Meeting of the Great Lakes Panel on Aquatic Nuisance Species
November 30-December 1, 2011
Ann Arbor, Michigan

Meeting Summary

Wednesday, November 30, 2011

Welcoming Remarks and Call to Order
Phil Moy, Great Lakes Panel Chair, Wisconsin Sea Grant

Moy led roll call confirming that a quorum was present. He welcomed meeting attendees and reviewed the agenda, which was approved with no changes.

Great Lakes Panel (GLP) Report
Kathe Glassner-Shwayder, GLP Coordinator, Great Lakes Commission (GLC)

Shwayder reported on action items from the spring 2011 GLP meeting that was held in Milwaukee, Wisconsin. She reviewed ongoing work, including a briefing paper on grass carp, as well as completed initiatives such as a recommendation to the ANS Task Force on pre-import screening. She provided an update on activities of the ANS Task Force (ANSTF) and efforts to develop the ANSTF Strategic Plan Progress Report. Decisions and initiatives from the fall ANSTF meeting were discussed and included:

- Moving forward with species-specific actions (*e.g.*, lionfish, snakehead)
- Establishing subcommittees to address AIS introduction and spread through water gardens and by teachers/students/educators/researchers
- Maintenance of funding for AIS state management plans
- Development of an interagency strategy to examine invasion rates associated with ballast water
- Identification of knowledge gaps and future research needs related to AIS
- Recommendation(s) on organisms in trade and maintaining momentum on Lacey Act issues
    - Mike Hoff (U.S. Fish and Wildlife Service (USFWS)) noted the forthcoming availability of six screening reports on high-risk potential invaders, as well as many more assessments/reports which are currently in progress.
- Collaborating with the National Invasive Species Council (NISC) to synthesize information on AIS and climate change
    - Hoff briefed participants on a new USFWS tool for modeling climate change and invasive species risk through 2080); a beta version of this tool is near completion.
- Funding for the Nonindigenous Aquatic Species database
    - In an effort to maintain funding for this tool, the ANSTF is looking for members to contribute thoughts on how they use the database, with the goal of making it clear that this tool is pivotal in the prevention/control of AIS. GLP members were encouraged to submit letters of support for the database to Kathe and the ANSTF.
- Requests for input on the draft ANSTF Strategic Plan and draft National Recreational Guidelines

There was also discussion on planned ANSTF letter to NISC on the movements of infested boats and the responsibilities of federal agencies to prevent AIS spread with emphasis on the western United States. GLP members felt it was important to communicate to the ANSTF that the recreational boating pathway is a national issue and request that they to broaden their emphasis accordingly. Finally, Glassner-Shwayder invited GLP members to submit nominations to the (soon-to-be-convened) Nominating Committee for new GLP officers and at-large members. New officers and members will be installed at the 2012 spring GLP meeting. Tentative plans for the spring meeting include a joint event with the Northeast Regional Panel (NEANS) in New York state.

AIS Rapid Response Roundtable
Moderator: Luke Skinner, GLP Vice Chair, Minnesota Dept. of Natural Resources

During this session, speakers provided both large- and small-scale examples of rapid response plans and programs from across the Great Lakes region. The objective was to identify challenges to and lessons learned from rapid response operations in the Great Lakes.

- Asian Carp: Early Detection and Rapid Response
  Kevin Irons, Illinois Dept. of Natural Resources

Irons discussed strategies for Asian carp early detection and rapid response which have been planned and conducted in Illinois. Mentioned as the ultimate goal of these efforts was long term eradication suppression that would decrease propagule pressure, thus reducing the probability of Asian carp invasion into Lake Michigan. An issue of concern that was raised in regards to rapid response activities involves the need for a Memorandum of Understanding to expedite permitting for the use of chemicals, such as rotenone. Other issues included the ecological impacts and financial costs related to the use of rotenone for rapid response. Also discussed were efforts to-date, including response efforts related to maintenance of the electric dispersal barrier system, eDNA monitoring throughout the Chicago area, and a response effort in Lake Calumet. Irons reviewed a tiered response approach to AIS as is outlined in the *Monitoring and Rapid Response Plan for Asian Carp in the Upper Illinois River and Chicago Area Waterway System* that was prepared by the Asian Carp Regional Coordinating Committee Monitoring and Rapid Response Workgroup. In addition to Asian carp, work has been initiated on early detection/rapid response plans for the invasive plants hydrilla and Brazilian elodea, and the state is working with the USFWS to ensure that appropriate chemicals are on hand should the need for a response emerge. In response to a question about whether the efforts have been effective and/or worthwhile, Irons noted that levels of knowledge and efficiency in their response process(es) are greater than those of several years ago.

- Lake Manitou Hydrilla: A Rapid and Sustained Response
  Doug Keller, Indiana Dept. of Natural Resources

Keller briefed attendees on multi-year hydrilla control efforts in Lake Manitou, Ind. Chemical treatments in the lake have resulted in an approximate 99 percent reduction in plant biomass (including both hydrilla and native plants). Keller described management strategies, challenges, lessons learned, and next steps for hydrilla management and native community restoration. Examples include:

  - Focus initial response on preventing the spread of hydrilla by boats by knocking the plant down and shutting down public and private boat ramps
  - Target persistent tuber population using complex chemical treatment
  - Maintain monitoring efforts to prepare for timely response to new infestations
  - Gain administrative support and funding in advance of rapid response operation
  - Establish communication with the public from the outset of treatment
  - Assess how fishery is impacted based on vegetative biomass reduction and use as the basis to modify future response efforts
  - Conduct a cost analysis on the benefits of keeping the lake clear of hydrilla; this could help build political will for future response efforts

Keller was asked about changes in the way(s) in which Lake Manitou is used and noted that this type of investigation is currently underway. So far, they have witnessed considerably higher numbers of recreational boaters since their eradication efforts. In response to a question about political support for the resources for this particular effort, Keller said that local decision-makers were familiar with the effects of another invasive plant, Eurasian watermilfoil, and, knowing that hydrilla has the potential to be far more devastating, offered their support overtly. When asked if he considered their efforts in Lake Manitou a ‘success,’ Keller replied that while they are happy with the biomass reduction, they want to continue to treat in the near-term before scaling back.

- Early Detection, Rapid Response to Zebra Mussel Discovery
  Luke Skinner, Minnesota Dept. of Natural Resources

Similar to efforts in Indiana, Skinner reviewed recent small scale efforts to control zebra mussel infestations in Minnesota. The infestation, detected early in the invasion process, was found to be small and in a confined area, making rapid response feasible. Multiple instances of equipment transport from known infested waters to non-infested waters allowed DNR staff to perfect their rapid response technique(s), which involved the use of copper-based chemical treatments (Cutrine-®Ultra) contained within an impermeable, 10-acre silt fence to maintain concentrations (*i.e.,* prevent dilution). The initial response operation, handled by local site managers, was well attended by the public. Skinner highlighted the interaction of the DNR team with local homeowners, noting that the efforts provided opportunities to educate people about the zebra mussel risks involved in transporting water-based equipment (including recreational equipment other than boats) among water bodies. Also notable during the response was the absence of conflict with private property owners over treatment. A question was raised about whether or not fish were killed in the enclosed silt-screens and if public support waned as a result. Skinner responded that although they were prepared for this and communicated their intent to the public regarding the potential negative impacts to other species, no fish kills occurred during the course of treatment. Comments from GLP members stressed the importance of conveying (to the public and to decision-makers) the long-term benefits of investing resources facilitating rapid response to AIS. It was noted that we need to be in the same position with our freshwater resources as the USDA in taking action when food or crops are at risk.

- Response to Round Goby in Pefferlaw Creek – A Case Study
  Francine MacDonald, Ontario Ministry of Natural Resources

MacDonald discussed round goby response in Pefferlaw Creek, conducted in efforts to prevent invasion of a tributary of Lake Simcoe, one of the most important recreational lakes in Ontario. Consulting with the Department of Fisheries and Oceans (DFO) Canada Sea Lamprey Control Team and utilizing their experience with rotenone treatments, MacDonald and colleagues were able to achieve a 99.8 percent control rate of round goby. One of the important lessons learned from this response operation was the process of obtaining federal and provincial permits for rotenone treatment. In addition, extensive consultation was conducted with the public on potential ecological impacts that could occur from rotenone treatment, such as fish kills and water quality issues. In efforts to minimize impacts to native fish communities, pretreatment was conducted 4 days before rotenone application, which involved the transfer of bait and sport fish from the treatment area. Post-treatment efforts involved the detoxification of rotenone. While response efforts were successful in eradicating 99 percent of the round goby population in Pefferlaw Creek, five years after discovery approximately 1 percent of the population did invade Lake Simcoe and have become established. Efforts currently are underway to investigate their impacts to the system.

Other lessons gained from this response operation include experience in establishing provincial AIS response plans, the importance of linking education to early detection and monitoring efforts, the need for intergovernmental relations between Ontario and the federal Canadian agencies as well as with non-profit agencies, and setting-up operation of an AIS reporting hotline. MacDonald was asked about challenges involved in collaborating with the DFO Sea Lamprey Control Team (as they are only funded for work on sea lamprey) and responded that there was nothing notable or special about the arrangement aside from the will to make it happen. This raised the question of whether there is the potential to change the DFO mandate, altering the species-specific restriction of the Control Team. Becky Cudmore (DF) noted that discussions about the mandate are not currently underway.

- Rapid Response: Lessons Learned, The Red Swamp Crayfish Story
  Bob Wakeman, Wisconsin Dept. of Natural Resources

Wakeman described a recent response to an invasion of red swamp crayfish discovered in a pond located in Germantown, Wisconsin. Bleach treatments were applied in efforts to eradicate this crayfish population with a containment barrier built around the pond before treatment. Response efforts have been followed-up with monitoring of neighboring waterways. It was noted that, in the last year and half, approximately $250,000 has been spent on efforts to control the invasive crustacean, with another $800,000 projected in the next five to six years. Funding sources have been federally (Great Lakes Regional Initiative), state (Wisconsin Dept. of

Natural Resources) and locally based. Wakeman noted challenges specific to red swamp crayfish control efforts, including a general lack of species information, obtaining chemical use permits through the U.S. EPA, and the difficulty in reaching the crayfish in their deep burrow networks. Wakeman also emphasized the need to develop a generic response plan that is flexible enough to adapt to a broad set of locations and species. He then engaged in a simple interactive exercise with participants, during which a general set of questions was posed for several example invaders. Wakeman encouraged the use of this (or a similar) stepwise approach when beginning control/response efforts for any AIS:

1. Identify the species
2. Identify what tools are available for control/treatment
3. Identify what native species are present
4. Identify whether natives *and* invasives are susceptible to available tools
5. Determine the value of existing native species
6. Determine the socioeconomic impact of available tools compared to the invasive species

Also noted were successes of response to the red swamp crayfish invasion, which include control of red swamp crayfish and sustainable stocking of large mouth bass. Wakeman discussed the value of local buy-in for the bleach treatment needed for crayfish eradication. Also mentioned was the effectiveness of interagency coordination between federal, state, county and local agencies. An important lesson learned from this response is "the better you know the enemy, the higher the chances of success." Also noted was the value of good monitoring data in making good management decisions. The development of a generic plan was recommended in laying the foundation for a broad-based approach.

- AIS Rapid Response Roundtable: Questions and Discussion

Successes identified from presentations on response efforts include the importance of early detection to increasing the feasibility of eradication/control. Also noted was that the earlier that detection occurs, the higher the probability for success. While some successes and difficulties were unique to the species involved and the scale of the response efforts, several common challenges were identified during discussion, which include:

- Justification for rapid response as supported by species risk assessment
- Development of response tools that are efficient, effective and environmentally sound coupled with the need for continual development of new tools (*e.g.*, micro-matrix developed for Asian carp control)
- Funding and permit procurements (*i.e.*, the need to streamline processes);
- Cooperative agreements with land owners
- Administrative/political support
- Treatment authorization (*e.g.*, chemical use permits)
- Containment/isolation of treatment(s)
- Cross-jurisdictional (multi-state/county) efforts
- Addressing public concerns such as water quality, navigation interruption, water level fluctuations, etc.
- Accessibility of resources needed to implement for eradication/control measures (*e.g.*, rotenone supplies)

In response to questions on how to respond when a new species is found in a state without the resources to manage it, Mike Hoff noted that the USFWS has secured an $800,000 supply of rotenone to assist states in these types of circumstances. Jamie Schardt of the U.S. EPA noted that the Great Lakes Regional Initiative is looking for operations that are rapid in response, noting that the rate of response is dependent on characteristics of specific organisms. Participants agreed that, rather than looking only at impacts on fisheries or industry, a more comprehensive outlook is appropriate. One person pointed out the importance of using trigger mechanisms for response when the risks/impacts of a new species are unknown. Other general comments touched on the need to distinguish between "Incident Command System" and a pre-designation regarding who is in charge of response efforts; advocating (to the ANSTF) the need for a continued pipeline of development of effective, efficient, and environmentally sound rapid response tools; and the need to clarify terminology in outreach/education efforts (*e.g.*, chemically vs. biologically or ecologically "rapid"). In terms of the role of the Great Lakes Panel, members agreed that actions should focus on developing options for a rapid response workshop/tabletop exercise to determine how best to

prevent spread from detection sites. Also recommended was the development of outreach products to feature success stories of AIS management and rapid response in the Great Lakes. As part of outreach efforts, the value of a communication media plan was noted as well as a coordinated citizen monitoring program that was standardized across the region. The need was recognized for strong leadership in the Great Lakes and identifying roles for response to AIS.

Regional Coordination Initiatives
Moderator: Phil Moy, GLP Chair

- Regional AIS Initiative
  Roger Eberhardt, Office of the Great Lakes, Michigan Dept. of Environmental Quality

Roger gave participants a briefing on the newest AIS initiative among the Great Lakes governors and premiers. While many governors and premiers are already interested in the AIS issue, not all are fully engaged as of now. A factor driving this initiative is communication from Governor Snyder to the other Great Lakes governors on raising AIS as a regional priority. Led by the Michigan Office of the Great Lakes and with the GLC providing secretariat services, the initiative has convened several conference calls to discuss key issues. A summary of regional entities working on invasive species has been developed and a needs assessment has been conducted based on a review of progress to date on the Great Lakes Regional Collaboration's (GLRC) appendix of AIS recommendations. Based on these efforts, key points have been brought to the governors' and premiers' representatives to gauge their interest in further work.

In response to questions of priority needs that emerged from the assessment, Eberhardt clarified that there is general interest in moving forward on organisms in trade issues as well as early detection and rapid response. Additionally, he noted that there is some interest in the efforts of the Ballast Water Collaborative. The Great Lakes Panel was noted as an important resource for the initiative. There was a question about whether the AIS initiative would include efforts to address the disparity of permits on ballast water among the Great Lakes states. Another issue raised was on the institutional arrangements needed in the conduct of the AIS initiative and if there was a need to create a new implementation group. This sparked a few comments from participants regarding the need to utilize the capacity of existing groups (*e.g.*, Great Lakes Panel and Council of Great Lakes Governors). If the initiative moves forward, an announcement from the executive offices will be made to formalize the effort.

- Binational AIS Rapid Response Planning for the Great Lakes-St. Lawrence Basin
  Michael Donahue, URS Corporation

Donahue's presentation focused on bridging collective experiences in a way that contributes to a binational rapid response plan. He spoke on the relevance of this topic, noting that AIS is a key component of the International Joint Committee's (IJC) Nearshore Priorities, and is receiving enhanced focus in the Great Lakes Water Quality Agreement (GLWQA). A gap analysis of "Operation Silver Screen" was performed to glean lessons learned from silver carp efforts in the Chicago Area Waterway System (CAWS), and Donahue and colleagues are currently working to move forward with AIS response activities based on these lessons. Strengths recognized from the operation include on-site scientific support and operation of the Incident Command System. From observed weaknesses, a series of best practices for binational rapid response were developed. This includes a high level directive (*e.g.*, an MOU) to avoid power struggles, a coordinating entity, anticipation and prevention of problems, strengthening on-site IT support, managing inconsistencies in regulations and permitting, and various funding-related matters. Also mentioned was the need to formalize emergency designation for AIS.

Donahue identified a number of practical themes for a binational rapid response plan. These were as follows: a legal/institutional framework, planning and preparedness (*e.g.,* ensure that rapid response is "Plan B"), and plan execution (including an "after action" plan). A description of plans for a pilot project on the St. Clair-Detroit River Corridor was presented, consisting of two components: an institutional analysis of agency roles and responsibilities and a pilot binational response plan. Also recognized was the need to characterize high risk species and a continuum of options for execution of the response plan. The overarching goal of this work is to develop a planning framework that is both scientifically sound and politically acceptable among all parties, including the public. After Donahue's presentation, Mike Hoff emphasized the importance of

language in these efforts. Participants generally agreed that definitions of "control," "rapid," "success," and other terms must be clearly articulated in any final rapid response plan. Also noted was the need to determine how best to encourage buy-in for plan development.

Thursday, December 1, 2011

Agenda Review
Phil Moy, GLP Chair

Moy opened day two of the GLP meeting and reviewed the agenda.

Committee Reports and Discussion

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

Jensen reported on the committee discussion by identifying a few discrete elements and goals. He noted that the committee wants to produce a suite of tools to help in their communication efforts. This may include an updated AIS booklet (with the assistance of the GLC) to high success stories, a suite of social media tools and an updated GLP webpage. In re-designing the website, it was suggested to target a broader audience beyond the Great Lakes Panel and to revise with suite of projects, events, maps, members and species of concern. The committee also discussed the possibility of hosting a webinar series that features success stories of both the GLP and other groups/programs (*e.g., Sooper Yooper*, *Nab the Aquatic Invader*). Committee members have an interest in collaborating with the Northeast ANS Panel for the upcoming joint spring meeting on an outreach session with a special focus on social media. Finally, Jensen mentioned that the committee will review of six new species Watch Cards, including those for mystery snails, curly-leaf pondweed, red swamp crayfish and water chestnut. Luke Skinner mentioned the need to emphasize the Great Lakes Panel and link to other entities for specific information.

- Research Coordination Committee
  Phil Moy, GLP Chair

Moy, filling in for Research Coordination Committee Chair Lindsay Chadderton (The Nature Conservancy), provided updates on several items. Moy noted that several of the new USFWS risk assessment tools are complete and will be sent to state AIS coordinators by Mike Hoff in the near future. Related to risk assessments (RA), the committee will begin efforts to not only coordinate and improve RA activities, but also to standardize these efforts across jurisdictions, and to identify a tiered approach for RA (*i.e.*, Tier 1 = rapid; Tier 2 = more involved). In addition, the committee identified a need for a central location to house ballast water data collected through Ballast Water Collaborative efforts. Members of the Collaborative are looking for species assemblage information at ports, and also are looking for assistance in identifying "hot" or "red flag" ports with occurrences of newly introduced organisms and those at risk for AIS transfer. Moy noted that an update of the committee priorities document is due, and members will likely take up this task in January 2012. With GLP elections approaching, Moy asked members to notify him of their interest in serving as Research Coordination Committee chair.

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

Murray first discussed the committee's interest in tracking the renegotiation and pending revisions to the Great Lakes Water Quality Agreement (GLWQA) as part of the committee work plan. Of particular interest is tracking integration of the AIS component as a new annex of the Agreement. The committee also is developing a priorities document and Murray provided examples of issues and recommendations that would be included as a result of committee discussion. The goal is to finalize the document at the spring 2012 meeting. Murray also touched on other topics of committee discussion, including opportunities for GLP involvement in the AIS Initiative, how the GLP can support the ballast water collaborative, contributions to the ANSTF draft strategic plan, revision of the committee work plan, and volunteers for a new committee chair.

GLP members were particularly interested in an idea to collect and compile invasion stories from other regional panels into a short outreach document. The intent would be to use this document as a basis for recommending legislative or regulatory reform to reduce or eliminate trade of high-risk AIS. There was some concern over how the GLP could tell this story while staying within their mandate by avoiding advocacy. Kathe Glassner-Shwayder noted that this idea was discussed at the ANSTF meeting in November and other regional panel coordinators are interested in collaborating on this type of project. It was suggested that the GLC compile and market these stories on behalf of the GLP.

Following Mike's report, Laura Norcutt (USFWS) made an announcement regarding the new award that has been developed by NISC and the ANSTF. Categories for the AIS award include Leadership, Outreach, and Volunteer. The organizations are soliciting nominations for the award, which will be presented at the upcoming NISAW meeting (February 26-March 3, 2012, Washington, DC; http://www.nisaw.org). Award nominations should be sent to Laura Norcutt (laura_norcutt@fws.gov).

Asian Carp Round-up
Moderator: Phil Moy, GLP Chair

- USGS Update on Asian Carp Control Research and Monitoring
  Cindy Kolar, Assistant Program Coordinator, Invasive Species, U.S. Geological Survey

Kolar briefed the audience on research efforts included in the Asian Carp (AC) Control Strategy Framework (available at asiancarp.us), which focuses on three areas: 1) whether or not AC can get into the Great Lakes, 2) whether or not they can develop sustainable reproductive populations and 3) how they can be controlled. She highlighted experimental methods of control, which include chemical, biological, physical, and integrated pest management (IPM) approaches. With chemical controls, Kolar noted that the primary goal is to target the invasive species, while minimizing non-target effects. Thus, research efforts on this front have focused on selective uptake/selective release chemicals. An additional chemical/biological option is pheromone control. Researchers have relied on pheromones to attract and herd AC, a method that reduces risks to native species. Physical control measures being tested include egg viability disruption via electric currents as well as diversion tactics using seismic water guns. Kolar also described additional research efforts, which include biological risk assessments (*e.g.,* habitat suitability surveys, egg development studies), bioenergetics modeling, and fish condition assessments in the presences/absence of AC. Noted was the importance of moving technologies forward from experimental to actual use.

- Update on eDNA Monitoring Results
  Chris Jerde, University of Notre Dame

Jerde began with a general overview of eDNA sampling procedures and some of the team's accomplishments to date. An example given was grass carp detection following rotenone treatment in the Chicago area waterway system (CAWS). The markers developed for the grass carp indicated 50 percent of water samples tested positive for eDNA. He noted that the first paper on eDNA in the Chicago area waterway system (CAWS) has been published and the team is nearing completion on three other eDNA projects. Jerde provided an outline of molecular marker designs/testing for Asian carp and other species (*e.g.*, goldfish, round and tubenose gobies, and Eurasian ruffe), and also reviewed sampling work that has occurred along the coasts of Lakes Michigan, Erie, and St. Clair, as well as the Maumee River. Thus far, Jerde noted, there has been no detection of bighead or silver carp in "bad" or unexpected locations. He also spoke about a bait trade surveillance project being conducted with funding from the Great Lakes Restoration Initiative and in collaboration with the Illinois DNR. This project is screening 400-800 bait shops in the Great Lakes region using eDNA. Major elements of this work include the development of bait-centric molecular markers, public outreach, and a survey of shops for appropriate signage (*e.g.*, *Stop Aquatic Hitchhikers*).

When asked if they were testing a molecular marker for common carp, Jerde replied that common carp is being used as a positive control in their testing efforts, as it is a species that they can easily manipulate, using a combination of molecular marker and pheromone data. Regarding the DNR's approach to working with bait shop staff, Jerde noted that local authorities entered a given shop with DNR staff, approaching the activity as a 'general inspection.' Overall, bait shop owners/employees seemed more concerned with potential water contamination (from eDNA equipment) than with compliance, and were generally cooperative.

Jerde also was asked if any work is being undertaken to address the considerable (minimum two week) lag time between sample collection and analysis. Jerde agreed that this is a hurdle, but that technology development is "no small feat." Efforts are underway to develop a "lab in a box" which will provide results within hours. This "best-case scenario" will likely be available in a two to five year time frame.

- Update on Great Lakes and Mississippi River Interbasin Study
  Gary O'Keefe, U.S. Army Corps of Engineers

O'Keefe provided a summary of the Great Lakes and Mississippi River Interbasin Study (GLMRIS) (refer to http://glmris.anl.gov), noting that a final report on areas outside of the CAWS is due for release in March 2012. Four interim products have been produced thus far, which O'Keefe reviewed. These included an ANS White Paper, a NEPA scoping paper, a commercial non-cargo navigation assessment, and a preliminary pathway characterization report. The pathway report is looking at AIS introduction and spread occurring through aquatic pathways involving water flow exchange. A risk analysis of hydrologic connections has been conducted at 18 high risk locations, serving as the basis for characterization of pathways. The ANS White Paper focuses on a list of species of concern and their dispersal risk for GLMRIS. It was noted that of the 254 non-native species (with 119 species of these species in both basins), 39 species have been identified as species of concern which have been documented in a factsheet.

Also discussed were products with upcoming release dates, including a commercial cargo assessment and an ANS control technologies report. Regarding the latter, O'Keefe said that the research team identified 27 available controls for use in targeting the 39 species identified as high risk. Control measures involve herbicides, benthic barriers, biological controls, light attenuating dyes, ultrasound, UV light, and controlled harvest, among others. Ninety individual types in total were classified. O'Keefe expects the technology report to be finalized after an external review by March 2012. O'Keefe also briefly discussed voltage changes in the electric barrier, noting the most recent increase to 2.3 volts per inch. Finally, participants were briefed on monitoring efforts (via tagging and telemetry) to demonstrate barrier efficiency, as well as a new eDNA calibration study for improving the application of eDNA techniques to assess and manage uncertainty. When asked why the Corps is not focusing on hydrologic separation in areas other than CAWS where most connections are intermittent, O'Keefe stated that the costs and impacts of that type of action cannot be disregarded. Full assessments need to occur before fully separating any systems. He also was asked about full-cost accounting and ecosystem services when considering options for separation (as opposed to limiting calculations to cost of infrastructure, labor, etc.) and O'Keefe responded that yes, ecosystem impacts will be taken into account in the full course of the study.

Public Comment

No public comment was offered.

Great Lakes Panel Business

Moy briefly summarized action items from the meeting and then the meeting was adjourned. (*Action items from the meeting are available as a separate document at* http://glc.org/ans/panel.html#glpmeet).