Public Interest Advisory Group
9:00 a.m. – 4:00 p.m. EST, Thursday, March 4, 2010
Location: Windsor Hilton, Windsor, ON
Type of Meeting: Face-to-Face
Meeting Facilitators: James Bruce and David Powers
Invitees: All PIAG Members & Study Team

Minutes

I. Roll Call

Present from PIAG: James Bruce, David Powers, Doug Cuddy, Frank Ettawageshik, Richard Hibma, Kenneth Higgs, William Hryb, David Irish, John Jackson, Donald Marles, Mary Muter, David Powers, Roger Smithe, Alan Steinman, James TeSelle, Dan Thomas, Jeff Vito (Regrets: James Anderson, Kate Bartter, Kay Felt, Glen Nekvasil)

Present from Study Team: Eugene Stakhiv, Ted Yuzyk, Anthony Eberhardt, Syed Moin, John Nevin, Jill Wingfield

PIAG members expressed sincere thanks and appreciation to Kay Felt for her advice and guidance as co-chair of the PIAG. PIAG members also expressed their thanks to Jill Wingfield for providing support to the committee and wished her well on her new personal and professional ventures.

II. Minutes

The minutes from the face-to-face meeting held on December 11, 2009 in Windsor, Ontario, were approved.

III. Update on Adaptive Management

TWG co-leads Wendy Leger and Jen Read provided an update on the activities of the Adaptive Management Technical Working Group (AM Group). Adaptive Management is a structured, iterative process of optimal decision-making in the face of uncertainty, aiming to provide needed information for adaptation via system monitoring.

The hydroclimate workshop held in Toronto on March 2-4, 2010 had a great turnout with nearly 60 attendees; there was good representation from the Technical Work Groups (TWGs), Study Board, and relevant experts. The workshop was organized into five breakout sessions:

1. Integrating Short-Term Regulation with Long-term Adaptive Management;
2. Coping Zones;
3. Triggers/Monitoring/Forecasting;
4. Developing Water Supply Traces; and
5. Scaling Risk - Defining Plausibility.

The participants at the workshop identified specific tasks for the Hydroclimate TWG to guide their work in this area. In addition, using the information gained at the workshop, the AM Group further refined the decision tree for the Study Board and was able to provide additional information on coping zones to the TWGs.

The adaptive management work plan that was approved by the Study Board includes the following tasks:

Task 1: Define system vulnerabilities;
Task 2: Develop risk scenarios;
Task 3: Define plausibility of risks;
Task 4: Develop existing regulation strategies to address future risks;
Task 5: Evaluate the ability to influence levels and flows through new structures;
Task 6: Identify long-term monitoring and modelling requirements for adaptive management;
Task 7: Conduct an institutional analysis; and
Task 8: Develop adaptive management plans.

At the end of this process, the Study Board will have to make decisions on the following plan alternatives:

1. Tier One – A new near term Lake Superior regulation plan to replace Plan 1977A. Note: this is not the focus of the AM Group.
2. Tier Two – A next term Superior regulation plan(s) that identifies new goals for regulation and relies on indicators to signal when to act; this plan(s) will include an adaptive management process for refining and implementing it sometime in the future.
3. Tier Three – An adaptive management process that can support decisions beyond regulation of Superior (e.g. multi-lake regulation and non-regulation adaptation such as new coastal zone and floodplain management policies).

Each tier requires various levels of input from the Plan Formulation and Evaluation Group (PFEG) and AM Group. Through the Adaptive Management Process, each action triggers necessary steps: monitoring, evaluation, learning, and planning that require collaboration through institutional arrangements. For each tier, it is necessary to identify:

- The cause for making a change.
- The trigger that initiates a change.
- The goals of the change
- The change or action that is initiated.
- The monitoring/modeling requirements for this aspect.
- The organization or institution responsible for taking the action.

Through this process, uncertainties are reduced, triggers are identified, and responsible agencies/organizations are identified. As the process continues, adjustments will be required to incorporate information gained through earlier stages. At each stage, there are institutional collaboration components.

The AM Group determined that a bottom-up decision scaling approach in which the vulnerabilities of the system are identified prior to determining how likely they are to happen would be most effective. Water level regimes are categorized into three coping zones:

A=acceptable, within expectations;
B= non-trivial costs (or environmental impacts), interests will persevere;
C= significant costs, interests cannot survive, serious degradation of ecosystem function.

Zone definitions include levels/flows, range, duration, frequency, seasonality, rate of change, etc. Other factors, such as glacial isostatic rebound (GIA), in combination with a particular water level regime, could push an interest to a new coping zone over time. Using a risk evaluation matrix, the AM Group has identified water level regimes (plausible/very plausible Zone C scenarios) that should be the focus of the future planning efforts. Monitoring and modeling rely on indicators that are established based on coping zone definitions. A number of institutional issues must be taken into account when examining Tier 2 and Tier 3 situations.

A draft decision tree that presented the roles of the TWGs, AM Group, PFEG and Hydroclimate Group and outlines the steps to be taken within an adaptive management framework with the ultimate goal of avoiding Zone C scenarios was presented for discussion. Throughout the Study, non-regulatory actions that could potentially achieve the same goals and objectives of a structure will also be examined even though they are not the responsibility of the IJC. The AM Group will not make a recommendation on which non-regulatory is best (e.g. a cost benefit analysis) but will provide information on the institutional requirements, legal implications, feasibility, etc.

Two-way communication is vital to the adaptive management framework to manage expectations, build support and develop allies. Internal communication applies to those involved in the Study and is necessary so that the TWGs and Study Board understand expectations (on both sides) and products. There must also be a common understanding of terms and issues as well as efforts to ensure that agencies are committed to a common approach. External communication with interest groups and taxpayers (particularly as we talk about the development of structures) will certainly involve PIAG members. External communication should focus on helping the public understand the challenges of uncertainty and that those charged with the responsibility to regulate levels are taking this into account in their decision-making process.

IV. Defining of Alternatives to Plan 1977-A

Plan Formulation and Evaluation Group

David Fay provided an overview of Plan Formulation and Evaluation Group (PFEG). The Study Board process is governed by the following guidelines: decisions are based on best available data and science given the budget and timeline, the process is open and transparent, uncertainty will be acknowledged and reported, and the Study Board will work towards consensus on all findings and decisions.

Lake Superior Evaluation Guidelines are being developed by the Study Board. Preliminarily, the guidelines state that any change to the Orders of Approval and regulation plan will:

1. be based on the best assessment of effects;
2. address to the extent possible, ecological, economic, and social impacts;
3. minimize disproportionate losses to all interests and regions; and
4. be designed to respond to unusual or unexpected conditions affecting the Great Lakes system.

Shared vision planning is an open approach is in which public participation is structured for effective fair representation of the various public interests. It is designed to minimize cognitive conflict such that all interests agree on the science so that resolving conflicts that arise due to differences in values and self-interest is possible.

The PFEG has asked all of the TWGs to develop planning objectives to cover the various aspects of their respective interests. Broad planning objectives include the following examples:

1. maintain or improve the health of coastal ecosystems;
2. reduce flooding, erosion and shore protection damages;
3. reduce the impact of low water on the value of coastal property;
4. reduce shipping costs;
5. increase hydropower value;
6. increase the value of recreational boating and tourism opportunities; and,
7. maintain municipal-industrial water supply and wastewater discharge capacity.

Performance Indicators will then be identified for each of the planning objectives. Plan formulators will use these to develop plans from different perspectives using multiple approaches.

The PFEG outlined a method to improve regulation plans. First, the group will develop the water balance (routing) model for the system to include storage relationships, channel flow ratings, ice/vegetation effects on river flow and diversions, etc. Information learned during the SCR Study will also be included. Next, with the Hydro-climate TWG, several different century-long water supply scenarios will be selected and then through an iterative process the plan formulators will: set objectives (water level and flow criteria), develop the regulation plan, simulate response of regulation to water supplies (levels and flows), simulate effects of levels and flows on interests, and then evaluate.

Plan formulators first developed fencepost plans to test the limits of regulation. The Study Board has already rejected these one objective plans, which include a plan that reduces the range of levels of Lake Superior, a hydropower focused plan, and a plan that uses Lake Superior as a reservoir to reduces the range of levels of Lakes Michigan-Huron. Currently a number of teams are developing more realistic multi-objective potential regulation plans for evaluation by the Study Board in the future. It is important to remember that the degree of control on the outflow of Lake Superior is much less than the variability in supplies which is what causes the fluctuation in levels from year to year.

St. Marys River Flows and Levels

A number of Lake Superior outflow regulation issues, such as the effect on lake and river levels, flow allocation among uses at Sault Ste. Marie and hydropower peaking and ponding, are being reviewed by the Study Board.

Currently, the monthly mean flow is distributed in the following priority order:

1. domestic, municipal and industrial uses;
2. operation of the navigation locks;
3. environmental/fishery requirement for the St Marys rapids;
4. hydropower (shared 50:50 between nations); and,
5. remaining water released through the Compensating Works.

This priority list was reviewed in the 1980s but has not been evaluated since then. The minimum flow through the compensating works is a gate half open; the amount of water that flows through is adequate to provide water in the rapids for the fishery (note: this amount was set in the late 1970s early 1980s). This is equivalent to four gates open approximately eight inches, which is the most common setting. Gate settings of five gates fully open or more are very rare and only occurs about three percent of the time.

The rapids are very productive fish spawning habitat. A fishery remedial works wall maintains the prime wet (spawning) habitat on the islands that form the north shore of the rapids.

Under plan 1977-A, large changes in the gate settings at the Compensating Works on a month-to-month basis are possible. The Ecosystem TWG, however, has expressed a preference for slow-moving changes (~10 days) to reduce adverse effects on fisheries and anglers. However, the 10 day preference has not been tested in the field. Two possible solutions are to 1) feather in changes over the course of a month (set maximum daily adjustment) or 2) limit month-to-month flow. Automating the gates may be more practical if the first solution is implemented; however, that decision would be up to the power companies as moving the gates is their responsibility.

The IJC sets peaking and ponding guidelines if levels downstream are expected to be low. There must be at least eight hours per day of peak flows to allow ships to pass through the locks if downstream levels are low.

V. Lake Superior Task Team Meeting Overview

Tony Eberhardt provided an overview of the recent Lake Superior Task Team meeting that was held in Burlington, Ontario. The task team developed a timeline for completion of the Lake Superior Regulation Report:

- June 2010: Completion of contextual narratives
- Spring & Summer 2010: Field work and data verification
- Fall 2010: Completion of performance indicators and coping zone definition
- June 2010 to June 2011: Eight product reviews
- Present through Summer 2011: Building of Shared Vision Model (SVM) with incorporation of all related TWG models (including IERM, Great Lakes Navigation Model, etc.)
- October 2011: Draft report complete
- December 2011: Three chapters (requiring synthesis reviews), full report, peer review responses complete
- February 2012: Final report completed

Tony provided updates on the status of each TWG. The Coastal Processes TWG is making final edits to their theme reports and have completed selecting sites. Contracts have been initiated to evaluate flooding and low water impacts, erosion and shore protection. The Commercial Navigation TWG has identified the performance indicator as transportation cost. Their model will generate transportation cost depth curves which will be available to PFEG by spring 2010. The Hydropower TWG is refining the RFP for electricity price forecast report. The Ecosystems TWG held a site coordinators workshop in February this year to determine final site locations, critical data gaps, ecological responses to ecological thresholds, and coastal zone vulnerabilities definitions by the end of June 2010. Since representatives from both the Recreational Boating and Tourism and Water Uses TWGs will be presenting later this afternoon, their updates were not included in this overview.

VI. PIAG Rotating Liaison with Lake Superior Task Team (LSTT)

There are two rotating slots for PIAG members to attend LSTT meetings. The next meeting is scheduled for June 2010; PIAG co-chairs James Bruce and Dave Powers will attend as liaisons. PIAG members were asked to volunteers for subsequent sessions via email to the PIAG co-chairs and John Nevin.

VII. Update from the Water Uses Technical Working Group

Carol Salisbury with the Ontario Ministry of the Environment and Dick Bartz with the U.S. Geological Survey provided an overview of the Water Uses TWG. Membership is comprised of two co-leads (one from the U.S. and one from Canada), PIAG liaisons (Don Marles and Jeff Vito), Study Board liaisons, and several other relevant experts from around the basin.

The Terms of Reference calls for the TWG to look at major municipal and industrial intakes. As work has progressed, the Study Board also requested that the TWG include storm water, waste water and CSO outfalls in the analysis. In addition, both high water and low water impacts should be evaluated. Essentially, the main question that the Water Uses TWG seeks to address is: How many facilities would be affected and by how much at different lake levels?

The Water Uses TWG divided their work into three phases. Phase I, which is now complete, included three tasks:

1) Completing the Municipal and Industrial Intakes and Outfalls Study which called for collecting existing data to identify municipal, industrial and domestic water uses in the Upper Great Lakes and propose economic performance indicators.
2) Conducting a Future Water Demand Study to review currently available projections and trends in water demand and provide a qualitative, high level analysis of how water demand on the upper Great Lakes will change over the next 30 years.
3) Completing the contextual narratives (note: initial draft has been completed).

Phase II is underway and involves the construction of a detailed database of impacts on municipal and industrial intakes and outfalls, development of performance indicators, development of coping zones and planning objectives, and modification of the contextual narratives based on peer reviews and Phase II reports.

Phase III calls for the integration of the research conducted by the Water Uses TWG into the Shared Vision Model (SVM) and proposed adaptive management approach, completion of the contextual narratives and the final water uses summary report.

The Water Demand Study found that there has been a declining trend in total withdrawals within the Great Lakes basin, especially after 1995. Limitations with the data, including inconsistent and incomplete databases at state and provincial levels, were an issue throughout the study. Based on the available data, declining trends could be observed across all of the major sectors or users and across all five Lake basins. Overall, withdrawals declined between 1995 and 2005 by about 20% due to more efficient water use by the various sectors (nearly 2/3 of the total decline was in the power generation sector and ¼ in the industrial sector). The biggest withdrawal sector is thermoelectric power (75%), second is industrial and third is municipal.

The Water Demand Report was done at the request of the Study Board due to previous questions from public; there was a public perception that water withdrawals are a significant part of the water balance on the Great Lakes and data was needed to provide perspective to this perception. While withdrawals are somewhat high, most of the water withdrawn is returned to lakes; that is, consumptive use is very small and within the error limits of our ability to measure flows. The Water Demand Report includes a table that summarizes the trends in demand drivers which could affect future water withdrawals in the Great Lakes basin. Many indirect drivers (e.g. increased temperatures which would lead to increased irrigation demands) were not included in the demand analysis but will likely be part of the recommendations for future work that the Water Uses TWG makes to the Study Board.

Work for Phase II is currently underway. The purpose is to supplement the existing database (which is quite sparse) of municipal and industrial intakes and outfalls as required and characterize the impacts of fluctuating water levels and flows. Approximately 95 additional facilities will be assessed and the sites represent various sectors and geographic regions (including Lake Erie) and states/provinces.

The Independent Peer Reviewers strongly recommended that the Water Uses TWG "review the current level of irrigation water use and place that use in the context of current water demands in the basin." This information was added to the contextual narrative.

VIII. Update from the Recreational Boating and Tourism Technical Working Group

Glen Warren and Bill Boik provided an update on the activities of the Recreational Boating and Tourism TWG. Over the last couple of years, members have been working diligently to get engaged in the project, complete some primary research and identify information gaps.

An anticipated schedule of deliverables which included academic research, field research (marina surveys), work on contextual narrative, tourism survey, cruise ship industry research, adaptive management, coping zone charts, and the final report was presented.

<u>Academic Research</u>

Research assistants have worked all winter conducting a literature review of more than 180 reports and articles pertaining to water levels in the Great Lakes Basin. This work is ongoing and being entered into a database. The field survey research methodology has been established and the marine operator

questionnaire has been developed. The TWG identified key zones (10 Canadian, 7 U.S.) that are characterized by different bottom types and other variables.

Field Research

To date, 75-80 marinas in Canada have been evaluated so most of the field work on the Canadian side is complete. Overall, the data collected from the marine operators was quite useful. Approximately 20,000 marine slips throughout the Study area will have depth soundings and GPS readings taken (Nearly 10,000 Canadian slips have been measured so far; U.S. sites will be done using the same sounding equipment and methodology by the end of June 2010). Researchers are evaluating which slips would not be usable if levels dropped 3 feet.

Contextual Narrative

Work on the contextual narrative is now underway. A contract with an author has been signed and a first draft should be completed by the end of April.

Tourism survey

There is very little information available in the literature about the impacts of water levels on tourism. The literature addresses both boating and beach related concerns that affect tourism. Accounting for confounding factors such as a cold summer or an economic downturn is a challenge. Currently, the group is fine tuning the survey and will account for external factors but tie everything back to water levels.

Cruise Ship Industry

The cruise ship industry is an emerging business on the Great Lakes with annual revenue of $ 40-50 million. The TWG will develop a contextual narrative regarding the impact of changing levels on the industry.

Adaptive Management

Surveys of marine operators will help inform Adaptive Management, showing how they have had to change their businesses over the years.

Coping Zones

Work on the coping zones is progressing well. Zones are 80 kilometres in diameter and are geographically significant; all marinas within that the zone are included. To date, two zones on the U.S. side have been completed.

Final Report

The TWG is hoping to have final report done by September-October 2010.

In the Georgian Bay region, physical depth measurements were taken at 27 marinas which indicated a high degree of susceptibility to low water level scenarios. On Lake Huron, at least half in Little Current, Port Huron and Goderich Area of Survey (AOS) would go out of business if the water level were to drop by 3 ft (0.9m) from the average elevation for May through August, 2009 (176.4m). (note: these were survey responses and are not based on actual measurements). In Georgian Bay, 25 out of 26 marinas stated they would lose slips if water levels were to drop by 3 ft (0.9m).

The overall economic loss from lost slips due to water level drop scenarios was measured on the survey and using actual physical estimates. The estimate of loss from the survey was $5,038,350 while the actual loss calculated by the TWG was $5,012,570, an amazing similarity that raises the confidence level in the results.

IX. Communications Update

John Nevin provided an overview of the communication activities that have occurred since our last meeting. The St. Clair River Report (both summary and full report) was distributed widely to members of the public, governments, agencies, etc. In addition, the report is now being distributed to libraries on both sides of the border. A "live" press release that contained active links to full and summary reports, website, peer review, public comments, PIAG report was emailed to approximately 850 people. The program used for emailing the press release allowed the communications staff to track the activity of people that received the email; 38% of people that received the email opened it and there were ~300 clicks on the full report, ~60 clicks on the summary report, ~5 clicks on the PIAG report, ~14 clicks on the public comments and no clicks on the peer review link. Similar activity was observed on the IUGLS website; the full report was downloaded more than 500 times, while the summary report was downloaded approximately 250 times. The press release was downloaded more than 400 times, the public comments were downloaded approximately 80 times and the PIAG report was downloaded 70 times.

The International Joint Commission (IJC) has commenced its public consultation on the St. Clair River Report. They have created a website dedicated to the process that includes a blog for regular updates and discussion. Advertisements on Facebook will also be used to garner interest in the Study and the consultation. Three meetings, connecting six locations, will be held throughout the basin:
March 22 – Sturgeon Bay, WI and Mildland, ON; March 24 – Muskegon, MI and Toronto, ON; and, March 25 – Toledo, OH and Sarnia, ON. A short, pre-recorded presentation will describe the Study and the findings at each meeting. The rest of the meeting time will be dedicated to taking comments and questions from attendees. Video streaming will be two-way so that attendees at all locations will be visible to the other site. Two to three IJC Commissioners will be at each meeting site to hear comments from the attendees. While there is no formal role for PIAG at these meetings, assistance is needed to inform prospective interests. Two teleconferences will also be held on March 30 and March 31 at 1:00 p.m. EST and written comments will be received through April 9, 2010.

The next issue of the newsletter is currently being finalized and will include a story on the Chicago Diversion as well as articles on adaptive management and other study components. Work on the video is still underway and a final script should be presented at the next meeting. A table top display was created for use at the Chicago Boat Show; the display can be used at other venues and is another outreach mechanism that may be useful in the future. Turnout at the Chicago Boat Show was minimal and most outdoor/sporting shows around the basin are feeling the effects of the down economy.

The communication approach for this summer is less of a macro effort than we have done in the past. Rather, a targeted approach to engage interested members of the public is proposed. Communication goals for 2010 include continuing to build the contact list of interested members of the public, especially among younger demographic groups; increase awareness regarding Lake Superior phase of IUGLS; provide opportunities for increasing the knowledge base of reporters and opinion leaders; and, prepare the public for what will be coming in 2011. Facebook is a free social networking tool that could be useful in achieving these goals. A Facebook page has been created for the Study and PIAG members that are on Facebook are urged to "become a fan" once the page is live. PIAG members that are not on Facebook, but are willing to sign up should contact John Nevin for assistance. This networking tool will allow each person to send updates about the Study to their network of friends, family and colleagues.

X. Roundtable

Doug Cuddy noted that there has not been a heavy snow load in the northern part of the basin and is concerned that this may have an adverse impact on water levels this summer.

John Jackson was pleased to hear the reports from the TWGs today and feels there is a lot of value beyond the Study in these reports. We should make sure to publicize these individual pieces to ensure they are not lost in the mix.

William Hryb would like to remind the Study Board that peaking and ponding is a major concern to the navigation industry. The navigation industry is concerned about the economic model that is currently being developed; the stakeholders that Bill has met with would like to meet with the contractor by conference call to discuss the model.

David Irish would like it noted that if one interest group is given special access to the PIAG that other interest groups should also be given equal access.

Don Marles requested data on the evapotranspiration that has occurred over Lake Superior this summer. Ice cover has been very low this year and unless there is heavy spring precipitation there is concern that near-term future water levels may be low on Lake Superior.

Dan Thomas found David Fay's presentation quite interesting; in particular, the high sea lamprey populations in the St. Marys River rapids area may facilitate future research projects.
Jeff Vito found the meeting very informative and appreciated the updates from the TWGs.

Mary Muter is concerned about the IJC meeting structure and cautioned that many of her contacts will be frustrated by the video conference set-up.

Richard Hibma appreciated the updates from the TWGs. The objectives and goals laid out by the AM Group are ambitious and there will be a tremendous learning curve involved.

Alan Steinman also appreciated the updates from the TWGs. It may be useful to give the TWGs a template for future presentations to promote consistency. Al also expressed concern about the interest shown in the PIAG products (e.g. PIAG report on the website) and urged the PIAG and communication team to be creative and continue developing proposals for innovative ways to market various Study and PIAG products.

Jim TeSelle noted that communication and outreach activities are vital to the mission of the PIAG.

Roger Smithe hopes that the IJC meetings are well attended as he has not seen much in terms of advertising.

Frank Ettawageshik has found that use of social marketing tools, such as Facebook, has been quite successful in his work with Michigan's Travel Commission. Public input on the work that is being done is critical and these new tools should be used to facilitate public involvement. Frank also discussed the changes that are occurring in the ecosystems around the basin; it is important that we build in evaluation of these changes into the scope of Study as adaptation is the only option at this point.

Kenneth Higgs felt this was a very productive meeting and is looking forward to the IJC meetings and the next PIAG meeting in Muskegon.

Jim Bruce appreciates the contributions of all the PIAG members. Jim discussed the Study's approach to separating issues of water quality and water quantity even though they are intermingled. If members of PIAG have suggestions for how to revise this approach, Jim would like to discuss with them.

David Powers noted that there is almost 2 years to the day left for the Study --not a lot of time in the big picture. Public meetings will be held in 2011 so it is important that PIAG start thinking about engaging the public early.

XI. Next Meeting

PIAG will meet by conference call on Tuesday, May 25, 2010 at 2:00 p.m. – 4:00 p.m. EDT. The agenda for the call will include a report from the IJC on the public consultations.

The next face-to-face meeting is tentatively scheduled for the week of July 12, 2010 in Muskegon, MI. Al Steinman will contact the PIAG Co-chairs about the specific date once he is able to check the schedule for the facility and research vessel.

Respectfully Submitted

Jill Wingfield
John Nevin