigation interests



**Jim Te Selle** joins as PIAG's first member from Wisconsin and is a lifelong resident of the Great Lakes. Te Selle currently serves as the President of the Wisconsin Great Lake Coalition, an organization of shoreline property owners on Lake Michigan. He is active in efforts to restore the

lakes, both environmentally and economically, and has been very engaged in the Study from the beginning.

# Adaptive Management: What is it and Why is it Important to the IUGLS?

One thing is for sure: the future is uncertain. That means it is impossible to design a regulation plan now that will be optimal for all possible future conditions including climate change. Therefore, the IUGLS is focusing attention on the development of an adaptive management strategy that will allow changes to be made as more knowledge is gained. This greater emphasis reflects the understanding that adaptive management can be an effective way of coping with climate change and variability.

An adaptive management workplan has been developed to provide an integrated series of IUGLS work elements for dealing with future uncertainty regarding Great Lakes levels and flows. Uncertainties include uncertainty in the world (natural variability, including economic, social, climatic and environmental) and uncertainty in the way we try to simplify natural processes to mathematical models. Adaptive management provides a structured, iterative process for reducing uncertainty through long-term monitoring and modelling and assessment so that decisions can be made and adjusted as information and knowledge becomes available.

While the principle of adaptive management was originally being addressed by the Plan Formation and Evaluation Group (PFEG), the increased emphasis on this critically important component of the Study

led the Study Board to establish a new Adaptive Management Technical Working Group (TWG). Wendy Leger, (Environment Canada) and Jen Read (Great Lakes Observing System) have been appointed as the Canadian and U.S. co-chairs and efforts are now underway to identify members for this group.

In June 2009, an adaptive management workshop was convened with the goal of developing guiding principles for an adaptive management strategy. The workshop brought together climate experts and resource managers to consider and debate the proposed two part strategy:

1. To adapt regulation rules in the future as conditions change.
2. To provide information on climate changes and water levels so that affected interests can adapt their behavior and policies.

As a result of the workshop, the traditional approach of using “best-guess scenarios” for future water level conditions was replaced by a bottom-up approach in which the adaptive management group will first select water levels or supplies that might result in damages (such as flooding) and then determine the plausibility of such scenarios.

Monitoring is the foundation of a successful adaptive management plan. Identification of indicators and

triggers will help determine when it is time to take action. As part of this strategy, the Adaptive Management TWG is currently working to identify system vulnerabilities by engaging each of the other TWGs to define coping zones for their interest and by location :

- A=preferred/acceptable zone,
- B=difficult but can be coped with under current management regimes, and
- C=management would have to be adapted to avoid serious negative consequences.

Each coping zone will be defined by a series of water level characteristics such as precipitation patterns and ice cover. Perhaps most importantly, the Adaptive Management TWG will identify critical thresholds, or the point at which a major management change must occur, for moving from Zone A to Zone B and from Zone B to Zone C.

All the Study TWGs met at a workshop in February 2010 to develop specific workplans necessary to provide information back to the Adaptive Management TWG.

Since we know that the future is uncertain, preparation and planning for such uncertainty is all the more important. By developing an adaptive management strategy, the IUGLS will contribute much needed information to the myriad of communities that live around, and rely on, the Great Lakes.

# The Chicago Diversion – How much water, where does it flow and why?

At public meetings held last year by the International Upper Great Lakes Study, many questions were raised regarding the Chicago Diversion and its impacts on Lake Michigan–Huron. More recently, the draft Asian Carp Control Strategy Framework<sup>1</sup> released by several U.S. government agencies recommends examining “modified structural operations” at the O’Brien Lock and Dam and the Chicago Controlling Works (see Figure 1) as part of a comprehensive suite of activities to suppress migration of Asian Carp into the Great Lakes from the Mississippi River Basin. This public interest raises questions about the diversion, the amount of water involved, where it flows and why.

Water that flows directly from Lake Michigan through locks and controlling works accounts for between 10 and 15 percent of the total diversion (see Figure 2 for a breakdown of specific components of the diversion in the 1990s). In contrast, nearly 60 percent of the total volume of water diverted is for municipal supply uses with the resulting effluent also diverted away from Lake Michigan. The balance of the diversion (between 25 and 30 percent of the total) is actually an interception of highly polluted urban runoff from the Chicago River and Calumet River basins that previously would have

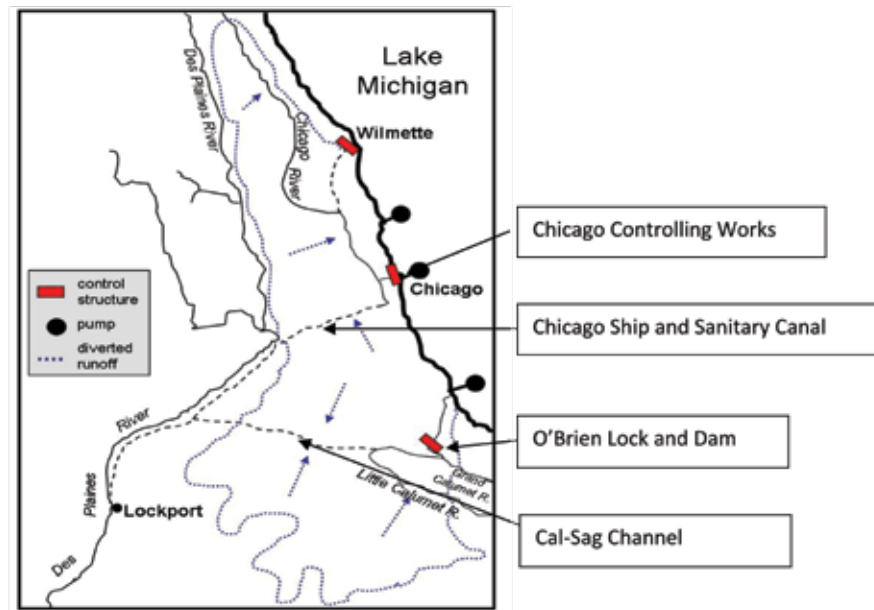


Fig. 1: Schematic showing natural rivers (solid black lines) and artificial channels (dashed black lines), along with control structures and water pumpage sites, that make up the Chicago Diversion. The extent of the Chicago and Calumet River basins that would naturally drain into Lake Michigan is outlined with a blue dotted line, while blue arrows signify the direction of storm runoff. Since this runoff now flows away from Lake Michigan, it is an important component of the total diversion.

reached Lake Michigan. Together, these two sources of polluted water (between 85 and 90 percent of the total diversion) do not reach Lake Michigan, preventing eutrophication (when excess nutrients from runoff promote plant growth and decay, severely compromising water quality) and a host of associated adverse ecological impacts. For example, the O’Brien Lock and Dam, which began operating in 1965, helps to prevent toxic industrial pollution from reaching Lake Michigan.

With the completion of the Chicago Ship and Sanitary Canal in 1900 (see Figure 1) that permanently reversed the flow of the Chicago River, the diversion grew to a maximum of 10,000 cubic feet per second (cfs) (285 cubic metres per second, cms) in the late 1920s. Because of concerns about the impact on water levels, court challenges by Great Lakes states and the government of Canada resulted in the U.S. Supreme Court setting successively lower limitations to the diversion. In 1967, Illinois agreed

<sup>1</sup> Asian Carp Control Strategy Framework; Section 2.1.4, Modified Structural Operations – Efficacy Study  
<http://www.asiancarp.org/RegionalCoordination/documents/AsianCarpControlStrategyFramework.pdf>

to a consent decree that limited the total diversion for navigation, domestic water use, and sanitation to 3,200 cfs (90.6 cms), and this decree remains in force with minor modifications.

Given the important role the Great Lakes play in both the ecology and economy of the region, the Chicago Diversion is certain to be the subject of further discussion and debate. For example, the U.S.-only Great Lakes Compact (2008) and a similar nonbinding agreement among the Great Lakes states and provinces commit those jurisdictions to seeking the permission of all the other jurisdictions if they wish to divert water outside the Great Lakes basin. Communities surrounding Milwaukee, Wisconsin (but on the Mississippi River basin side of the continental divide) are engaged in this process. However, since water conservation efforts have reduced the diversion to below the limit set by the consent decree, Chicago area water authorities are currently looking at providing Great Lakes water to outlying suburban communities outside the basin. Such action would not need the approval of other states or provinces.

Most recently, in response to the Asian Carp threat, Michigan's attorney general asked the Supreme Court to reconsider the decree in light of the potential harm an invasion of Asian Carp could cause if they were to enter the Great Lakes via the Chicago

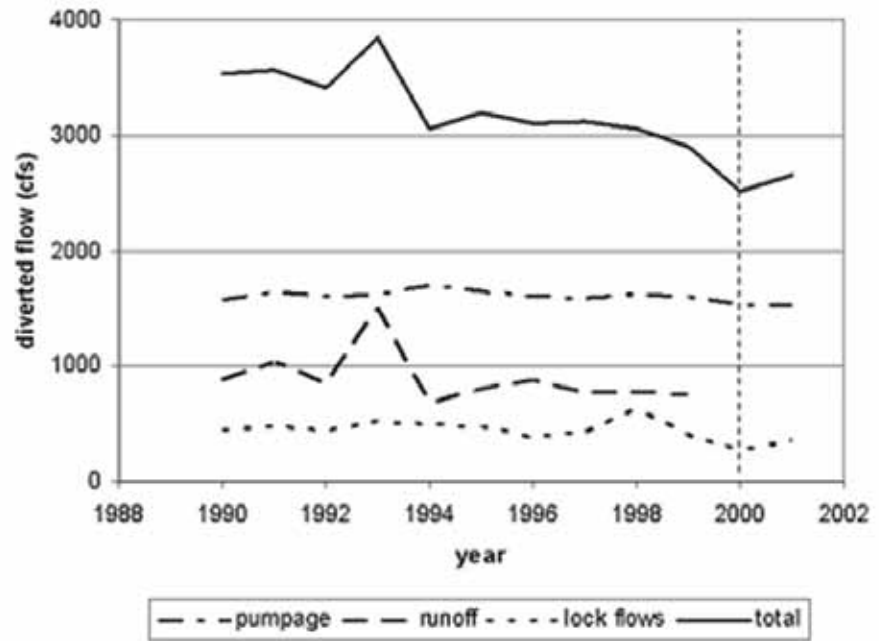


Fig. 2: Breakdown of total water diversion in cubic feet per second (cfs) through the Chicago Area Waterway System out of Lake Michigan. These percentages were generally stable during the decade, with the exception of 1993, when historic floods throughout the Midwest caused runoff nearly to double.

diversion.<sup>2</sup> While the high court did reject a petition for a preliminary injunction (requesting the closure of the O'Brien and Chicago locks) the court has not yet ruled on reopening the original consent decree.

Closing those locks would effect little change in water levels. A previous report by an expert binational task force convened by the International Joint Commission estimates that the Chicago Diversion lowers long term mean levels on Lake Michigan-Huron by six centimetres (2.4 inches).<sup>3</sup> Since, as described above, less than 15 percent of the diversion flows through the locks, the estimated

potential impact of permanent closure may be less than a one centimetre (0.4 inches) increase in mean levels. But such a closing would have other impacts, all of which will certainly be considered in future decision making regarding the Chicago Diversion.

**NOTE:** Visit [www.iugls.org](http://www.iugls.org) for a longer version of this article with a much more extensive history of the Chicago Diversion.

<sup>2</sup> Supreme Court of the United States; <http://www.supremecourtus.gov/SpecMastRpt/Orig%201,%202%20&%203%20Motion%20to%20Reopen.pdf>

<sup>3</sup> 1993 Levels Reference Study

# Study Chooses Key Sites for Examination

Comprised of nearly 9,500 miles (15,000 km) of shoreline, the upper Great Lakes Basin is defined by its variability. While it is not feasible to conduct a complete assessment of the entire shoreline, the IUGLS will be evaluating key locations throughout the basin as part of its assessment of changing water levels and flows and their impacts on the Great Lakes ecosystem and the people who live and work there. Two Technical Working Groups (TWGs) have identified the sites that will be examined as part of their work on the IUGLS; the sites were chosen based on the availability of data as well as their level of sensitivity (e.g., evidence of past damages), as relatively minor impacts will be harder to detect in sites with a low or moderate level of sensitivity.

## COASTAL ZONE SITES.

The Coastal Zone TWG has identified two types of study sites (see map, right) to be examined. All of the sites selected will be examined and characterized based on their general sensitivity to important factors such as flooding, low water, erosion or shore protection (or some combination of these four indicators). Approximately half of the sites (marked in red on the above map) will undergo a more detailed analysis which will include impact modelling of the sensitivity of the site to the relevant indicator(s).

**NOTE:** The sites identified in the coastal zone map are still preliminary and will be finalized in the coming months; several sites on Lake Erie are currently being evaluated.

## ECOSYSTEM SITES.

The Ecosystem TWG has identified field sites based on criteria that include: sensitivity and responsiveness to changes in water-level regime; geographic and ecoregional representation across representative shoreline and wetland types; available historical data and imagery; ongoing research and field activity; and socio-economic interest. The responses of key ecological attributes to changes in water-level regime and flows are being evaluated by site coordinators. These analyses consider not only the range and magnitude of water level change, but also factor in shifts in seasonal timing, frequency, and duration of these water levels and flows. As each of the upper Great Lakes is different, changes in ecological attributes will be evaluated and integrated on a lake-by-lake basis across representative shoreline and wetland types.



Coastal Zone Sites Map



Ecosystem Sites Map

continued from page 1

Canada and the United States on matters related to the St. Clair River and their impacts on upper Great Lakes water levels.

The second phase of the Study will continue to examine whether the IJC Order of Approval and plan for regulating Lake Superior outflows should be modified to address the evolving needs of users on Lakes Superior, Huron, Michigan and Erie and the changing climate. The final report of the Study Board is expected to be completed and submitted to the IJC by early 2012. Funded equally by the U.S. and Canadian governments, the Study is being conducted by the binational, independent International Upper Great Lakes Study Board at the request of the IJC under the authority of the Boundary Waters Treaty.



Monday, March 22, 2010	Wednesday, March 24, 2010	Thursday, March 25, 2010
Midland, ON – 7:00 pm E.D.T. North Simcoe Sports and Recreation Centre Bill Thompson Room 527 Len Self Blvd, L4R 5N6	Toronto, ON – 7:00 pm E.D.T. Seneca College, Newnham Campus Conference Centre 1750 Finch Ave. East, M2J 2X5	Sarnia, ON – 7:00 pm E.D.T. Sarnia City Hall Council Chambers 255 N. Christina St., N7T 7N2
Sturgeon Bay, WI – 6:00 pm C.D.T. Crossroads at Big Creek Nature Center Lecture Hall 2041 Michigan St., 54235	Muskegon, MI – 7:00 pm E.D.T. Annis Water Resources Institute Grand Valley State University Multi-Purpose Room, 2 <sup>nd</sup> Floor Lake Michigan Center 740 West Shoreline Dr., 49441	Toledo, OH – 7:00 pm E.D.T. Lake Erie Center University of Toledo 6200 Bay Shore Rd., 43616

## Evaporation Gauge Installed on Lake Huron Lighthouse

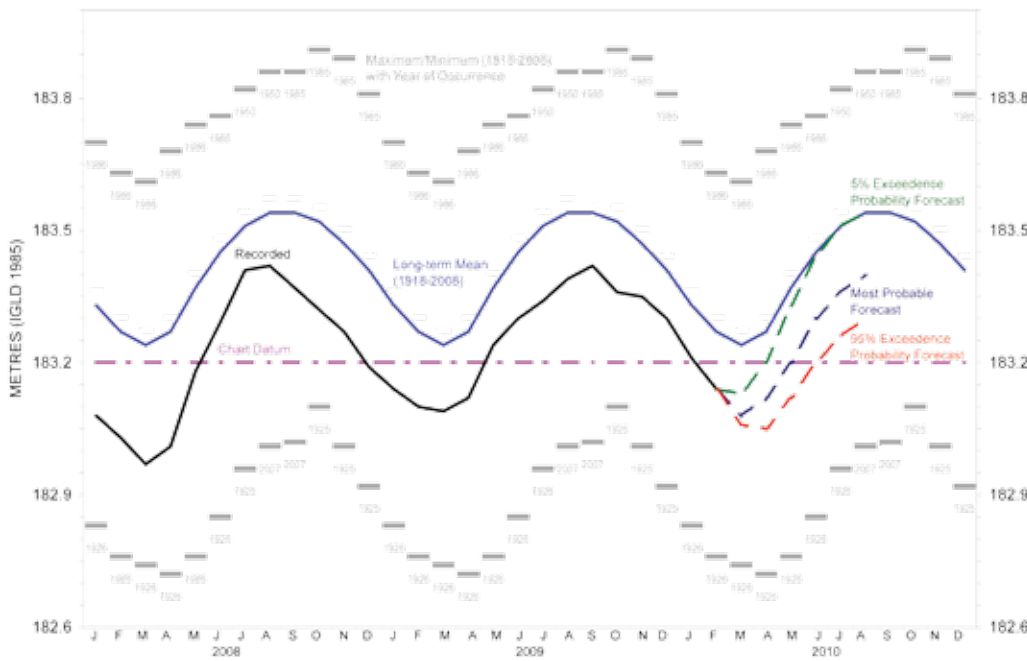
Building on the successful installation in the summer of 2008 of evaporation monitoring equipment on the Stannard Rock Lighthouse in Lake Superior, this past summer, IUGLS scientists installed the same high-frequency wind and water-vapor density measuring instruments on Spectacle Reef Lighthouse in Lake Huron. These devices—known as eddy covariance gauges—measure a critical component of the Great Lakes water balance. The data collected will help

scientists understand how water levels may change with predicted climate change scenarios.

Visit the Great Lakes Lighthouse Keepers Association website (<http://www.gllka.com>) for an extensive article (with photographs) about the installation of this equipment on the more than century-old Spectacle Reef Lighthouse. The article appeared in the Winter 2009 issue of *The Beacon* (<http://www.gllka.com/education/beacon>), the association's quarterly magazine.

# LAKE LEVEL CHARTS

## LAKE SUPERIOR MONTHLY MEAN LEVELS

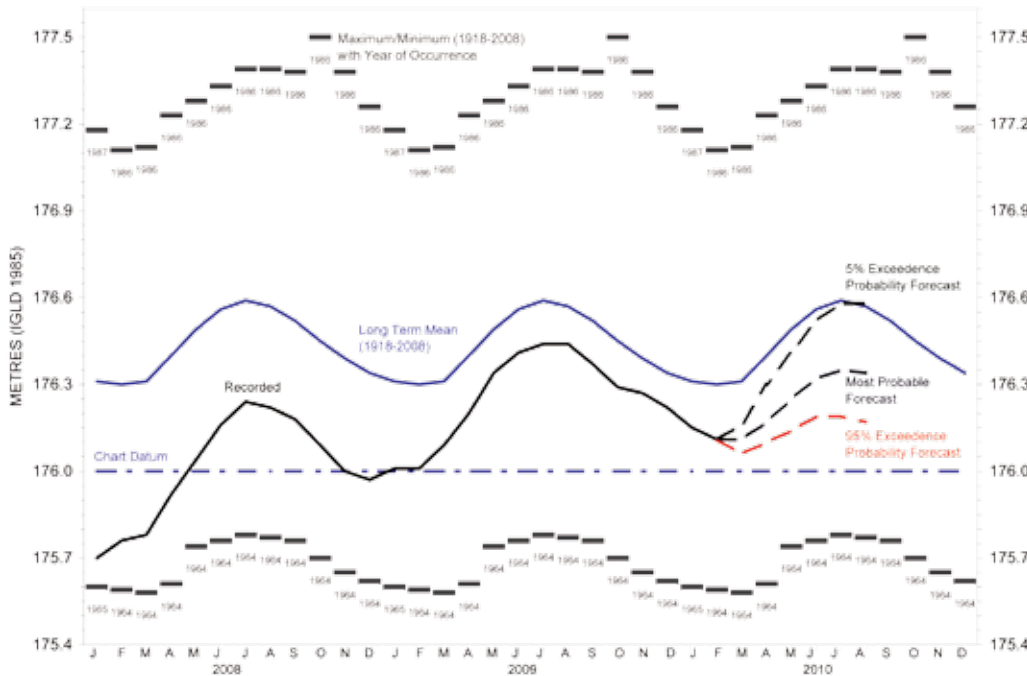


Each month, Canadian and U.S. experts jointly prepare these charts showing historic, current and projected water levels.

The solid blue line shows average or mean monthly water levels based on records collected from 1918 to 2007.

The solid black line shows actual monthly water levels, starting in January of 2008 through the current month (March 2010).

## LAKES MICHIGAN-HURON MONTHLY MEAN LEVELS



The dotted lines represent projected water levels, with the center dotted line being the most likely scenario, while the upper dotted line reflects very wet conditions and the lower dotted line (in red) reflects very dry conditions. There is a one in ten chance that the level will be outside the range formed by these two more extreme scenarios.

The short bars above and below represent record high or record low monthly mean levels and the year in which the record occurred.

SOURCE: Great Lakes-St. Lawrence Regulation Office, Environment Canada; and Detroit District, U.S. Army Corps of Engineers



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**Published by the International Upper Great Lakes Study with support from  
the International Joint Commission. To learn more, visit our website at [www.iugls.org](http://www.iugls.org).**

*Key Canadian Contacts:*

Dr. James Bruce, Co-Chair, Public Interest Advisory Group  
Ted Yuzyk, Co-Chair, Study Board  
Dr. Syed Moin, Co-Manager, Study

*Key United States Contacts:*

David Powers, Co-Chair, Public Interest Advisory Group  
Dr. Eugene Stakhiv, Co-Chair, Study Board  
Dr. Anthony Eberhardt, Co-Manager, Study

*Communications Contacts:*

John Nevin, IJC Communications Advisor

Jill Wingfield, IUGLS Public Information Officer