Meeting of the
Great Lakes Panel on Aquatic Nuisance Species

April 27-28, 2010
Maumee Bay State Park, Ohio

Meeting Summary

Tuesday, April 27, 2010

Welcoming Remarks
Sean Logan, Director, Ohio Department of Natural Resources (ODNR)

Dir. Logan gave opening remarks for the meeting. He spoke briefly about the history of the meeting site which was dedicated in honor of a former Ohio state legislator, Barnie Porter. He highlighted the importance of the Great Lakes Panel and binational involvement and coordination on invasive species issues. He encouraged meeting participants to keep working together, with a sense of urgency, to support decision-making and to push technology development. Dir. Logan also spoke about the importance of Lake Erie in terms of fish production and as a potential epicenter for Great Lakes wind energy. He concluded his remarks with the mission of the ODNR which is protection and wise use of the state's resources.

Call to Order
Jim Grazio, Pennsylvania Dept. of Environmental Protection; Great Lakes Panel (GLP) Outgoing Chair

Grazio thanked Director Logan for his remarks and called the meeting to order. There was a roll call and Grazio reviewed the meeting agenda. He directed GLP members to the summary of the previous meeting. A motion to approve the summary was made and seconded. There was no discussion and the meeting summary was approved by voice vote.

Great Lakes Panel Update

- GLP Report on Action Items, Election Results
  Kathe Glassner-Shwayder, Great Lakes Commission; GLP Coordinator

Shwayder opened her presentation recognizing the strong turnout of GLP members and interested parties at meetings as a testament to the importance of the invasive species issue. She also acknowledged the GLP Executive Committee which has been very involved in setting the agenda for meetings and in other GLP activities. Shwayder reviewed highlights from the previous GLP meeting which featured updates on ballast water initiatives, the Great Lakes Restoration Initiative and Asian carp control efforts. Next she spoke about the activities that have occurred since that meeting which included the submission of the GLP position statement on a national ballast water discharge standard to the national ANS Task Force; the development and submission of a GLP position statement on the Great Lakes Water Quality Agreement and the finalization of a position statement on professional responsibility in reporting invasive species discoveries. In addition, the Information/Education Committee continued work on the voluntary guidelines for recreational users and the ANS Task Force is moving forward on addressing the need for increased funding for the GLP and the other regional panels. Finally, Shwayder announced the results of the GLP officer and at-large member elections. She thanked those GLP members taking on new roles and encouraged those finishing their officer terms to stay active. Shwayder called on Tom Crane, Great Lakes Commission, to give a brief presentation for the outgoing GLP Chair, Jim Grazio. Crane recognized the commitment GLP members take on when agreeing to be a GLP officer. He acknowledged Grazio's success in moving forward on his vision for the GLP to have greater ownership over its work and to maintain an active Executive Committee.

- Passing of the Gavel
  Jim Grazio, Outgoing GLP Chair

Grazio provided some parting remarks as the outgoing GLP Chair, noting that it was an honor to serve and recognizing the GLP as the most talented group of individuals working on this issue in the country. He thanked the GLP staff and Kathe Glassner-Shwayder (GLP Coordinator) in particular. He acknowledged working with the staff on some challenging issues toward the common good of the GLP. Grazio said it was

an exciting time for AIS management, particularly in the Great Lakes region. The new Great Lakes Restoration Initiative is providing significant opportunities and has raised some challenges for the GLP. He emphasized the importance of the GLP staying relevant and adding value to the important initiatives that are underway. The GLP does many things well, including providing advice and recommendations to the ANS Task Force. He noted that the need voiced by the GLP for increased funding has been heard by the ANS Task Force. Grazio continued by pointing out that the GLP would benefit from focusing its meetings on working sessions that would take the best advantage of GLP members' time together. He thought this model could help translate information into meaningful action and help focus the GLP on problem solving rather than just discussion. Grazio concluded by thanking the outgoing officers and saying he was looking forward to participating in the GLP under the new Executive Committee.

- Remarks by Incoming Chair
  Phil Moy, Wisconsin Sea Grant; Incoming GLP Chair

Moy was introduced as the new GLP Chair and provided some brief remarks. He said he was pleased with the renewed level of involvement in the GLP on part of industry members. He noted the opportunities to advance invasive species management that are now becoming available through the renegotiation of the Great Lakes Water Quality Agreement (GLWQA) as well as the Great Lakes Restoration Initiative (GLRI). Moy talked about the Asian carp issue and his hope that an invasion of large numbers of the fish could be stopped. This issue presents a challenge to the region in terms of how far the envelope can be pushed to get things done and how quickly are we able to act. As GLP Chair, Moy said he would work to continue to develop a vision of how to move forward, building on the GLP's ability to coordinate and share information. He said he would like to see the GLP develop more positions statements as well as be involved in major regional initiatives such as the GLWQA and the coordination committee overseeing the Asian carp issue.

Innovative Prevention and Control Technologies
Moderator: Lindsay Chadderton, The Nature Conservancy

- Evaluation of a Promising, Environmentally-Safe Invasive Mussel Control Solution for Freshwater Habitat Restoration
  Sarahann Dow, Marrone Bio Innovations
  Mark Heilman, SePRO Corporation

Dow opened the presentation which discussed the commercial product Zequanox. This species-specific chemical control agent was developed and patented to control invasive mussel populations for purposes of habitat restoration and other environmental work. The company which developed the product, Marrone Bio Innovations (Marrone), anticipates many open water uses for the product, but needed assistance in dealing with the challenges associated with applying the product in that setting. Thus, Marrone began its partnership with SePRO Corporation. Dow provided background on the product. Zequanox is comprised of a ubiquitous microbe found in the natural environment and is registered as a specific strain of *Pseudomonas fluorescens* in the state of a dead microorganism. The company has completed necessary environmental toxicity and human safety testing in order to register the product as a pesticide. Thus far, they have found that Zequanox is highly selective for zebra and quagga mussels. Zequanox works by causing epithelial cells lining the mussel's digestive system to hemorrhage. Dow described some additional ongoing non-target eco-toxicology work to understand long-term impacts of the microbe. To date, testing has been focused on industrial settings, but the company is now working towards open water trials. Marrone would especially like to have a better understanding of long term impacts of Zequanox on native fish populations. Dow discussed a timeline and regulatory status to have the product approved. She expressed an interest in working with states to conduct open water demonstration trials in the summer and fall (2010).

Heilman spoke next, discussing SePRO Corporation's (SePRO) partnership and work with Marrone. Their collaborative work started in the fall of 2009, focusing on open water uses of Zequanox. Some challenges the company is focusing on include use patterns that allow the treatment to be most effective; mechanisms for delivering the product; and integration into management programs. He described considerations based on the type of system in which the product would be applied, i.e., flowing or static. He noted that the product has tendency to settle to the bottom and that they are examining ways to take advantage of this process. For open water systems, they are focused on delivering the product in a manner that treats bottom water instead of the water column and are in the process of determining correct dose and exposure requirements. Heilman described their evaluation plan which will primarily take place at SePRO, but may involve some other

partners, and will hopefully include field work this season. He showed a video to demonstrate application of the product. The company is also working on use patterns that will use the product to the best advantage. Related to Great Lakes habitat restoration, the hope is that the product will help increase fish spawning by keeping habitat free of mussels or by reducing the rate of infestation. Heilman concluded saying that support is needed for field evaluations and that both companies are interested in helping with any potential projects. It was mentioned that Great Lakes Restoration Initiative funding opportunities in 2011 would be a good opportunity for funding demonstration projects for open water treatment.

Questions and Discussion

Regarding sediment impact, some background work has been done that shows a limited impact; however, slightly reduced mortality was seen after heavy rain events that increased turbidity in the waterway. Longitudinal studies are underway in both the U.S. and Canada to look at seasonality issues. It was suggested that rain events be avoided in application of the product. In addition, it appears that mussels like to eat the product; however there may be some conditions which impact feeding behaviors. In order to avoid potential toxicity to fish, the product is provided and applied dead. The Marrone website provides a summary table of non-target toxicity data. Additional studies conducted by aquatic toxicologists and resultant data will be publicly available once the report is complete.

Another concern is the potential for a behavioral response by the mussel to expel the product if it learns to recognize it. In order to avoid this outcome, it will be important to ensure the product kills the mussel. The mussels could also develop a tolerance for the product, which can happen with pesticides, although the likelihood of this outcome is reduced because of the natural chemistry of the product. Large-scale production and cost was also discussed. A facility with large enough fermentation and down-stream processing capability is needed for large scale production. There are stability issues with natural products and the goal is to achieve six month stability. There is also a concern regarding product waste, which they want to avoid. Cost is still an open question at this point and will require some cost-benefit analysis. The hope is that costs will decrease as production capabilities increase.

- Development of Methods to Orally Deliver Biocides to Control or Limit Invasive Aquatic Animals
  Terrance Hubert, U.S. Geological Survey-Upper Midwest Environmental Sciences Center

Hubert began by giving an overview of his presentation to provide information on the Upper Midwest Environmental Sciences Center (UMESC); ABN MicroMatrix™ Technology; and other research initiatives. UMESC has been working on invasive species control since the 1960s, starting with common carp and the Great Lakes sea lamprey control program. UMESC was involved in the registration of both the pesticides rotenone and antimycin. The focus of Hubert's talk was on a new product known as Advanced BioNutrition (ABN): MicroMatrix, which holds active ingredients within a physical matrix; the matrix does not release the active ingredients until it breaks down inside the intestinal walls of the target organism. Hubert noted that all materials used to make the product are considered to be safe for humans. The matrix has previously been used to deliver bioactive vaccines to Atlantic coho salmon and similar matrix technology has been used to deliver probioitics, antibiotics and vaccines to other organisms. Recent discussion and research has focused on using this technology to control aquatic invasive organisms by selectively delivering toxins or pesticides. Toward this end, UMESC has a research program underway with the stated goal of developing a "biocide incorporated into a targeted delivery system that takes advantage of the physiological characteristics of the target invasive animal." Hubert described their research approach to achieve this goal, some of their initial research efforts and activities related to registering the product. He indicated that they hope to be able to conduct field tests in two years and are identifying potential locations. In addition, they would like to hold an invasive species management chemical meeting to bring together experts that will help set research priorities. Hubert also spoke briefly about other research initiatives at UMESC including zebra mussel research and applying this technique to their selective feeding behavior and other efforts to identify new fish toxicants. Currently there are only four registered fish toxicants which were identified in the 1950s-1970s. Efforts are focused on screening new chemicals in hopes of building a more robust control "toolbox" for AIS. He described their approach to this effort and notes that it is more efficient than in the past as a result of advances in the pharmaceutical industry.

Hubert clarified that part of the research on the MicroMatrix technology was to determine target species specificity. This specificity is more important when delivering a toxin or biocide than it is when delivering a vaccine, which was the original application of the technology. In addition, some sort of attractant is needed in order to compel the fish to consume the product. This attractant will be incorporated into the matrix. UMESC

is also working on a mechanism that will stabilize, deliver and protect the material from environmental conditions until it reaches the fish intestines.

- Potential of Aquatic Pheromone Traps in Controlling Sea Lamprey
  C. Michael Wagner, Michigan State University

Wagner gave a presentation on research that is underway to investigate how sea lamprey respond to pheromones and how those responses might be used to control them. He described the basic "pillars" of sea lamprey control, which include the primary mechanisms by which the species is currently controlled: lampricides; restricting access to habitat; and targeted reproductive interference. The pheromone research is developing a new pillar of behavioral modification. The underlying concept is to work within the animal's normal behavior in order to trick it into acting abnormally to its disadvantage, thus creating an "ecological trap." Wagner gave an example of a mayfly laying its eggs on a black plastic sheet because of its resemblance to stream water. The mayfly is tricked into thinking the plastic is the water. Regarding sea lamprey control, the first step in this approach is to understand the sea lamprey's lifecycle, which will provide insight into opportunities for influencing its behavior. Two critical points have been identified in the sea lamprey lifecycle: migration to breeding streams and locating of nests. Pheromones are used in both instances to tell the lamprey where to go. Wagner described how pheromones induce behavior; but noted that it was not as simple as it seemed. The environment – physical, biological and chemical elements – will also influence behavior and thus, an understanding of behavioral ecology is also needed.

Wagner then described in detail the theory behind how a lamprey decides what is suitable habitat and how a variety of cues influence that decision. In order to influence the lamprey's choice of a quality breeding stream, they are working on an attractant that will "pull" a lamprey into a stream treated with lampricide, for example, as well as a repellant that will "push" a lamprey away from an untreated stream which is suitable spawning habitat. A natural repellant already exists, but they need to determine the appropriate concentration. They also need to have a good understanding of the lamprey's natural behavior, habitat and associated suitable spawning areas. If the repellant is effective enough, however, habitat quality will not matter. In addition to this effort, they are also investigating ways to trap females that are looking for nests; females are attracted to nests by a male sex hormone. This effort is focused on using a similar attractant to trap females before they encounter actual males and their pheromones – a concept known as "reverse-intercept." Tests have shown the highest capture rate upstream (as opposed to downstream) in the middle of the trial (as opposed to the beginning or end). In conclusion, Wagner provided some take-home thoughts for the group. He noted the importance of understanding animal behavior and emphasized that pheromone research is expensive, difficult and resource intensive. Thus, it is important to manage expectations from the beginning. Currently, sea lamprey pheromone research is being regulated under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) which has intensive permitting and data requirements.

Questions and Discussion

There was some discussion on the applicability of the pheromone research to Asian carp. For animals that move over large distances, such as carp, the goal would be to lower the population to a level that it is difficult for them to find mates and reproduce. In this situation, it would be easier to use a "pheromone trick." This approach could also be used to determine presence of the fish. For example, pheromones could be used to trap the fish in an area where they could be captured and/or killed during monitoring efforts. It was explained that animals generally have three olfactory channels that can induce a response: reproduction, predators/threat and food. In large dynamic environments, it can be more difficult to induce the desired response. USGS in Missouri is conducting Asian carp pheromone research.

Regarding next steps for the GLP, it was suggested that members might be involved in the proposed USGS invasive species management chemical meeting. In addition, GLP members could help identify or prioritize test sites for Zequanox application, such as areas where mussels are implicated in the botulism cycle. The GLP could potentially help coordinate testing and link it to areas where long-term fisheries testing or other efforts are ongoing that might help research costs. State agencies were encouraged to contact EPA on expediting the approval process for Zequanox based on the need for this product. It was noted that a parallel approval process was underway in Canada. Also discussed was the need for procedures to obtain exemptions for emergency use of chemicals, such as Zequanox, that are not currently permitted.

Featured State Update

- Ohio Aquatic Invasive Species Committee and Ohio Sea Grant's GLRI Initiatives
  John Navarro, Ohio Dept. of Natural Resources (ODNR)
  David Kelch, Ohio Sea Grant (OSG)

Navarro gave a brief presentation on the Ohio AIS Committee, which was recently revived in 2008 after a period of inactivity. Thus far, the committee has met several times and has about 40 members. The committee membership includes a diverse array of state and federal agencies; industry groups; nongovernment groups; outreach groups (e.g., Sea Grant); and academia. Navarro spoke briefly about the committee meeting format and structure. Some of the key issues the committee is focused on are the Ohio state management plan (SMP), rapid response and funding under the GLRI. In regards to the SMP, the committee is looking to do a simple update that would include achievable goals in areas of leadership, prevention, monitoring, control and prevention (e.g., pathway analysis and industry BMPs). The committee also identified 15 of the 25 actions in the SMP that could be implemented with GLRI funding. Toward this end, the committee will help define how the SMP funding from the GLRI (~$780,000) is spent. Ohio DNR has also put some significant work into updating its invasive species website, including incorporation links and references to other important resources like the ANSTF Experts Database and the *Habitattitude*TM campaign. Navarro concluded his remarks asking for input from other GLP members on how similar committees or councils they are involved in work. GLP members had differing viewpoints on the issue of having separate or combined committees for aquatic and terrestrial invasive species. They also noted it was important for a committee to have a mission/charge that provides direction.

Kelch then spoke briefly regarding the recent activities of OSG. He began by reviewing the many groups OSG is represented on, as well as some of the many presentations that were give over the last two years. He talked about the importance of outreach and helping people to understand that they can cause invasive species transfer if they do not take precautionary steps (e.g., Ohio Clean Marina' Program). Kelch mentioned an OSG mailing to federal, state and local officials with outreach materials including the *Great Lakes Aquatic Invasions* booklet. He noted humans serving as pathways and inconsistency in outreach messaging as issues which complicate outreach efforts. Finally, he gave a brief overview of the various proposals to the GLRI in which OSG was involved, including proposals to implement a comprehensive public outreach campaign; an early detection and monitoring protocol and training; a project on fishing tournaments and fishing guides; and a VHS monitoring program for inland waters in Ohio

Asian Carp Prevention and Control
Moderator: Phil Moy, GLP Chair

Moy introduced the session, noting that the session presentations would help set the stage for developing the GLP's position statement on the AIS dispersal barrier and eco-separation of the Great Lakes and Mississippi River basins.

- Asian Carp Control Strategy Framework
  Todd Main, Senior Policy Advisor, Illinois Dept. of Natural Resources (ILDNR)

Main gave remarks regarding activities of the ILDNR and other partners on Asian carp management. He spoke first about the response effort that occurred when the dispersal barrier was shut down for maintenance in December 2009 which provided many lessons learned to the parties involved and will be useful for future efforts. The approval of funding under the GLRI and development of the *Asian Carp Control Strategy Framework* (Framework) are guiding the response activities in Illinois. One of these activities is monitoring and targeted removal which was conducted in February and March of 2010. Crews employed electro-fishing and netting approaches throughout the Chicago waterway system, focusing on warm water areas where it was thought the carp might congregate. As of April 28, 2010, Asian carp specimens where not captured during those operations. Additional monitoring around the dispersal barrier system was conducted that also did not find any carp. New eDNA monitoring results published April 16 indicate a positive sample above the barrier system near the O'Brien Lock and Dam. As a result, monitoring operations are being developed which will be implemented later this spring or early summer. These efforts may include a rotenone application to a targeted area. High-risk areas that ILDNR will be considering include those where other positive eDNA samples have been found. Additional activities that the ILDNR is involved in include enhanced eDNA testing to identify high risk areas; contracting with commercial entities to conduct fishing operations;

commercial market enhancement (e.g., identifying potential commercial markets for Asian carp coupled with contaminant testing); lab research to test the effectiveness of the dispersal barrier; and surveying of live bait establishments to look for Asian carp minnows.

Main said that there is recognition that electro-fishing and netting have limited effectiveness until the fish reach a certain density and that they are working to develop a more robust "toolkit" of approaches. The goals of those efforts are to try and identify what is there, e.g., population density and distribution. He clarified that the $5 million that ILDNR is receiving for Asian carp management and control will be spent on implementation of activities outlined in the Framework, which includes those previously discussed. In response to a question on who is in charge, Main identified John Rogner (ILDNR) as leading implementation.

- Update on U.S. Army Corps of Engineers Activities
  Chuck Shea, U.S. Army Corps of Engineers-Chicago District (Corps)

Shea gave remarks on current and future activities of the Corps. The first ongoing project is the dispersal barrier system which is comprised of three individual electrical barriers which can be operated independently. Two of the barriers (Barrier I and IIA) are in currently in operation. The Corps is continuing research on optimal operating parameters (e.g., pulse rate and duration) for those barriers and making adjustments as needed. The Corps is continuing construction on the third barrier – Barrier IIB – which began in February (2010). This construction is expected to continue until the fall and once complete, safety testing will be needed. The Corps is hoping Barrier IIB will be fully operational by the end of the calendar year. The Corps is also involved in the monitoring activities that were discussed by ILDNR, as well as the eDNA testing being conducted by The Nature Conservancy and the University of Notre Dame. Arrangements are being made to do further work on the eDNA tool to sharpen its usefulness to provide more information on the quantity of fish present (it is currently only a presence/absence tool). Corps staff are also being trained to analyze samples for eDNA in order to free up the University of Notre Dame staff to move forward on this other work.

Another Corps activity is a study authorized in 2007 that requires the Corps to investigate scenarios that might be a threat to the effectiveness of the barrier system and propose solutions (the Efficacy Study). Work is well underway on this study. The first interim report has been released and looked at potential bypasses to the barrier system (i.e., adjacent canals). An interim plan was developed to prevent potential transfer of fish through these bypasses during flood events and the Corps hopes to begin implementing this plan later this spring. Two other interim reports are underway looking at a) examples of other in-water barriers (e.g., an acoustic bubble sound barrier); and b) modified structural operations in the waterway that could help prevent the transfer of fish. These reports are expected to be released this summer. Over the long-term, the Corps expects to release a final Efficacy Study report sometime in 2011 that reflects and integrates all of the interim reports. The final activity that Shea discussed was the Corps "Feasibility Study" looking at options to permanently prevent the transfer of aquatic invasive species (not just Asian carp) between the Great Lakes and Mississippi River basins. The Corps is currently developing a schedule for the study and will be holding and executive committee meeting May for the agencies that will be involved. The Corps will also be putting together a stakeholder advisory group for non-government organizations.

Shea clarified that the Corps was granted emergency authority as part of its FY2011 appropriations to implement recommendations of the efficacy study. This authority will expire in October 2010 and as a result, the Corps will need new authorization to implement any other recommendations not completed by October.

- Ecological Separation of Mississippi River and Great Lakes Basins
  Joel Brammeier, President/CEO, Alliance for the Great Lakes

Brammeier opened his presentation discussing the meaning of the term "ecological separation" for the Great Lakes and Mississippi River basins and basic assumptions associated with that term. He defined ecological separation as "no movement of live organisms at all life stages via the Chicago Waterway System." He emphasized that key services should be maintained or enhanced in any modification of the system to reach the goal of ecological separation. Next Brammeier discussed those services, including drinking and wastewater management for local communities and commercial and recreational navigation (e.g., about 25,000 recreational boat lockages). In terms of water management, he noted that sewage treatment and storage is improving and that combined sewer overflows (CSOs) into Lake Michigan were dropping. However, it is expected that demands for Lake Michigan water will continue to grow. Related to navigation, he reviewed the movement of commodities through different segments of the system and the recreational

needs. Overall, the data shows that the amount of cargo going into the Chicago system is greater than the amount coming out; however the exact tonnage is unknown and economists currently cannot tell how much cargo leaves and comes back through the system. In his concluding remarks, Brammeier stated that the option of a physical barrier to separate the basins needs to be part of the discussion if the goal is permanent separation. He also said that achieving ecological separation will require a change in the way we think about transportation and water management. He highlighted several key policy challenges that will need to be addressed, including impacts on multiple jurisdictions, potential legislative changes and funding. He emphasized the need to change the debate from "if" to "how" and to focus on a 21st century vision for the system. Toward this end, the Alliance for the Great Lakes is recommending that the Corps interbasin transfer study be completed by FY2011.

Brammeier clarified that to determine cargo amounts traveling through the system, a custom data request would need to be made to the Corps Navigation Data Center. In addition, the data is divided by ports, so information for Illinois ports (e.g., Chicago) is separate from ports in Indiana and significant work would be needed to integrate that data to get a clear picture of the system. It is anticipated that this work will be done as part of the Corps study. In addition, it was noted that there is no consensus view on the best way to achieve ecological separation (e.g., does it require a physical barrier) and that different groups have used the term to mean different things.

- Discussion to inform development of GLP position statement

Moy moderated some additional discussion on the issues related to Asian carp and ecological separation of the Great Lakes and Mississippi River basins. He noted that several Great Lakes organizations have developed resolutions or recommendations on the issues and that he would like to find out if there was general consensus among the GLP members on moving towards a resolution or position statement. GLP members felt that there needed to be some clarification on what ecological separation means (e.g., allowing no transfer of AIS between basins) and that it would need to allow the key system services to continue (i.e., navigation and wastewater management needs). Given that the Corps will be investigating all options for ecological separation anyway, the necessity of a statement was questioned. It was thought that input from GLP members on the advisory group for the study would be valuable. GLP members suggested that a Panel statement could help shift the debate from "if" to "how," since it appears the Corps study would be focusing on the "if." The GLP could advise the ANSTF that this effort is imperative and is something the GLP would like to see them take up with the appropriate authorities. It was noted that the Mississippi River Basin Panel decided not to take up the issue because of the existing Corps study and legal issues (e.g., Indiana would have to abstain from a statement because of pending litigation). Shea (representing the Corps on the Panel) clarified that all options were being considered to address the Asian carp issue, not only ecological separation and suggested that the GLP provide input to the process. It was thought that the GLP could address issues of defining ecological separation; setting a research agenda; and formalizing regional coordination and stakeholder engagement. Moy directed GLP committee chairs to address a possible GLP position statement in committee meetings.

Wednesday, April 28, 2010

Phil Moy (GLP Chair) called the meeting to order and reviewed the agenda.

GLP Committee Reports

- Information/Education Committee Report
  Doug Jensen, Minnesota Sea Grant; Information/Education Committee Chair

Jensen reported out on the Information/Education (I/E) Committee meeting. He began by making GLP members aware of the upcoming International Symposium on Genetic Biocontrol of Invasive Fish, scheduled for June 21-24 in Minneapolis, Minn. On the issues of Asian carp and ecological separation, committee members thought it would be appropriate for the GLP to craft a carefully worded letter to the ANS Task Force on ecological separation, recognizing that it is not just an Asian carp issue but broader invasive species issue. The letter should suggest a range of goals that would include things that can be done immediately, as well as mid- to long-term goals. It was also thought that the Research Coordination Committee should consider its research priorities document towards identifying more specific things that could advance these

issues. Committee members felt that they could have a role in communication around the issue of ecological separation, but did not identify specifics. On other committee business, Jensen reported that the committee priorities documents would be distributed under a cover letter to a list of funding entities that the committee had identified. It was decided that the cover letter would be co-signed by the GLP and committee chairs. The effort to disseminate the Great Lake Aquatic Invasions booklets is also continuing. GLP members were encouraged to contact the GLC if more booklets were needed. Approximately 5,500 of the 10,000 booklets have been distributed. GLP staff will be addressing outstanding orders as well as working on a distribution to the Great Lakes and St. Lawrence Cities Initiative. Next Jensen reported on the voluntary guidelines for recreational users. The committee received good comments and had good discussion, and, as a result, consensus on the guidelines has been reached within the committee. Jensen emphasized that the guidelines are not restrictive in nature, that they are there to help generate consistent messaging, and that they should be used in accordance with local, state and provincial regulations. General use of the guidelines is encouraged which can be adapted to meet needs of specific states and user groups. On the GLP Wiki, Jensen reported that submission of GLP members updates has decreased slightly from the previous meeting and he encourage GLP members to use the Wiki to share information. Finally, Jensen noted that the committee would reconvene via a conference call sometime in June.

- Research Coordination Committee Report
  Lindsay Chadderton, The Nature Conservancy; Research Coordination Committee Chair

Chadderton reported out on the Research Coordination Committee meeting. The overall focus of the committee meeting was on identifying next steps for the committee and ideas for maintaining relevancy. The committee discussed how it could contribute to an Asian carp research agenda by identifying some of the research needs across the basin. There do not seem to be many thoughts on this besides what is included in the Asian carp management plan. The committee decided it would meet again by conference call in about four weeks to brainstorm and produce a short Asian carp research agenda based on what is in the management plan and the strategy framework documents. The goal is to add value without slowing the process down by advocating for more research. The committee was concerned with maintaining the relevance of the priorities document as well as the priority species list given the near-term opportunities for funding under the GLRI. The committee plans to review the funding decision under these efforts to identify any obvious gaps in relation to the research and species priority lists in addition to identifying if RFPs reference either document. During its meeting, the committee also received a report on the Great Lakes Aquatic Nonindigenous Species Information System (GLANSIS), which will be undergoing some significant updates as a result of GLRI funding. Specifically, NOAA – the agency that leads the GLANSIS project – will be working to add new categories of species and will be looking at defining a consensus-based “watch list” of potential new invaders. The committee decided it would build off of the GLANSIS effort to develop a watch list by identifying management options and the research priorities for the species on the list. In the future, the committee plans to look at potentially integrating its priorities document and species list. Finally, in regards to a GLP positions statement on ecological separation, the committee is in favor and outlined three points that should be included in the statement, (1) recognize that the CSSC has been and is a pathway for invasive species; (2) GLP supports the need to take actions to prevent movement of species; and (3) in adopting solutions, other services provided by the canal need to be maintained.

- Policy Coordination Committee Report
  Mike Murray, National Wildlife Federation; Policy Coordination Committee Chair

Murray reported out on the Policy Coordination Committee meeting, noting that he looks forward to serving another term as Chair of the committee. Murray began with the committee’s mission statement and guidelines, which has been an ongoing issue. The committee reviewed a variety of information including the history of the committee, legislative mandate and statutory language (i.e., NANPCA), frameworks for making policy and management decisions, and the committee structure and activities of other regional panels, among others. Murray noted that the mandate laid out for the GLP in NANPCA outlined a series of functions for the panels, of which advising the ANS Task Force is only one. Other activities included identifying priorities for management, coordinating federal and non-federal activities and providing advice to public and private entities. Also noted was that policy should be thought of a framework and/or tool to address the different aspects of prevention and control. Based on this review, the committee developed a set of options and recommendations on moving forward. The committee thought it was best to retain its current name but that the operational guidelines for the committee should be revised to broaden the scope of its activities in areas of prevention, monitoring, detection and control. Since this is an issue that resurfaces every few years,

Murray compiled the background information and rationale into a document that can be made available for any future discussions on this issue. On other committee business, Murray reported that the committee is working on a draft letter to the ANS Task Force on pre-important screening for organisms in trade, recognizing the limitations of the current regulatory structure as well as the need for federal legislation that specifically acknowledges the problem of AIS importation. The committee will continue its work on this letter for future consideration by the full GLP in the near-term. Related to Asian carp, the committee saw value in preparing a position statement and identified the following points to include:

- Recognize and commend the enhanced federal agency commitment towards Asian carp prevention
- Support adequate authorization and full funding for all prevention efforts and Framework implementation
- Request that such funding not be drawn from Great Lakes Restoration Initiative which is supporting other important restoration efforts
- Extend authorization of Corps efforts under Section 126 of WRDA to ensure activities are expeditiously implemented beyond October 2010
- Offer the Panel's services in facilitating stakeholder engagement and input
- Express the final solution to the Asian carp crisis is the prevention of movement of live organisms between the Great Lakes and Mississippi River basins
- Express the urgency for implementing a final scientifically based solution

The committee also saw a need for a new formal representative from Illinois on the GLP which was particularly important in coordinating/collaborating on development of a GLP position statement. It was decided that the GLP staff and Executive Committee would work on reaching out to the state on this issue, likely with a formal letter, as well as bringing it up at the upcoming ANS Task Force meeting. It was suggested that Illinois-Indiana Sea Grant be involved in working with Illinois on this process. On regional panel budget discussions, Murray reported that the ANS Task Force recognizes the level of need and that there would be some action to try to increase funding for the panels. This issue will be raised at the upcoming meeting of the Task Force. Finally, the committee is working to complete a draft of a policy priorities document and to finalize and approve its work plan.

Featured Regional and Federal Updates

- Status Report on Renegotiation of the Great Lakes Water Quality Agreement
  Scott Millard, Department of Fisheries and Oceans Canada
  James Schardt, U.S. Environmental Protection Agency-Great Lakes National Program Office

Millard opened the presentation on the renegotiation of the Great Lakes Water Quality Agreement (GLWQA), recognizing it as the cornerstone of binational coordination. He provided some background on the GLWQA which is a formal agreement between the U.S. and Canada to "restore and maintain the chemical, physical, and biological integrity of the waters of the Great Lakes Basin Ecosystem." The GLWQA has been updated and revised previously, but not since 1987. The latest revision process was started in 2004 with an agreement review in 2006 and 2007. That review concluded that the purpose of the GLWQA was still valid, but it did not address emerging issues such as invasive species. In addition, issues with governance and accountability were also identified. During the review process, a Special Issues Working Group was formed that looked at the possibility of including aquatic invasive species in the GLWQA, among other issues. The Working Groups noted that there was currently no binational framework to address invasive species – a significant threat to water quality integrity – and that the GLWQA could serve as an organizing vehicle. Their three key recommendations included (1) developing a new invasive species annex in the GLWQA with goals and accountability; (2) amendments to the current Annex 11 to include invasive species monitoring and surveillance; and (3) incorporation of the goals and recommendations of the Great Lakes Regional Collaboration. Millard then spoke about the renegotiation process which began in January of 2010. The renegotiation is being led by Environment Canada and the Department of Foreign Affairs and International Trade in Canada and the EPA and State Department in the U.S. The countries have agreed on eight issues for negotiation and have identified a lead for each issue; Millard and Schardt are the lead negotiators for the invasive species issue. They are employing a three-phased approach to the negotiation and hope to be completed by the end of the calendar year. Millard indicated there have been and would be more opportunities to comment during each phase of the negotiation.

Schardt spoke in more detail about the upcoming opportunities for input, which he noted would be much more robust now that the formal negotiation process has begun. One opportunity will be through a series of webinars on the issues for negotiation. The hope is that these webinars will help facilitate more direct

commenting on the issues. In addition, another comment period will be offered. The webinars will describe in more detail the specific options and issues that are being considered. Finally, the EPA will be reconvening the U.S. Great Lakes Policy Committee – comprised of federal, state and tribal implementing agencies – at a meeting in the Toledo, OH area in May. As part of this meeting, a public forum will be offered to engage stakeholders and the public on both the GLRI and the GLWQA. Schardt also indicated that the EPA would be enhancing its discussions with other federal agencies in advance of the Policy Committee meeting, possibly through the Interagency Task Force and regional working groups.

Questions and Discussion

Canada has put in place three levels of advisory panels to provide input into the negotiation process: stakeholder, provincial and federal. In addition to the public input process, the two countries have committed to face to face meetings once specific amendments and a possible new agreement begin to take shape. At this point there are no specific topics identified for discussion related to the invasive species issue; however questions will be provided as guidance for the webinars. Further, existing documents such as the Great Lakes Regional Collaboration and GLRI Action Plan can be used as a reference. A general tendency to discuss issues at a level of detail that would not be reflected in a revised GLWQA was also noted.

The renegotiation is seen by some as a tremendous opportunity for binational goal-setting on invasive species. For example, the U.S. has identified through the National Invasive Species Act a goal of zero discharge from ships and a pre-import screening goal in the Great Lakes Regional Collaboration. The GLWQA could be used to set binational goals that match what is already on record for two countries.

The GLP has already weighed in on GLWQA once, focusing generally on AIS and governance issues. GLP members were concerned with making sure the GLP voice is heard and the GLP is actively engaged in the process. Members were assured that the federal governments are considering recommendations that are received, and were encouraged to continue engaging throughout each phase of the renegotiation process. The IJC also has recommended that the GLWQA be supplemented with an action plan outlining performance measures. It was indicated that although the GLWQA will include only “high level” statements, both countries are thinking about implementation and how to “make good” on the goals set forth in the agreement. Other issues raised during discussion included the consideration of GMOs as a control/management tool, for which the governments need more information to act; and the need to acknowledge existing international agreements addressing ship-source pollution.

- U.S. Coast Guard Update on Ballast Water Discharge Standard Rulemaking
  Capt. Lorne Thomas, U.S. Coast Guard-Ninth District

Capt. Thomas gave a report on the U.S. Coast Guard’s (USCG) ballast water activities. The 2009 Ballast Water Working Group report has been published and disseminated. The Working Group checks vessels that are inbound from outside the EEZ to inspect their ballast water. In 2009 the Working Group was able to board 100 percent of the vessels and found 100 percent compliance with the current ballast water rules. Next, Capt. Thomas provided an update of the USCG proposed rulemaking for a national ballast water discharge standard. He reminded participants that the standard has two phases – the first being the International Maritime Organization (IMO) standard and the second being up to 1,000 times more stringent than the IMO standard, dependant on a practicability review. The public comment period on the proposed rulemaking is closed and the USCG is currently reviewing and categorizing all of the comments that were received. Capt. Thomas said that not enough input was received on implementing the practicability review. In addition, there is concern over the ability to meet the higher (phase two) standard and the availability of technology that is effective in freshwater. The USCG is also working on its capacity to test and approve treatment systems. Work is currently underway with lake vessels on treating large volumes of water. The agency recognizes that it will not be able to approve all treatment systems and a mechanism is needed to approve other country’s approval processes. Concern was also expressed on ability of other flag ships to meet the U.S. standard. Capt. Thomas said that additional environmental assessment is needed and that a final rule is expected in 2001. He noted that the Environmental Protection Agency (EPA) is currently working through litigation over their Vessel General Permit (VGP) that will likely have an impact on VGP requirements and related state requirements. More work will be needed to harmonize the USCG and EPA regulations. Finally, Capt. Thomas announced that he will be retiring; however, he is hoping to continue to engage in the GLP and other groups through a new government affairs civil position with the USCG.

Questions and Discussion

The ability of technology to attain the more stringent phase II standard was raised. Regarding treatment system for "laker" vessels, it was noted that currently no system can handle the volumes of water that move through laker ships. On some larger laker ships, an individual treatment system may be needed for each ballast tank on a ship. As a result of issues such as space, cost, power, and management, treatment systems for lakers are a significant challenge. There has been some consideration by the USCG on the issue of "grandfathering" treatment systems, given typical "shoring period" schedules. The importance of a mechanism to approve treatment systems as soon as the rulemaking is complete was emphasized. An additional issue that needs to be resolved is establishing special considerations for certain classes of vessels, such as towing and supply vessels. Many comments were received recommending that towing vessels not be exempt from the regulation. On harmonizing USCG and EPA regulations, enforcement is a key topic of discussion; however, much will depend on the outcomes of the current litigation and how that will affect the EPA standards. It is unclear what will happen if the EPA standards are divergent from the USCG.

- International Upper Great Lakes Study: Climate Related Risks and Adaptive Management
  Wendy Leger, Adaptive Management Working Group Co-Chair, Environment Canada

Tom Crane (Great Lakes Commission) introduced Wendy Leger and spoke briefly about the Upper Great Lakes Study; the study focuses on issues that might be impacted by changing lake levels and flows, potentially resulting from climate change. Leger began with an overview of her presentation, which would focus on the Upper Great Lakes Study's ("study") adaptive management approach, with the hope that it was something that could be applied to other issues. The primary mandate for the study is to review the plans which regulate the outflows of Lake Superior to Lakes Michigan and Huron, while factoring in climate change. The working group began by defining the extremes of what they should be concerned about, specifically extreme low or extreme high water levels and their impacts to the various uses and functions of the system. The group acknowledges that there is a lot of uncertainty in trying to predict what will happen and that none of the existing models perform well across all variables. There is no reliable way to predict future climate conditions and it is not possible to assign probabilities to any of the climate change scenarios.

Leger described the key elements of their approach, which includes assessing key vulnerabilities to extreme water levels (both lows and highs); determining the plausibility of the extremes; developing a plan plausible, damaging future scenarios; and strategizing for long-term structured, iterative decision-making process aimed at reducing uncertainty and minimizing risk. To achieve this, technical work groups are being convened to identify vulnerabilities to extreme high or low water levels and develop "coping zones." These zones will indicate the relative costs (level of impact) predicting under extreme conditions and range from acceptable (Zone A) to significant and irreversible (Zone C). Once the zones are established, the group will need to determine the plausibility of the extreme conditions and Leger described their methodology for this determination. This will lead to a risk evaluation matrix moving from not plausible to very plausible, which will guide planning efforts, including recommendations for future actions. Leger next proposed a decision tree for guiding future actions. She described the final piece of the process which is an institutional/governance analysis to determine responsibility; legal implications; mechanisms for implementation and funding. The overall goal of the study is to inform agencies and others on the following issues:

- What are the Great Lakes vulnerabilities to climate change
- Determine how future management decisions are affected
- How to make decisions based on our vulnerabilities to climate change
- What type of multi-lake actions are needed if climate change was to occur (e.g., regulatory plan)

Questions and Discussion

The IJC was acknowledged as the lead of the study which also involves a number of other agencies at all levels. GLP members expressed appreciation for identifying the importance of climate change and adaptive management, which was not the case for the Lake Ontario study, as well as the efforts to make the study a very scientific, transparent process. A public interest advisory group also plays a critical role in the study and helps with a communication strategy. The IJC is trying to engage as many agencies and stakeholders as possible so that modeling efforts continue and decisions can be made. The deadline to complete the study is March 2012, which will include a public review process in the summer of 2011. Possible changes to the Lake Superior regulation plan and multi-lake regulation was also mentioned in terms of what regulation would be needed to alleviate impacts in high-risk areas ("Zone C's").

Additional Discussion and Emerging Issues

GLP members were generally curious about issues associated with climate change and invasive species in the Great Lakes region. For example, it may make the region more vulnerable to species. Further, the question was raised that if species are expected to migrate northward as a result of climate change, would that be considered and invasion or a natural movement of species. Species such as didymo and their potential impacts are of concern, especially as not much is known about didymo. A previous EPA led study on climate change and invasive species was mentioned, as well as the possibility of incorporating climate change considerations into state management plans. GLP members acknowledged the many unknowns associated with climate change's potential impacts on the lakes and predicting species invasions. It was suggested that the Executive Committee look at putting together a session on climate change and invasive species at a future GLP meeting. It was mentioned that Sara Grise of Pennsylvania Sea Grant was conducting her thesis on this issue.

GLP members expressed an interest in continuing to follow and be involved in the GLWQA renegotiation process. Given that the comment period would likely to occur prior to next GLP meeting, it was suggested the Executive Committee review existing GLP position statements and recommendations to help inform additional comment.

GLP members were made aware of recently introduced U.S. legislation that would formalize the oversight of the Great Lakes Restoration Initiative and authorize other existing Great Lakes programs. GLP staff agreed to forward information on the legislation out the GLP after the meeting.

Great Lakes Panel Business
Phil Moy, GLP Chair

Moy briefly reviewed the major action items from the meeting, including:

- Develop an Asian carp and/or ecological separation position statement
- Continue to follow and/or engage in the GLWQA renegotiation process
- Build GLP membership by reengaging representation from the states of Illinois and Wisconsin
- Report to the ANS Task Force the need to increase stakeholder engagement in the Asian carp regional coordinating committee
- Work with state partners to help identify locations where the GLP and/or its members (e.g., states) can demonstrate technology development for invasive species prevention and control
- Continue work on a GLP statement on pre-import screening
- Committee action items

At the end of the meeting proposed dates for the next meeting of the GLP were Nov. 16-17, 2010; however, it was later determined that dates for the fall GLP meeting would be moved to December 8-9, 2010. GLP members expressed an interest in putting more time between GLP and Mississippi River Basin Panel meetings.

Public Comment

No public comment was provided.