

**Lake Ontario Coastal Wetlands Workshop  
June 24-25, 2008  
Adams Mark Hotel  
Buffalo, New York**

**Workshop Proceedings**

*Special thanks to Deepali Weyand, Ecology and Environment, Inc., for her note-taking and contributions to these proceedings.*

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## Day 1

### **Welcome, Introductions and Overview of Agenda** (*John Hummer, Great Lakes Commission*):

The Lake Ontario Coastal Wetlands Workshop sought to identify Lake Ontario coastal wetlands indicators and options on the New York side of Lake Ontario that would be applicable to the Lake Ontario Lakewide Management Plan (LaMP) and Adaptive Management approach. Further, potential project implementation areas in New York were desired to be identified, comparable to the coastal wetland monitoring activities in Canada in the Durham region.

The goals of the workshop were:

- To identify the available options and make recommendations as appropriate to the Lake Ontario LaMP for a suite of coastal wetland indicators and monitoring protocols for Lake Ontario, and
- To identify and lay the groundwork for a project implementation area for Lake Ontario coastal wetland monitoring in New York State – identifying the ongoing and needed monitoring and the available options to make up a comprehensive suite of coastal wetland indicators.

Workshop participants included agency representatives from the main federal and state/provincial agencies contributing to the development of the Lake Ontario LaMP, academic and other stakeholders in the Lake Ontario basin.

## Presentations

### **1) Lake Ontario Lakewide Management Plan: Developing Lake Ontario Coastal Wetland Indicators** (*Mario Del Vicario, U.S. EPA Region 2*):

Key points from presentation:

- The Lake Ontario Lakewide Management Plan (LaMP) aims to restore the physical, chemical and biological integrity of Lake Ontario ecosystem. The focus for 2008 has been on nearshore areas, a joint effort between the United States and Canada.
- There are six critical pollutants identified in the LaMP.
- There are five remaining Areas of Concern (AOC) in U.S. EPA Region 2: Niagara River & St Lawrence (both binational), Buffalo River, Eighteenmile Creek, and Rochester Embayment. The Oswego River was delisted. EPA's goal is to get 10 U.S. AOCs delisted by 2010. The main strategy is to look at all of the AOCs' beneficial use impairments (BUI) and see which are most likely ready to be delisted and target those first, while continuing restoration of all AOCs.
- Indicators are a way to determine how the LaMP is doing. The LAMP adopted 11 indicators (see slide on indicators).
- The LaMP looked at indicators developed through the State of the Lakes Ecosystem Conferences (SOLEC). One example of an indicator for reducing levels of contaminants is herring gull eggs. Another indicator is the bald eagle: looking at nests and how well they are producing eaglets. The LaMP is beginning to see the impact of reducing toxic chemicals in the environment.

- Where did the LaMP get indicators from? It consulted with fisheries personnel, SOLEC, existing monitoring programs, etc. and took the most useful indicators. The intent and goal is to build on existing initiatives.
- Goal for Lake Ontario wetland indicators: review established indicators, identify existing wetland monitoring that can support indicators, select indicators targets and objectives, identify an early implementation area, and consult with public. The LaMP would then adopt official indicators, look at monitoring data and report on a biannual basis.

Q&A:

Q: Are we looking for one location for implementation?

A: A couple of areas are being considered (and were discussed later in the program).

**2) Status and Needs: Coastal Wetland Monitoring in New York (Roy "JR" Jacobson, NYSDEC)**

Key points from presentation:

- There are five Bureaus within the NYSDEC Division of Fish, Wildlife and Marine Resources that work in wetlands. The Division of Water also deals with wetlands.
- NYSDEC doesn't have a comprehensive program for monitoring (for various reasons). The agency does collect data piecemeal for specific needs.
- Data is collected on various parameters: wildlife, fisheries, water quality, and vegetation monitoring (contact: John Farrell).
- Drivers for monitoring: funding from federal agencies (state wildlife grants, Clean Water Act Section) and the International Joint Commission (IJC) water levels work.
- Monitoring that does occur strives to answer questions such as: are our conservation actions having their intended impact? How can we improve our actions? What is the result of the IJC water levels decision?
- Challenges/costs: Three levels of monitoring (remote/landscape, on the ground, intensive). Who will pay for it? Collaboration and partnerships is one to work at it.
- Things to remember: There is no current comprehensive monitoring program; monitoring is coming as a requirement; NYSDEC is developing protocols (contact: Don Zelazny) for water level management and associated monitoring plan.

Q&A:

Q: What are the state's responsibilities under Section 106?

A: 106 Funding comes from the U.S. EPA through the Division of Water. EPA/NYSDEC agrees on how to operate programs. They are generally less specific than they used to be; now there is a more generic agreement on what will be done. Once funds get to the state, it is divided up among different programs to make sure certain priorities are addressed. Currently, the state is required to monitor all waters of the U.S., including wetlands. However, the state does not have protocols to determine whether wetlands meet/do not meet standards. EPA standards for wetlands must be met by 2012,

Q: Can you explain how the Natural Heritage Program plays a role in coastal wetland monitoring?

A: Mostly they are paid to maintain a database of species.

Q: The New York Department of State (NYDOS) has identified significant coastal wetlands for Lake Ontario. What sort of interaction is there between NYSDEC and NYDOS as far as activities occurring at these wetlands?

A: The legislation is written so that recommendations come from NYSDEC regarding significant habitats. NYDOS works with NYSDEC on these. Protection of these habitats is part of a federal program, so any action has to be consistent with state policies.

### 3) **Lake Ontario Biodiversity Conservation Strategy: Targets and Indicators for Lake Ontario Coastal Wetlands** (David Klein, *The Nature Conservancy*)

Key points from presentation:

- Project startup: New York and Ontario are partners. They have a steering committee, developed a vision, and engaged Lake Ontario partners.
- Project scope and objectives: Develop binational strategies for conserving and restoring biological diversity of Lake Ontario, including coastal habitats, pelagic and benthic zones, tributaries and connecting channels. Lakewide scope.
- Conservation targets and threats: Targets: Wanted to break ecosystem down into component parts: benthic offshore, offshore pelagic system, nearshore, coastal wetlands, coastal terrestrial system, native migratory fish, rivers, estuaries and connective channels and islands. Then looked at nested targets within each target, what are key attributes and indicators. Threats: Ranked based on scope, severity, irreversibility. Threats include aquatic invasive species, development, nonpoint source pollution, climate change, and dams/barriers. Strategies are being developed based on maintaining and enhancing the health of targets and abating the threats. Strategies will be integrated into existing programs.
- Where do strategies need to happen? Drafted criteria to assess the biological significance and condition broken down into watersheds and coastal units (HUC 11 boundaries and 2 km inland).
- Key challenges: Maintaining a binational Geographic Information System (GIS) database for consistency.
- Coastal wetland key attributes and indicators: connectivity, water quality, water level fluctuations, community architecture, presence of keystone species, abundance/diversity of wetland bird species, abundance/diversity of amphibian species, and size/extent of characteristic communities. Use three factors where there is consistent data binationally: number of native wetland-associated species and natural communities, number of coastal wetland types, and percent wetlands. Condition determined using two factors: percent natural land cover, and percent natural shoreline that is hardened.
- Created map showing pie chart of biological significance. One way of targeting where action needs to be taken.
- Aquatic systems will rapidly degrade at 10% of impervious cover (see map).
- Lake Ontario Biodiversity Strategy map includes proposed action sites – those that where action would impact the lake beneficially.
- Next steps: Final report for review by participants (target date August 2008). Build case for increasing funding to implement key strategies in priority places, identify conservation actions where multiple benefits will occur.

#### Q&A:

Q: What are key coastal target areas, those that have significant restoration potential?

A: The Lower Genesee River, Oak Orchard Creek, Eighteenmile Creek, Braddock Bay to name a few. Regarding the project map: 25 strategies have been developed for the coastal target areas. For each area, applicable strategies have been identified that need to be implemented.

Q: With coastal wetland indicators developed, could these sites be assessed using remote sensing?

A: Yes, that's all that is being used right now.

**4) Great Lakes Coastal Wetlands Monitoring Plan: Application to Monitoring Lake Ontario Coastal Wetlands (Don Uzarski, Central Michigan University)**

Key points from presentation:

- 2001-08: Great Lakes Coastal Wetlands Consortium developed monitoring plan.
- Statistical design: Difference between status and trends.
- Status: Monitoring answers, "What is the health and status of all coastal wetlands?" Spatial variability across the Great Lakes.
- Trends: Monitoring answers, "How is Great Lakes coastal wetland health changing over time?"
- Randomly selected coastal wetlands are sampled; resample subset two consecutive years.
- Less impact on wetlands from oversampling.
- Plan includes suite of recommended plant, fish, invertebrate, bird & amphibian, and landscape indicators and metrics.
- Cost estimates for sampling using recommended indicators and metrics are also included in the monitoring plan.
- Plan also includes a Data Management System and suggested means for implementation.

Q&A:

Q: Do cost estimates figure one visit per site per year?

A: Yes.

Q: How was coastal margin defined?

A: As the nearshore area divided into segment sheds.

Q: What makes the macroinvertebrate monitoring costs so high?

A: Identification of species (time spent in lab).

Q: In choosing the design approach, were certain wetlands selected for their unique characteristics?

A: Yes, but other sites can be added; should be consistent with the design.

Q: Were freak incidents considered, e.g., inclement weather, etc.?

A: Co-variates will account for such events. Also had to deal with lake level changes. Protocols dictate that sampling is conducted in areas that accommodate lake level changes. Statistically these incidents should resolve themselves.

Q: Are the five sampling areas completely random? Are any of the wetland types redundant across the region?

A: The whole program is stratified by lake, by region, by wetland type. And yes, there are some wetland types that are redundant. Repeat visiting is done on different scales; sampling cycles back every five years

Q: Is two years enough for a trends analysis?

A: Yes, you are repeat visiting every 2 years; then visiting again every five years (repeat visiting on different scales).

Q: Is using landscape indicators the most inexpensive method?

A: Yes, if data is already there.

#### 5) **The Marsh Monitoring Program: Monitoring Marshes on Lake Ontario's South Shore** (Ryan Archer, *Bird Studies Canada*)

Key points from presentation:

- Purpose of Marsh Monitoring Program (MMP): Generate long-term population trends for marsh birds and amphibian species (data goes back to 1995). Develop habitat associations. Use program to stimulate wetland conservation, and increase awareness working with local volunteers/coordinators.
- At least 50% of area must be considered emergent marsh habitat to monitor.
- Bird survey protocols are more advanced. Two survey visits per year per site (late May and early July). As of recently, morning surveys have been allowed.
- Amphibian surveys: Three per year per site, after sunset.
- Examples provided to show some trends/results from program. Over a 10-year period, vast majority of amphibian species show a consistent decline of population. Exception= spring peeper (increase). Same with bird population trends (those that depend on wetlands).
- Current work includes focus on AOCs, i.e. Rochester Embayment and Eighteenmile Creek. Monitoring in AOCs improves the capacity to report on wildlife and habitat status and can help to determine whether they are impaired for certain bird and anuran species.
- Rochester, NY has good local coordination of the Marsh Monitoring Program – over the last few years, they have published Bird and Anuran Community Assessment Reports.
- More recently, the MMP was engaged in a multi-parameter project with the Great Lakes Commission. Also included aquatic macroinvertebrate water quality data collection for each site.

Q&A:

Q: What is the MMP's current involvement with Eighteenmile Creek?

A: Seven sites are now being monitored.

Q: Seems there could be problems interpreting what data means with relationship to trends; not all coastal areas have marsh habitat. Could there be other species competing with nesting sites? What about the raccoon population? It could be challenging to figure out what to do with these numbers.

A: Yes, there are challenges and the work is not complete, the MMP is just trying to provide the data to those who want to do additional research/analysis.

Q: Are two visits a year per site enough?

A: In certain cases, where more intensive assessments of a survey site are needed, the program allows for more visits.

Q: How reliable is the program's volunteer base?

A: A workshop is held for volunteers and they are tested to see whether they are qualified. Overall, the MMP's volunteer work is found to be very accurate.

6) **Durham Region Coastal Wetlands Monitoring Project: Lessons Learned and Application to Monitoring Lake Ontario Coastal Wetlands** (*Graham Bryan, Environment Canada*)

Key points from presentation:

- Area was selected for its good wetlands, high impacts, lots of monitoring, and many different methods use.
- Similar timeline as Great Lakes Coastal Wetlands Consortium.
- There is no single set of wetland legislation in Canada. Federal agencies, provinces, municipalities, etc. work as partners.
- There are 36 Conservation Authorities in Ontario.
- A report was being prepared to summarize trends – by combining the various bird, invertebrate, etc. conditions within the wetland.
- Factbooks/report cards are coming out for each one of the wetlands in the Durham Region – containing site information, basic wetland statistics, and graphics of key wetland indicators and overall wetland health. Can also be used to support restoration management.
- Lessons learned: Protecting wetland area alone doesn't ensure functional integrity; wetland conservation and management is complicated, many ecological factors to consider; pre-management/restoration information is crucial to evaluate effectiveness of activities; best balance may be highly localized.
- Broader application: Bay of Quinte AOC is using similar methodology.

Q&A:

Q: How is the monitoring being paid for and how much does it cost?

A: A lot of resource sharing; GLCWC's cost estimates are very comparable.

7) **IJC Lake Levels Study: Field Studies and GIS-Based Predictive Modeling as a Foundation for Developing Monitoring Protocols** (*Doug Wilcox, U.S. Geological Survey*)

Key points from presentation:

- Focus on importance of lake level to wetlands.
- Lakes Michigan/Huron have the most fluctuations. Every 160 years lakes go through low-high phases.
- High lake levels occur during cool periods; low lake levels in warm periods.
- Habitat changes because lake levels change.
- Lake levels need to be high for shipping, municipalities, power.
- Lake Ontario: Basically its own watershed – deviations started in 1958; no 1986 high lake level for Lake Ontario.
- Current Lake Ontario lake level plan is to create long-term average lake levels every year.
- Lake Level Study: 32 sites (16 on U.S. side; 16 on Canadian side).
- Lot of biological diversity lost due to lack of lake level variations.
- Study included photo interpretation and groundtruthing vegetation types to back-track through time.
- Planned studies: IJ Adaptive Management Plan: Resample quadrats along transects at selected study sites to track changes under new regulation plan; recalculate hydroperiod time scale for each transect; construct high quality maps for selected study sites to develop site-specific predictive models for evaluating and revising required hydroperiod

time scale under regulation; conduct follow up photo interpretation studies at selected sites; delineate cattail/meadow marsh margin annually using GPS.

- Potential Indicators: Lake Level: Frequency that growing season peak level is less than 74.6 m; duration of low lake level periods. Habitat Diversity: Percent of wetland mapped as meadow marsh; as cattail; etc.

#### Q&A:

Q: if we didn't get a long low period, are the cattails so entrenched that marsh meadow couldn't come back?

A: It will take time. At upper elevations, a couple of dry years could stop invasion but there needs to be a more active program.

Q: Can Lake Ontario LaMP use lake level as an indicator?

A: Yes, that can be supported; it's something that can be easily tracked and reported.

### **8) Applying Adaptive Management in a New Regulation Plan – Lake Ontario/St. Lawrence River (David Klein, The Nature Conservancy)**

Key points from presentation:

- IJC Study: Study board came back with three recommended plans, presented to IJC two years ago (March 2006). IJC recognizes benefits of Plan B+ but cannot do it because of occasional severe impacts to shoreline protection structures.
- Guiding principles of adaptive management include: net benefits for users, no disproportionate loss to any interest (hard to meet); ability to respond to unusual conditions; mitigation alternatives to limit damages (huge issues); adaptable to changes in water supply; among others.
- Necessary elements: sound science (predictive models, recognition of uncertainty, monitoring); management commitment and flexibility (define goals, provide feedback to system managers); public participation; dedicated funding.
- Key performance indicators: meadow marsh areas; Virginia rail reproduction; black tern reproduction; muskrat house density; northern pike recruitment; warm-water fish guild.
- Recommendations: Establish partnerships; adapt current structure for feedback from all interests; review results at five-year intervals.

## Day 2

### **Welcome and Set Stage for Day 2 (John Hummer, Great Lakes Commission)**

Purpose: Agree on coastal wetland indicators and recommend a potential implementation plan.

Keep in mind: How are the indicators going to be consistent with existing programmatic objectives/programs? If there isn't a connection with program commitments, it is unlikely the set of indicators will be supported/carried forward.

Need to acknowledge general common goals, but the details of how to achieve these goals may be different for the U.S. and Canada.

**Presentation: [State Wildlife Grants Program and the Comprehensive Wildlife Strategy](#) (This presentation was added to the agenda by request of Amy Mahar, NYSDEC)**

Key points of presentation:

- Goal of program: To assist states in biodiversity preservation. Program funds species focused research, inventory, planning, management and restoration projects, 50% match required.
- New York State has received approximately \$3 million per year. Organized on a watershed basis.
- Provides information on distribution and abundance of species, identifies threats to species of greatest conservation need and provides recommendations on how to proceed.
- By watershed, the following are identified: species, critical habitats, and priority actions.
- Long-term monitoring is a recommendation for marsh-nesting birds, aquatic herpetiles and wetland-associated invertebrates.
- For more information on this program: [www.dec.ny.gov/animals/30483.html](http://www.dec.ny.gov/animals/30483.html).

#### Q&A

Q: Does the conservation strategy include lake-wide requisites for each species?

A: No, it primarily identifies those areas as areas where we need to learn more.

Q: Is funding distributed to nonprofits under this program?

A: In the past, yes, but not in 2008.

Q: Does the strategy provide trending in any way?

A: Yes, In a way. On one of the lists, it will tell you whether the species is increasing, decreasing, remaining stable or unknown.

Q: Is there any state wildlife program monitoring along the lake (wetlands)?

A: Not at this time.

Q: Will the New England project indicators be incorporated into the Wildlife Conservation Grants strategy?

A: Yes, but not exclusively. Currently the strategy is written as a general set of recommendations. It will be updated every 10 years and will yield a more stepped down action plan for implementation by states and other partners.

#### **Exchange of Information Discussion for all Participants**

**Identify ongoing coastal wetland monitoring in New York State on the south shore of Lake Ontario. Identify the location, type of monitoring and indicators being used.**

- Bob Townsend (NYSDEC water programs, Albany): Core program has rotating intensive basin study that deals with toxicity testing, macroinvertebrate studies. Open to taking on new locations, depends on funding. Additional sites on Lake Ontario could be added. A team of people doing focused work could also be appropriate (e.g., specialists on RIBS team). They could also share equipment if appropriate.

- John Hummer (Great Lakes Commission - Great Lakes Coastal Wetlands Consortium): Goal is for all states to get consistent coastal wetland monitoring implemented. Michigan and Wisconsin appear to be the first states moving forward; others are under discussion.
- Mario Del Vicario (U.S. EPA Region 2): Part of the organization does scientific monitoring/studies. Preference is to do something in a more institutionalized way. Usually monitoring is done for some requirements. Works with the Great Lakes National Programs Office (Region 5): they can use resources they get nationally to do activities in the Lake Ontario basin. It's not guaranteed funding but there is some latitude to fund work on an annual basis to extend the program and maximize benefits.
- Marty Worgo (Corps of Engineers): Maintains chemistry and biological data for commercial and recreational harbors for sediment sampling. Database of information is available. The Corps operates the Mt. Morris Dam on the Genesee River. In 2007, worked with the IJC to provide cost estimates for doing wetland monitoring; no site was chosen. Currently looking at wetland boundary responses to lake level changes. No written documentation of this. There are riparian wetlands in the Genesee River.
- Chuck Rosenberg (NYSDEC, freshwater wetlands): NYSDEC's program is mostly regulatory. Making regular trips to wetlands for delineation purposes or to review for permit applications or violations. All regions of DEC have comprehensive files for every wetland including coastal wetlands. Water level effects over a 30-year period were documented at some transects along the Niagara River. These protocols might be useful for Lake Ontario.
- Mario Del Vicario: State Parks may be a resource for coastal wetlands monitoring. Important to get them on board. They just hired seven new biologists.
- Don Zelazny (NYSDEC, Great Lakes): Need to understand the difference between coastal wetlands and isolated wetlands.
- Marty Worgo (Corps of Engineers): Coastal wetlands: Abutting/adjacent to navigable waters. Do not preclude manmade structures or natural features: dunes, transportation corridors, etc. can both include coastal wetlands. Isolated wetlands: Do not have direct surface connection. Even if there is a connection, if there is not a traditional nexus to a navigable water, if the wetland isn't significantly contributing to the navigable water, the Corps can't regulate it.
- Betsy Trometer (U.S. FWS): Aware of Lake Ontario biological monitoring program for embayments (since 1995); includes Cornell involvement. Not sure if Dave Stillwell's group is also doing relevant monitoring work, need to check with them.
- Don Uzarski (Central Michigan University / Great Lakes Coastal Wetlands Consortium): Recommends contacting universities for partnerships and to access their datasets. John Farrell and Mark Bain (Cornell) doing work on Lake Ontario and have datasets.
- Mario Del Vicario: State does statewide tern survey at all historic and current nesting sites every year. State doesn't have long-term monitoring programs in place for other species.

- Heidi Kennedy (NYSDEC): Braddock Bay has used the MMP program. A few years ago there was some funding for marsh bird monitoring. Some monitoring of purple loosestrife also occurs, though not annually.
- Doug Wilcox (USGS): Some datasets can be valuable (even if piecemeal) but a program should be set up where design and methodology are standardized. With regulatory programs, there are mitigation projects required for post construction monitoring. Perhaps the state could standardize design of post-construction monitoring to ensure consistency across the state.
- Charlie Knauf (Monroe County Health Department): Has a lot of data on Ironduquoit Bay. Involved with cooperative monitoring project with USGS for water control weir structure. Has data on three fisheries studies and two invertebrate studies, a monitoring station for nutrients on West Creek, plus 30 years of water chemistry data. Maybe an opportunity for the Great Lakes Observing System (GLOS) to do some aerial photo work for land coverage data.
- Mike Snyder (NYSDOS): NYSDOS wants to continue to target watersheds – including Eighteenmile Creek and Buffalo-Niagara – that may need more planning for protection and monitoring. NYSDEC has been at the table for this planning.
- Don Zelazny: Several monitoring programs around Lake Ontario to note:
  - Lake Ontario Coastal Initiative Monitoring (from Niagara to St Lawrence). This year is intensive field year all around the lake.
  - Toronto Regional Conservation Authority conducts wetland monitoring.
  - ESF has historic and current black tern monitoring sites. (Dr. Guy Baldiseri's students).
  - New York has PRISMs (regional invasive species management), part of a regional stakeholder group, trying to recommend strategies for control or eradication;
  - The Audubon Society has annual bird counts in coastal wetland areas;
  - Monitoring has been conducted at Burlington Bay and Coots Paradise;
  - The Royal Botanical Gardens on Burlington Bay has monitoring that is ongoing.

#### Q&A

Facilitator Question: Does NYSDEC have an aerial photography program that assesses extent of coastal wetlands every 4-5 years?

A: No, would have to be a special program. Corps is trying to get a special dataset (LIDAR) – they have done portions of Lake Michigan (per Doug Wilcox).

#### **Given additional funding, identify additional coastal wetland monitoring needs.**

Comments offered:

- Regarding SOLEC, the metrics are all there for general wetlands health. Doug's indicators are specific to water level monitoring. Key issue is limited funding. Need to pick and choose for any one site. Need to know what you're looking for and need program to go after. GLWC indicators don't take into account water level changes.
- Differences in methodology to collect data; depends on the questions you're addressing. Some indicators may not apply for all wetlands.

- NYDOS watershed management plans can help identify the needs.
- Need to look at all the wetlands and characterize whatever problems they face, potential disturbances.
- AOC monitoring, LaMP, Biodiversity Strategy – need to have synergies.
- Focus on priorities of the LaMP.
- Monitoring program should answer specific questions – can become more elaborate over time – including dealing with hydrology of the lake. Monitoring program needs to measure impacts of lake level regulation over time in a consistent way.
- Metrics consistency between IJC Study and Consortium: Consortium has some metrics not tied to lake level. Other monitoring can be added on over time. Some IJC sites were selected with no other human disturbances affecting them.
- Land use changes come into effect as you move further away from lake. Managers ask: are wetlands doing what they're supposed to be doing?
- Need to be looking at things from a lakewide perspective. Identifying impairments. Indicators showing feedback on addressing impairments. Wetland types that should be there and their extent. Looking at quality of existing wetlands and managing impairments. What are the priorities?
- IJC has no funding to implement their monitoring plan. Can the LaMP facilitate it? Lake level controls are not under auspices of the LaMP. LaMP provided IJC with opinions on a lakewide perspective. LaMP could provide some funding; may be more willing to monitor.
- Monitoring impacts from lake level changes; need to take into account changes in wetland type. Should be done no matter which IJC plan is adopted. Indicator for this would be area of meadow marsh.
- Journal of Great Lakes Research article on lake levels is available (by Doug Wilcox).
- Adaptive management process is key.
- Can't put all eggs in lake levels basket. Need to keep in mind other coastal wetland monitoring parameters.
- All the plans were geared toward moving toward the B+ plan. If the 2007 Plan is chosen, need to show that monitoring works.
- Need monitoring to fight for B+ Plan.
- Need to make biological links from lake level monitoring. Need IBIs to support the monitoring.
- Need metrics to measure biological components rather than IBIs.

### **Facilitated Discussion (Facilitator: Fred Lucky, U.S. EPA Region 2)**

Due to time constraints during this portion of the agenda, it was decided to allow the facilitator to integrate discussion from the series of questions listed on the agenda into a free-flowing discussion following the first question below.

#### **What options are available to make up a comprehensive suite of coastal wetlands indicators on the NY side of the Lake Ontario coast?**

- Doug Wilcox: Consortium indicators do not take into account the lake level indicators (key difference is methodology used to collect data). Need to pick and choose relevant indicators for a specific site rather than using the entire suite of indicators. Not necessarily appropriate to use every indicator in every wetland; they may not all apply.
- Bob Townsend: Q: What are the management questions for Consortium vs. questions for IJC, LaMP? A: The monitoring program should measure the impacts consistently – it has been suggested that the IJC methodology and metrics should be used.
- Don Zelazny: There are three layers of indicators: Great Lakes is concerned with the physical, chemical and biological integrity of the lakes, and thus wetlands. The questions being asked from management perspective: Are the wetlands doing their job of filtering out chemicals from the lake? Are there chemicals that are impacting flora and fauna, etc.? What are the indicators?
- Doug Wilcox: The key question is: Whose responsibility is it to do the monitoring required and how will it be funded? If the IJC has the funding to do the monitoring they identify as needed, what about the rest of the group? How about the LaMP? Where will other funding come from?
- Mario Del Vicario: Lake level control is not under the auspices of the LaMP. As a group, EPA has responded to IJC about what might be more consistent to do from a lake perspective. If EPA identifies things that we say now are important – type of wetlands, extent, how they're being impacted – that might influence a future decision. The EPA could provide funding at some point, but would be more willing to fund and conduct necessary monitoring if the IJC agrees with the LaMP's recommendations.
- David Klein (The Nature Conservancy): It should not matter which IJC lake level plan is selected, but that funding should be provided regardless. There are models that will predict the wetland response based on the various approaches.
- Doug Wilcox: IJC's 2007 plan will not work; during the low supply period in the 1960s, we actually ended up with lower lake levels. The 2007 Plan, looking to be better, is just an anomaly in that one segment.

#### **Facilitator comments:**

- There appear to be several classes of indicators: broader (dealing with the lake levels issue); lakewide assessment of the status of coastal wetlands (which would be based on

the landscape/remote sensing approach); and field-study oriented monitoring which could employ both Consortium and IJC metrics.

- A logical starting point would be in areas where there is high wetland value where there is already historical analyses in place.
- Another idea: Check into the wildlife strategy – watershed units – and see what monitoring under that program might cost and involve.

Participant feedback:

- David Klein: There is a lot of overlap between the 16 priority wetlands in NY and the identified areas to be considered for implementation. Could those 16 areas be considered the nucleus?
- Doug Wilcox: As an overall approach, need to select sites where we have water level data. In addition to those, look for sites where Consortium efforts have taken place as well as Great Lakes Environmental Indicator (GLEI) project sites. This could be a starting point because there is also water level data that overlaps with these sites.

Continued Facilitator comments:

- Three potential implementation areas: Oak Orchard Creek, Braddock Bay, and Watertown North (Chippewa Bay). Of these sites, how many would the agencies be mandated to or interested in monitoring?
- First need to do homework – look at the overlap between Consortium, GLEI, IJC, and Biodiversity Strategy sites. Doug Wilcox volunteered to do this.
- Once the mapping out of the total extent of coastal wetlands (and shoreline hardening) is done, need to come up with a strategy on which organization will coordinate monitoring and ensure it is implemented.
- NYSDEC (Chuck Rosenberg) will summarize what's on the NYS GIS Clearinghouse, what's available, and what needs to be done. Then EPA can identify how frequently coastal wetland monitoring activities need to be done.
- Regarding lakewide indicators: Doug Wilcox agreed to write up what is a desired state of conditions; including a lakewide assessment of coastal wetlands and shoreline hardening.
- Result would be vetted through the LaMP workgroup in order to further inform the process.
- Then identify and conduct site specific studies/monitoring as appropriate and as funds allow.
- A strategy for communicating to the public the monitoring plan and indicators would also need to be developed.

Fred Luckey, facilitator, recapped previous discussions and asked participants for input on moving forward: reaching consensus on broad categories of indicators.

#### Goals:

- Tracking lake levels over time – front and center.
- Lakewide assessment of coastal wetlands based on remote sensing – changes in wetland type.
- Field study metrics using Consortium methods – select sites in NYSDEC’s wildlife management units. Employ both Consortium and IJC metrics.

#### Two classes of indicators:

- Large-scale lake level indicators (Doug Wilcox will provide): Lakewide assessment of coastal wetland area – including shoreline hardening – in a landscape context. Use remote sensing.
- Site-specific studies using tested indicators and field methods.

#### Comments on above broad categories:

- Want to do monitoring in areas where watershed work is taking place.
- Build on IJC’s historical analysis. Pick a few sites to monitor.
- A lot of overlap between Biodiversity Strategy and IJC sites: good nucleus to start with.
- Need some IJC study sites to track; don’t need all of them. (Doug Wilcox has recommendations.)
- Use Consortium and GLEI sites, too – use their datasets as a starting point. Pick the indicators from those studies as needed to pick up the disturbances.
- Indicators decided upon can be changed later via adaptive management.
- Indicators chosen will feed into the Biodiversity Strategy information needs. Can add to/change over time.

### Wrap-Up

#### Next steps to move forward:

##### General action items:

- Define more specifically the coastal wetlands monitoring approach (IJC lake level and/or Consortium) to move forward with.
- Identify possible sites, unique conditions and partners. (Need new set of air photos on U.S. side and map meadow marsh and cattail wetlands for new data. LaMP could start searching for funding mechanism, i.e., how to implement fly-overs.)
- Then resolve where to implement. Possibly form a workgroup for recommendations.
- Assess which approach/indicators would be best for each wetland/set of wetlands to be monitored.
- The above or other approaches/recommendations can then be vetted through the following to develop consensus and move the coastal wetland monitoring initiative forward:
  - Lake Ontario LaMP workgroup comments; then
  - Lake Ontario LaMP Management Committee tentatively adopts approach. (Update for LaMP in October can say the group is working on adopting it.)
- Someone could possibly present approach for monitoring at the SOLEC Conference in October.
- Further communicate to the public in terms of context and terminology for comment before actual monitoring commences.

General guiding principles:

- Goal is to have binational agreement and consistency.
- Can conduct multiple projects/methods concurrently in the field.
- Need to be fiscally responsible to address monitoring tasks.
- Integrate existing datasets and methodologies to address priorities.
- Build on all studies/monitoring plans to not re-invent the wheel.

The following three sites were suggested as possible areas for first-cut implementation sites:

1. Old Orchard Creek
2. Braddock Bay
3. Watertown North

Person-specific action items:

- Doug Wilcox will look at overlap among IJC, GLCWC, GLEI and Biodiversity Strategy sites.
- Doug Wilcox will write up a couple paragraphs on indicators for IJC lake levels.
- Chuck Rosenberg will summarize what GIS data is available on the NYSDEC web site.