

Meeting of the Great Lakes Panel on Aquatic Nuisance Species

June 25-26, 2009
Holiday Inn Grand Island Resort and Conference Center
Grand Island, NY

Meeting Summary

Thursday, June 25, 2009

Welcome

Don Zelazny, Great Lakes Program Coordinator, New York State Dept. of Environmental Conservation (DEC)

Phil Moy, as Great Lakes Panel (GLP) Vice Chair, opened the meeting, welcoming all of the GLP members and interested parties and introducing Don Zelazny to provide the opening remarks. Zelazny began by recognizing the recent 100 year celebration of the Boundary Waters Treaty. He likened the fight against invasive species (referencing rapid response efforts focused on the northern snakehead and emerald ash borer) as a war and encouraged the group to be thinking about the urgency of the problem and can be accomplished collaboratively. In his words, "we can not let our disagreements about tactics let us lose our way. A good field commander knows the best defense is to take the offensive position. Let us use this week to talk to each other and move this battle forward."

Call to Order

Jim Grazio, Pennsylvania Department of Environmental Protection; Chair, Great Lakes Panel

Grazio reviewed the meeting agenda and took roll call (*refer to the end of this summary for a list of participants*). The GLP approved the December 2008 meeting summary as written.

Great Lakes Panel Update

- [GLP Summary of Action Items](#): *Kathe Glassner-Shwayder, Great Lakes Commission; GLP Coordinator*

Shwayder introduced new GLP members and changes in membership. Changes and new members to the GLP include Bill Bolen (U.S. EPA – Great Lakes National Program Office), Jennifer Day (National Oceanic and Atmospheric Administration), Jeff Stollenwerk (Minnesota Pollution Control Agency), David Kelch (Ohio Sea Grant), and Lindsay Chadderton (The Nature Conservancy). Also introduced (later during the morning session) was Anjali Patel, the Great Lakes Commission 2009-10 Sea Grant Fellow who will be working with the Commission for one year on Great Lakes policy issues. Patel holds a law degree from the University of Michigan and a master's degree in environmental policy from Drexel University.

Shwayder next reviewed the progress that has been made on the previous meeting's action items. GLP members have made some progress on using the Wiki; one third of the panel membership submitted reports prior to the meeting. GLP staff will be working on integrating committee priorities and membership updates in order to track progress on priorities. Shwayder also reminded the group to add dates onto each entry. Since the last meeting, coordination and communication between the Executive Committee (ExCom), GLP members and GLP staff has increased. The ExCom and staff are committed to continuing to enhance and build on these efforts. The ExCom was commended for their help in setting the agenda for this meeting. Shwayder provided updates on each of the standing committee's past activities and future projects. Committee work plans, once completed, are intended to be used as the foundation for an overall GLP strategic plan. Mike Hoff (USFWS) recommended that as the GLP strategic plan is developed, the Aquatic Nuisance Species Task Force (ANSTF) strategic plan be used as a reference towards ensuring the GLP plan is action oriented.

- [ANSTF Meeting Summary](#): *Jim Grazio, Pennsylvania Department of Environmental Protection; Chair, GLP*

Grazio provided a summary of the recent ANSTF meeting in Bozeman, MT that he and Kathe Glassner-Shwayder attended. New appointments to the ANSTF include Gary Frazer (USFWS) as a new co-chair and Susan Mangin (USFWS) as the new executive secretary. Mary Glackin continues as the acting co-chair for the National Oceanic and Atmospheric Administration (NOAA); however that position is still in flux.

The GLP and Mississippi River Basin Panel jointly presented as a recommendation to the ANSTF concerns over the need for increased funding for the regional ANS panels and state management plans (SMPs). It was noted that as the number of regional panels and SMPs has increased, the overall programmatic funding level has remained level and thus allocations to individual panels and states has diminished. In order for the ANSTF to determine if new funding mechanisms are needed, regional panel members have been asked to explore respective budgets and encouraged to recommend shortfalls to their directors. The USFWS has asked that panels and states to provide tiered annual work plans identifying existing needs and associated cost estimates, designating which activities can be accomplished with current funding. The GLP needs to continue developing priority work plans and convey those to the ANSTF. Doug Keller (Indiana Dept. of Natural Resources (IN DNR)) emphasized that the top funding priority should be that every state get increased SMP funding.

According to CDR Tim Cummins (U.S. Coast Guard (USCG)), work on a ballast water protocol for grounded vessels is currently running through USCG headquarters and the National Park Service. Mike Hoff can provide information on a draft risk assessment for evaluating if water needs to be treated. It was suggested that this issue should be discussed at the next meeting.

The Western Regional Panel sent a copy of the Quagga-Zebra Mussel Action Program (Q-ZAP) to the ANSTF in May 2009. Q-ZAP is a fairly strategic plan in resource identification. It was decided that GLP staff will check on the status of Q-Zap and report back to the GLP or invite someone from the ANSTF to report on the plan at the next meeting

Dave Reid (NOAA) is working on a draft research protocol for researchers working with aquatic invasive species (AIS). The research protocol is a risk assessment to determine if the researcher should set up containment or confinement for their research processes; the revised version is intended to shorten and simplify the existing research protocol which was adopted in 1984. Grazio also reported that the ANSTF is interested in compiling existing rapid response models and potentially developing a recommendation for a standardized template.

The proposed federal Great Lakes Restoration Initiative (GLRI) was mentioned as a potential funding source for SMPs, risk assessment, and other priority AIS management activities. For example, it may provide an opportunity to fund the development and/or implementation of federal and/or state led rapid response plans. It was mentioned by Bill Bolen (U.S. Environmental Protection Agency (USEPA) – Great Lakes National Program Office (GLNPO)) that we need to consider how to “export” what we do with GLRI resources and share results with other regions.

Featured State Update: New York State Response to AIS Using Partnerships and Information Database Tools and New York Invasive Species Clearinghouse

- [New York State Invasive Species Program](#): *Dave Adams, New York State DEC*

Adams gave the first part of a two-part presentation providing an overview of the New York State (NYS) IS program including developments regarding AIS issues. The NYS Invasive Species Council and NYS Invasive Species Advisory Committee structure is modeled after the federal model. Program components include eradication grants, response teams, partnerships for invasive species management, regulatory initiatives, iMap GIS, a virtual research institute, and an information clearinghouse. Recent examples of AIS work include a northern snakehead eradication attempt. A valuable lesson the department has learned regarding rapid response planning is to start public outreach at the earliest opportunity feasible, even if plans are not finalized, to ensure strong communication between agency staff and effected stakeholders.

- [NYS Response to Invasive Species: Information & Education Integration](#): *Chuck O'Neill, Cornell University / New York Sea Grant*

O'Neill discussed three of the recommendations from the Governor's task report for implementing a NYS AIS program, including comprehensive education/outreach; integrating databases/information clearinghouses; and creating an invasive species research institute. The education/outreach component of the program that has been implemented through Cornell University and follows a "teach the teacher" model. This model places one educator in each "PRISM" (Partnerships for Regional Invasive Species Management) region to work with PRISM partners and extension cooperatives to put together public outreach programs. Much work has been done on an invasive species database known as "iMapInvasives" (<http://imapinvasives.org>), which provides public all-taxa GIS information. In addition, an invasive species clearinghouse has been developed coordinate information from a number NYS projects, including iMapInvasives. Further, the NY Invasive Species Research Institute (NYISRI) is designed to catalog new research, improve the scientific basis of management, promote information sharing and recommend funding needs.

Questions and Discussion

How does iMapInvasives interface with the old clearinghouse and with regional and national databases?

- Technically the old clearinghouse still exists, but AquaticInvaders.org is a reflector page which takes users to the new database. O'Neill anticipated that a direct link into the new database would be in place by the end of the summer. Work has been coordinated with U.S. Geological Survey (USGS) databases so that even if the format is not exactly the same, it can be harmonized. Similar collaboration is occurring with databases and research materials in other parts of the country (e.g., Gainesville, Florida). The overall goal is to link to as many similar projects as possible.

Does the clearinghouse link to scientific documents?

- Not yet; dedicated funding is being pursued to develop new searches. Searches are currently limited to educational materials because searches for scientific documents are very expensive in part due to copyright rules.

How specific are the maps?

- The specificity of the maps depends on information in the database; if the information is available, it is possible to focus down to a specific pond, for example. Furthermore, original fields can show collection locations and weather or environmental conditions. More information on this issue can be gained from Meg Wilkinson at National Heritage; her contact information was provided on an iMapInvasives handout at the meeting. Rochelle Sturtevant (NOAA - Great Lakes Sea Grant Network) also mentioned that USGS is reconfiguring their maps to illustrate specific location of AIS sightings. The maps currently being used are considered misleading as they display AIS sightings by watershed. The new maps will be based on sight-specific data, so if there is a general description that says Lake Superior, a specific location in the lake will be indicated rather than shading of the whole lake.

Coordination of Ballast Water Programs

Phil Moy (Wisconsin Sea Grant) moderated this session which was convened given concern for the lack of coordination that has persisted across ballast water regulatory programs. Remarks were given by industry, state, provincial and federal government representatives. The goal of the discussion was to examine the possibility of moving forward toward consensus on a regional standard for ballast water. Attendees at the meeting received [a handout](#) outlining the array of ballast water standards in place or proposed for Great Lakes states and the respective regulatory vehicle (e.g., Clean Water Act 401 certification under the USEPA Vessel General Permit).

Note: The two primary regulatory vehicles that states have used for establishing a state ballast water discharge standard are (1) a state mandated permit program; and/or (2) state certification of the USEPA Vessel General Permit (VGP) under Section 401 of the Clean Water Act. Reference to 401 certification programs below is limited to the certification of the USEPA VGP and not to any other water quality standards. Two states, Michigan and Minnesota, have established a state permit program through state legislation, which provides the basis for

their 401 certification of the USEPA VGP. Wisconsin is the only state to have not issued a 401 certification of the USEPA VGP.

State Programs

- [New York's 401 Certification of EPA's Vessel General Permit](#): *Raymond Vaughn, NYS Attorney General's Office and Frances Zagorski, NYS DEC*

The technical basis for New York's 401 certification of the USEPA VGP is found in four bodies of expert work: 1) 2003 International Maritime Organization (IMO) study group on ballast water; 2) U.S. government recommendation to the IMO; 3) the California Advisory Panel on Ballast Water Performance Standards; and 4) the California State Lands Commission Advisory Panel. Effective immediately, vessels entering New York waters from outside the Exclusive Economic Zone (EEZ) must exchange/flush ballast water to meet USEPA VGP requirements; vessels entering from inside the EEZ are required to meet additional requirements under New York's 401 certification. Exemptions apply to vessels that operate exclusively within the Great Lakes and St. Lawrence Seaway System; New York Harbor and Long Island Sound; vessels that enter New York waters from ports of call within New Jersey or Connecticut which have already exchanged water; and vessels with ballast water treatment technology installed. A safety exemption is also included. Beginning in 2012 standards for existing vessels are increased to a level that is approximately 100 times more protective than the IMO discharge standards; in 2013 the standards for new vessels increase to a level approximately 1000 times more protective than IMO standards. Vessels operators may apply for an extension if there is a shortage of technology, vessel specific engineering constraints, or installation constraints no later than 18 months before the conditions come into effect. The 401 certification standards apply to all vessels operating in New York. The standards were recently challenged and upheld in the NYS Supreme Court but the matter may be appealed. Also noted was the growing recognition of invasive species as a form of "biological" pollution. NYS supports efforts to unify standards on ballast water discharge.

- [Pennsylvania Ballast Water Program](#): *Jim Grazio, Pennsylvania Department of Environmental Protection*

Pennsylvania standards have been established under the framework of the state's 401 certification program, as applied to the USEPA VGP. Pennsylvania worked with New York in development of the standards and therefore the two state's standards are closely aligned. Compliance with standards must begin by August 2009. Oceangoing vessels launched before 2012 must meet IMO standards by 2016. Both oceangoing and Great Lakes-only vessels ("lakers") built after 2012 must meet various more stringent standards which include bacterial standards. The permit standards have been appealed by the Lake Carriers' Association and the state is still in the midst of this litigation.

- [Ohio's Ballast Water Program](#): *John Navarro, Ohio Department of Natural Resources*

Ohio's ballast water standards are established through certification of the USEPA VGP. Under current standards, oceangoing vessels launched prior to 2012 need to meet IMO standards by 2016; oceangoing vessels launched after 2012 need to meet IMO standard prior to the commencement of vessel operation. As to lakers, IMO standards only apply to vessels launched after 2016. Ohio has special conditions for salt water discharges, chlorine discharges and the use of biocides. Ohio is certifying the IMO standard because it is the most widely tested and accepted; however the goal is to have no viable organisms in ballast water discharge. Ohio did not adopt a stricter standard given the lack of adequate testing for those standards. Ohio is also currently considering ballast water legislation for oceangoing vessels (HB 298) which would establish a program similar to that of Michigan. Furthermore, Ohio would be willing to endorse a regional/national standard if the standard is strict enough. Concern was mentioned for the impact of climate change on the ballast water situation.

- [Michigan's Ballast Water Regulations](#): *Roger Eberhardt, Michigan Department of Environmental Quality (remote participant)*

Michigan has an independent ballast water program, developed following state legislation and in effect since January 2007. The state also issued certification of the USEPA VGP, which essentially reflects the terms of the state permit. Under the terms of the permit, oceangoing ships must obtain a state permit that prohibits

discharges that would cause a violation of water quality standards or would lower water quality in Outstanding Natural Resource Waters. The state permit, based on best available technology, applies to only oceangoing vessels conducting port operations in the state and implements a zero discharge standard. The vessels must certify either they have not discharged ballast water, or have treated the water using an approved method (currently UV light, de-oxygenation, or chlorine). The conditions of the permit were upheld by a federal circuit court in November of 2008. Once a permit is granted, it is valid for 5 years. Michigan is interested in discussing a region-wide standard towards more effective regional management of ballast water. Currently Michigan is being sued by the National Wildlife Federation because their program does not cover lakers.

- [Indiana 401 Certification](#): *Doug Keller, Indiana Department of Natural Resources*

In Indiana, the authority to regulate ballast water falls under the Indiana Department of Environmental Management. Indiana's 401 certification program was written without significant input from other agencies or stakeholders. The regulations require existing oceangoing vessels to meet IMO standards by 2016 and new oceangoing vessels to meet IMO by 2012. The state made an effort to develop a program consistent with other Great Lakes states; the result being a program that is similar to other state's certification standards for oceangoing vessels. There are no requirements for lakers.

- [Wisconsin's Ballast Water Program](#): *Susan Sylvester, Wisconsin Department of Natural Resources*

Wisconsin originally developed a 401 certification program requiring IMO by 2016 for both oceangoing vessels and lakers. Because there were multiple legal challenges to the certification process, the state has decided to develop a state general permit instead. The proposed permit, currently under development, would cover oceangoing and Great Lakes vessels that have a tank capacity of 8 cubic meters, are at least 164 feet in length, and are discharging water in the state. The terms of the permit include prohibiting the discharge of any solids, sediments or biological materials that have accumulated in the ballast tank and a maximum daily chloride limit of 1514 mg/L. Furthermore, existing oceangoing vessels must meet a standard 100 times more stringent than IMO by 2012, unless it can be demonstrated that the standard is not attainable at least 9 months prior to the effective date. In this case, the vessel would be required to meet the IMO standard. Vessels constructed after 2013 must meet a standard 1,000 times more stringent than IMO. The state hopes to finalize the permit by September and may include changes such as having the permit apply to all vessels as opposed to just those discharging in state waters. The state expects to also require lakers to meet the IMO standard in the next issuance of the permit. The state is concerned about how ballast water treatment methods will be approved; specifically because they will not have the capability of approving systems at the state level and will need to rely on USCG or another trustworthy entity to vet the systems. The state would prefer a federal standard but would be willing to adopt a regional standard if effective. Although the state would like a standard that works better than the current federal standard, it does not feel that IMO is strong enough.

- [Protecting Minnesota's Waters Controlling Ballast Water Discharges](#): *Jeff Stollenwerk, Minnesota Pollution Control Agency*

Minnesota has an independent ballast water program, developed following state legislation, which is consistent with IMO standards. The state has also issued certification of the USEPA VGP reflective of their state permit. New vessels must meet the IMO published biological standards by 2012 and existing vessels by 2016. The state chose IMO performance standards because it was confident that those standards would move regulation in the right direction, treatment technology was already being developed to implement those standards, and at the time there was not enough information to show that more stringent standards would be more protective or that technology would be feasible. The state would regulate all vessels not just oceangoing vessels. The two largest ports to receive ballast discharges in the Great Lakes are Duluth and Two Harbors, Minn. In Duluth, Great Lakes vessels made up 95% of those discharges and 98% of the volume. The state recognizes that while lakers may not introduce species, they can contribute to the acceleration and redistribution of AIS between the lakes. The state would prefer a federal standard, but will use state authority to protect Lake Superior from AIS in the interim. It was noted that the invasion of *Hemimysis anomala* (bloody red shrimp) has occurred in all the Great Lakes except Lake Superior.

Questions and Discussion

The following represents a synthesis of the discussion and reflects the comments of multiple individuals.

What is the basis for standards that are more stringent than IMO?

- IMO is perceived to be insufficient based on what is achievable according to expert opinion.
- Some do not feel IMO will be effective.
- Based on a literature review, it is thought that technology will be available to achieve IMO by 2012 and that 100 times IMO will also be achievable.
- The process will be market-driven.

Why do permit programs in Michigan, Indiana and Ohio do not cover lakers?

- Ballast water treatment is more challenging for lakers (e.g., shorter voyages, greater volume of water and higher flow rate).
- Cost may grow exponentially as lakers may need more than one treatment to meet the standard.
- If other vectors can be closed, it may not be necessary to regulate lakers since we will have stopped new species from entering the system.

How was the 401 certification process coordinated within each state?

- Coordination did occur; USEPA Region 5 played a significant role in facilitating coordination.
- Noted that the 401 certification process is highly technical with tight timeframe, making coordination challenging.
- Most states are not used to working on the 401 permit process to meet such deadlines.

How will enforcement be handled?

- USEPA will be responsible for enforcement under the VGP.
- Technology approval for treatment to meet standards has not yet been determined.
- USCG training with the states.
- Court authority will be USCG.

Industry Perspectives

- [SFC Perspective on State Ballast Water Program](#): *Caroline Gravel, Shipping Federation of Canada*

The Shipping Federation of Canada (SFC) represents owners, operators and agents of ocean ships trading in Canadian ports and St. Lawrence Seaway. The primary functions of SFC include advocacy, providing information, support for operations, training, increasing industry profile. The approach of SFC on environmental issues is to maintain market access (i.e., social license to trade), manage expectations and feasibility, develop compliance tools and training sessions (e.g., code of best practices), and participate in developing the "Green Marine" environmental program. The SFC collaborates with different departments and regulatory agencies to ensure regulations can be implemented on an operational level and has worked with members to ensure that the compliance rate increases each year. Canadian and St. Lawrence Seaway ballast water regulations were supported by SFC.

The SFC is looking for regulations that are consistent/harmonized from port to port. It would be challenging for a ship to comply with different standards for different states. In addition, the constantly evolving legislative landscape and regulatory fragmentation creates an aura of uncertainty which can hinder technology improvements. Even though IMO performance standards were published with the ballast water convention, only a few technologies have actually been through the approval process. If the performance standard is changed, the research standard is reset to zero. Furthermore, even though a system could go through the IMO approval process, there may not be the capacity to install that system on all ships. For example, there are 55,000 international vessels trading globally and one of the approved systems can only be installed on approximately 400 ships per year. Gravel also noted that when approving any system, it is important that the system is safe for the crew, environmentally acceptable (i.e., not placing toxics in the water), economically viable in both retrofitting and regulatory stability, and the system must work.

Standards can and should promote resource productivity; the way current state ballast water programs are designed, it doesn't seem feasible for ship owners/operators to be able to comply. Industry would like to comply with regulations, but the regulatory uncertainty inhibits technology investments and there is a disconnect

between technology and regulations. Collaboration between regulators and technology developers is needed for a market to exist which can support technology development, more meaningful buy-in and faster implementation.

- American Great Lakes Ports Association Perspective: *Steve Fisher, American Great Lakes Ports Association*

The American Great Lakes Ports Association (AGLPA) represents the 13 public ports on the U.S. Great Lakes. The AGLPA would like to see a federal standard, and in the absence of federal regulation, it would like consistent state regulation. Fisher said it is important to be sober about the state of technology today as only a handful of the 54 treatment systems developed have been approved to meet IMO standards. In the U.S. there is not a process for approving technology, leaving foreign entities to approve those systems. The region should be realistic about the state of existing treatment technology that has been approved (to meet IMO) and about the timeline for implementation.

The issues of uncertainty differ between oceangoing vessels and lakers. Oceangoing vessels are concerned with market niche and the respective regulations. For lakers, ballast water treatment is more challenging (e.g., shorter voyages with greater volume of water and flow rate). Cost may grow exponentially as lakers may need more than one treatment to meet the standard. The AGLPA believes the states of Minnesota, Ohio and Indiana have appropriate regulations that consider what can be accomplished and the appropriate timeline in which it can be done, and are waiting to regulate lakers. Regulators also need to consider the inspection regime that already exists at the entrance to the St. Lawrence Seaway. Ships are already working with USCG, Transport Canada and the Seaway.

Fisher emphasized that uncertainty is created by the patchwork of state laws. He said the easiest way to get technology on ships is to eliminate uncertainty. Shippers are currently hesitant to spend money on technology when they are unsure if that technology will be strong enough. From the vendors' perspective, the companies developing technology are just on the cusp of having their products enter the marketplace. It is a delicate stage since vendors need ship-owners to buy their product and the ship-owners are not purchasing because of the uncertainty. The key is getting industry launched with technology that is developed in absence of uncertainty regarding availability of customers (ship-owners) to keep vendors alive. It is necessary that industry work together with the USCG and the Great Ships Initiative to test the technology.

Federal Programs

- Canadian Ballast Water Program on the Great Lakes: *Chris Wiley, Transport Canada*

Canada plans to ratify the IMO convention as it believes the regulations have been vetted world-wide, and are based on binational Great Lakes treaties and science to establish appropriateness of treatment standards for the Great Lakes. Canada is implementing the IMO standards, with strict enforcement of standards (i.e., exchange/flushing) for any vessels coming from outside the EEZ. Regarding lakers, Wiley agreed that they move ballast water between Great Lakes ports and that domestic ballast is capable of transporting planktonic AIS and other native taxa beyond their documented range. The IMO regulation applies to all ships that are part of the system; any exception must be based in scientific principles. Wiley suggested that if other vectors can be closed, it may not be necessary to regulate lakers since we will have stopped new species from entering the system.

Researchers are studying salinity (sodium chloride brine) as alternative treatment mechanism. Thus far, the method seems promising and may exceed IMO standards. Wiley recommended several specific issues that need to be addressed for the Great Lakes, including a definition of fresh water (0 ppt or 0-2 ppt) and compatible discharge standards. Currently, there is little data on the use of treatment systems in cold freshwater systems. Virtually all technologies that have been developed were tested at room temperature, thus the technology may not work if freezing temperatures exist or it may have toxic discharges in cold water. We need an internationally-accepted vetting process to show that technologies are appropriate. Furthermore, significant luck and infrastructure are needed to vet a technology. As of two weeks prior to the meeting, only 9 systems had been approved by the IMO and only two of those were approved for "freshwater." Wiley noted that using a

combination of IMO treatment and flushing/exchange, it may be possible to achieve between 10 and 100 times the IMO standard.

- [U.S. EPA's Efforts to mitigate invasive species under the Vessel General Permit \(VGP\):](#) *Juhi Saxena (USEPA Headquarters), Sean Ramach (USEPA Region 5), Bill Bolen (USEPA GLNPO), and Ryan Albert (USEPA Headquarters)*

Albert gave the presentation on behalf of USEPA. He first noted that the agency is currently in the midst of litigation on the VGP, and as a result, may not be able to answer questions immediately. Albert provided a history of the National Pollutant Discharge Elimination System (NPDES) permit framework, under which the VGP was established. NPDES permit regulation for ballast water was previously non-existent due to a 35 year regulatory exemption from discharges incidental to vessel operation which was vacated in a recent court case. The VGP is considered a permit, not a regulation to mitigate invasive species. Although the initial issuance is national in scope, all Great Lakes states except Wisconsin have added additional requirements (i.e., 401 certification). Nationally there are 28 different permits. The USEPA has also added some enhancements to the permit including mandatory ballast water exchange, mandatory saltwater flushing, and a requirement that exchange is conducted as early as practicable.

As of Sept. 18, 2008, treatment technologies were not available and economically achievable under the Clean Water Act's "best available technology" (BAT) requirement, thus the standard focused on compliance. There is no federal legislation pending in the current U.S. Congress, but the USEPA has supported past legislation which called for IMO standards as the first step and 100 times IMO as the second step. The USEPA aims to reduce the concentration of living organisms, but does not want to allow the discharge of residual biocide.

Current implementation strategies are primarily compliance oriented, but the agency is working on enforcement strategies. Tools are also underway to facilitate the exchange of information. For the next issuance of the VGP, USEPA is exploring options for greater state collaboration/coordination in order to obtain a region-wide standard. It may also be providing technical assistance where appropriate. The development of a permit takes a few years so USEPA will be contacting the states when the process starts. USEPA is also developing its answer to how the permit operates when a ship comes into Canadian ports, but the crosses into U.S. waters.

- [Ballast Water Regulations and Enforcement Update:](#) *CDR Tim Cummins, USCG*

CDR Cummins first spoke about the USCG proposed rule on ballast water discharge. He said the discharge standard and supporting documentation are completed and have been going through Office of Management and Budget (OMB) clearance since May 15, 2009. OMB has a self imposed 90 day deadline for answering rulemakings (see <http://www.reginfo.gov/public/do/eAgendaViewRule?pubID=200904&RIN=1625-AA32>). After being approved by the OMB, the notice of proposed rulemaking (NPR), economic analysis, and environmental analysis will be published in the Federal Register (FR), providing a chance for public comment. The rule is national in scope and will set a concentration based standard, implementation schedule, vessel applicability and legal/regulatory exemptions. It is important to note that the rule is not final. Cummins expects the NPR to include alternatives to the chosen standard as five standards were originally evaluated (including IMO). The rule will not describe specific enforcement or compliance procedures, discuss the USEPA VGP or its integration with USCG, address any differences with state requirements, or advocate the use of specific management system.

Cummins next spoke about the current binational regime, the ballast water management exam program, which is administered out of Montreal and both the USCG and Transport Canada are part of this group. The program uses a 3 pronged approach: (1) examining a ballast water reporting form which all ships coming from outside the EEZ have to fill out, (2) interviewing the crew and master to see if they are knowledgeable about ballast water management practices, and (3) inspecting tanks. In 2008, 99% of vessels were boarded, 100% of reporting forms were collected, 98% were inspected (only vessel they didn't board was inspected before), and there has been an overall 98% compliance rate. Of the vessels that were noncompliant, 66% were considered "no risk" because the tanks were not being used for ballast but for other items. Of the 31 tanks at risk (i.e., ballast water has not been exchanged), the rule is that these ships may not discharge ballast water. To enforce this, the program requires checks of the ballast water on the way in and on the way out of the Seaway to confirm that ballast water discharge has not occurred. Reporting indicates that 100% of noncompliance water was been

retained on board. Through the current inspection system, the risk of ballast water mediated introduction has been reduced to low level.

Questions and Discussion

Why aren't the treatment standards based on specific organisms?

Why do the state programs focus on the IMO standard while this standard is not accepted in the U.S.?

For the states establishing a higher standard of ballast water regulation; how was that standard determined?

- The decision of New York State was based on four sources of expert opinion, as well as input from other states that thought the proposed IMO standard would not be sufficient. Although there is a statutory requirement that water quality standards be set based on expert opinion, it was suggested that the standard a state sets is often determined by political will. Wisconsin based their standard on a literature review to find out what is available, what is effective and when it is available. Wisconsin's research showed that technology is currently available to reach IMO standard but has yet to be approved, and that by 2012 enhanced treatment will be made available. Michigan is not sure if any of the ships have installed technology to meet discharge standard requirements and currently they have taken the option of no discharge under the state's permit.

Is it possible for technology to achieve standards higher than the IMO? Can Great Ships Initiative address treatment standards being posed by the states?

Is any state actively investigating what a standard for lakers might look like (i.e., what is technologically and economically feasible for lakers)?

- Wisconsin is researching IMO standards for lakers.

Are there formal methods for coordinating amongst agencies or states?

- The USEPA made a number of calls to the states to identify who would be involved in the 401 certification process. The understanding held by the agency is that there was a lot of coordination among the states to pass around documents and share information. Since the permits require USEPA's approval, USEPA tried to participate as much as possible to facilitate discussion. Ultimately, it was up to each state to include other agencies in the process. In Indiana one agency established the permit without consulting the other agencies. In Michigan the permit process happened at a very fast pace, and there was not enough time for extensive discussions or coordination. Also the 401 process is a very technical process. There were also several Council of Great Lakes Governors calls and the discussion did occur on several levels.

Has any state put thought into enforcement and how to fund enforcement?

- Wisconsin was hoping to work with USCG to develop trainings for joint state discharges in Duluth area. The USCG may be able to conduct limited programs, but it is not staffed to do full scale training on a large scale level. It was noted the 401 permits are federal permits. The Port State Control Authority for the U.S. is USCG and would be accepted on board Canadian flag vessels. State authorities may board with USCG authorities, but will not have sole enforcement authority on Canadian vessels.

Who would approve technologies and is it possible to say a technology reaches 100 or 1,000 times IMO?

- The USCG cannot have an approval process for each state standard but will have approval standards that meet the federal standards/timelines. It was said that world experts on treatment technology are having difficulty reaching the current IMO standard so are just focusing whether the technology is IMO approved or not. It is very difficult to draw the line between killing the organisms in ballast water and not posing a risk to organisms in natural waters when the ballast water is discharged. If one goes to the IMO meeting website there are reports published that show even with IMO standards, many vendors are having problems with post-discharge environmental protection.

Is it possible to ratify IMO and get approval for a higher Great Lakes Standard for the region?

- IMO does allow for exceptions requiring 1) ratification of the IMO and 2) approval of neighbors. The Convention does not acknowledge state rights, but it would acknowledge a higher regional Great Lakes standard on ships, as long as that standard is based on science and provides justification to the IMO and

international community. For example, Canada and the U.S. are making a joint submission under MARPOL 6 that when they ratify they will put forth a North American emission control area. It may be more appropriate to say we want a higher standard for all freshwater systems because rivers have similar issues to those in the Great Lakes.

Is there a role for the Great Lakes Panel?

- The Panel could convene the states to reach agreement on a regional standard through technology assessment: what is feasible in meeting a standard?

How is California achieving its higher standards? Why can't this standard be achieved in the Great Lakes?

- The group was unsure if California had any major ballast discharging ports. Also the state itself is investing in a shore-side technology to meet the higher standard.

Friday, June 26, 2009

Update on Rapid Risk Assessment Process

Mike Hoff, USFWS

Hoff reviewed the rapid risk assessment (RRA) model developed for the Mississippi River Basin Panel. The ANSTF has requested that the RRA be peer-reviewed. The RRA evaluates two factors, (1) the history of the species invasiveness anywhere in world, and (2) climate match with source. After matching the species where it was located with possible synchronized locations, the RRA provides a recommendation on whether to regulate or allow species for trade/import and the certainty level of this recommendation. The analysis is both quantitative and qualitative. Hoff also gave an overview of the proposed scientific evaluation of the RRA, focused on accuracy, consistency, precision and efficiency in assessments. The objective of the scientific evaluation is application of the results to develop a "gold standard" for risk assessment if none exists. Ideally, there could be several gold standards for each ecosystem; however, any gold standard needs to integrate climate change. The RRA discussed includes present climate and integration of climate change using software that allows for a user defined climate change scenario.

Additional projects will include a workshop to develop a database for analysis which will include lists of species and their status and a workshop for risk assessment experts to tabulate screening results (e.g., accuracy, precision and efficiency). Hoff is willing to conduct the workshops if there are states which have some funding for risk assessments. The Great Lakes Restoration Initiative was suggested as a potential funding source for project work on regional risk assessment. Also mentioned was the work accomplished on risk assessment by the Department of Fisheries and Oceans Canada (DFO) (refer to GLP wiki, <http://wiki.glin.net/display/ANS/GLP+Member+Updates+--+Spring+2009>).

Questions and Discussion

How does the RRA process fit into pre-import screening proposed in U.S. federal legislation?

- The RRA fits the concepts proposed in H.R. 669. The RRA process is not highly quantitative because there is a human factor where one examines level of risk at certainty and decides whether that level is acceptable or action needs to be taken. The USFWS director testified in favor of H.R. 669 as a step in the right direction on this issue.

What validation of the RRA has been conducted up to this point?

- Testing has been conducted on aquatic plants, invertebrates and vertebrates, and limited amount of testing on terrestrial species. Pathogens are included in the RRA but not in summary. The RRA is an assessment tool that can be used for different levels of screening. We can develop "finer" screens for certain organisms because a "coarser" screen may show a risk when a finer screen will show no risk.

Have any comparative evaluations been conducted?

- Not in the U.S. DFO in Canada has a risk assessment tool and Mexico is moving forward with one of their own. It was suggested that the DFO effort be featured at the next Panel meeting.

Committee Reports

- Information/Education Committee: *Rochelle Sturtevant, NOAA Great Lakes Environmental Research Laboratory and Great Lakes Sea Grant Network*

Sturtevant first gave an update on the Committee priorities document. The Committee would like to disseminate all of the Committee priorities documents as soon as possible to ensure the Panel's priorities are known prior to distribution of funding under the Great Lakes Restoration Initiative. It was decided that the ExCom will develop a distribution strategy for all three of the Committee priorities documents during their next call. Next she reported on distribution of the *Great Lakes Aquatic Invasions* (GLAI) booklet. Approximately half of the 10,000 copies of the booklet have been distributed. The Committee will be developing a survey for Panel members to determine how best to distribute the remaining booklets. Sturtevant also reported on the new GLP wiki site. It was requested that Panel members continue to submit their updates to the wiki and to contact Panel staff if they have questions or technical problems. Panel staff and Committee will be exploring ways to improve the wiki before the next Panel meeting. The Committee also recommended that the Panel vote to endorse and encourage the use of the *National Guidelines to Prevent the Spread of Aquatic Invasive Species*, intended to serve as baseline recommendations for recreational user best practices. It was decided that the vote would occur electronically after the meeting. Finally, the Committee recommended work on a more comprehensive white paper that discusses ballast water regulatory issues in the region. Jen Nalbome (Great Lakes United) has already written a white paper which can be enhanced.

Policy Coordination Committee: *Michael Murray, National Wildlife Federation*

Murray reported that the Committee is working on a policy priorities document and a two year work plan that can potentially reach out 5 years. The Committee intends to finalize the documents by the next Panel meeting. The committee will also be working on several other initiatives: drafting a letter to the ANSTF on elements needed in a federal legislation regulating organisms in trade, developing an organizational schematic for the Panel (in collaboration with Jennifer Day of NOAA), building on recent and ongoing efforts to create regional framework of rapid response initiatives; and drafting a letter to the ANSTF on ballast water regulation. The discussion on ballast water focused on potential approaches to moving the ballast water policy forward, including a letter to the ANSTF recommending components that should be part of a national program. A MOA was mentioned as a way to establish coordination between the Vessel General Permit Certification Program of the USEPA and Ballast Water Discharge Policy of the USCG. The committee will also continue work on addressing identified needs for increased funding for the regional panels and state management plans.

Research Coordination Committee: *Phil Moy, Wisconsin Sea Grant*

Moy gave the report for the Research Coordination Committee. The Committee will continue work on editing and shortening the research priorities document and its work plan, using the wiki as a means of group editing. The Committee is also working on a policy statement for researchers reporting a new AIS discovery. The statement will recommend the use of a unified reporting system where researchers feel comfortable reporting a new invasive species or a known species at a new location because the researcher will be acknowledged as the first discoverer. The Committee has discussed tying the reporting requirement to collection permit requirements, but there is no permit required for invertebrate collection. Furthermore some AIS such as pathogens may not be reportable through this methodology. The Committee also discussed some possible future programs if more funding becomes available including: a small grants competition, developing a list of potential AIS for Great Lakes basin, conducting a ballast technology workshop and a ballast standard workshop, advancing research for developing genetic markers for potential AIS, developing a risk assessment process for aquaculture, and exploring a basin-wide recommendation for a ballast water treatment standard.

Pathogen Surveillance and Early Alerts for the Great Lakes

Mark Bain, Cornell University

Bain discussed current research on VHS in order to address the threat of microbes and pathogens in the Great Lakes. The main goal of the project he discussed was to conduct a survey to determine if pathogens could be detected at a level of effort practical with monitoring programs. Monitoring was conducted in commercial and

recreational harbors and randomly selected open shorelines, where diseased or dead fish and open water were sampled for VHS. The sampling technique, qRT-PCR (quantitative reverse transcription- polymerase chain reaction) is a one day test based on a genetic marker to determine presence of VHS on a section of DNA. Through a combination of qRT-PCR, and cell cultures as verification, Bain's group found that VHS was present in 21 of 30 sites. A statistical test found that there was an association of VHS between water and fish, such that whenever VHS was present in the water, it was also present in the fish sampled from that site but not vice-versa. It was found that fish concentrate the virus higher than water. This association was found on an equal basis in commercial, recreational and open waters; results indicated that VHS presence is unrelated to these locations.

Bain explained that the research findings will feed into a larger project that is examining institutional arrangements on a Great Lakes monitoring program for microbes (VHS along with other microbes: Spring Viremia of carp virus, koi herpes virus, largemouth bass virus). Bain also discussed next research steps including surveys in Lake Superior and testing sediments through metagenomics to see if the virus could be found embedded in genetic fragments in sediments back through time. Bain was not sure about researching archived fish tissue since chlorine and bleach destroy pathogens. Upon mention that a discrepancy exists between PCR (more sensitive) and cell culture testing, Bain said that each PCR test positive for VHS was backed by a cell culture of fish tissue that was VHS positive.

Great Lakes Restoration Initiative

Bill Bolen, USEPA GLNPO

Bolen gave a report on the federally proposed Great Lakes Restoration Initiative (GLRI). He indicated his presentation only covers what is publicly known at this point and that things may evolve as the process continues. The proposed GLRI budget will be divided between the following project areas: toxic substances, invasive species, nonpoint source pollution, habitat and wildlife protection and monitoring/accountability. The provisional allocation for invasive species is currently at 13% of the total budget. The funding for invasive species is also divided amongst the federal agencies. The money allocated to the U.S. Army Corps of Engineers (Corps), for example, is primarily for canal and waterways identification and AIS barriers, as well as for biocontrol of phragmites for which the Corps will partner with Cornell University. The money allocated to the USCG is mainly for the development of ballast water treatment systems, shipboard testing of those systems, and providing incentives for installation. The funds allocated to the U.S. Geological Survey will be directed towards supporting existing projects and programs. The USFWS is allocated to receive the biggest share of the funds for AIS but 80% will pass through the agency to partners through grants, cooperative agreements and interagency agreements.

Bolen emphasized that the Administration is looking for implementation projects that will show actual on the ground results. He provided some examples of ways to measure progress including developing land and ship based treatment systems for ballast water in freshwater; implementing early actions to address pathway vectors such as the Corp's carp barriers; developing integrated management plans for each Great Lakes state; developing contingency plans for rapid response; and shared planning for mobilizing ability to respond, among others. Through the GLRI administrative language, the USEPA is allowed to transfer funds to other agencies for authorized activities but these funds can not take the place of existing funded activities (i.e., the new funds are intended to supplement current funding of existing programs). Also, the overhead charges for interagency agreements will be set at zero as opposed to the traditionally high overhead costs. Public stakeholder consultation will be used to develop a multi-year action plan for implementing restoration activities with GLRI funding. There will also be a multiagency review plan to evaluate grants for selection and partnerships are encouraged on a national scale. Stakeholder involvement will be facilitated through public meetings in July and August of 2009.

Tim Eder (Great Lakes Commission) also provided some overview information on the GLRI and assisted Bolen in addressing the questions summarized below. Eder emphasized the importance of opportunities to monitor and show progress. The region will be accountable for the way the money is spent and will need to show results. Eder also gave an update on the state of Congressional approval of the GLRI. Both the House and Senate would require that USEPA implement the GLRI in close coordination with the Great Lakes Regional Collaboration. The intent is to ensure the USEPA works with federal and non-federal partners to identify

priorities. It was noted that none of the funding amounts outlined in the presentation will be final until Congress approves the appropriations. Eder also said that the Commission would be working with the USEPA on the outreach campaign later this summer.

Questions and Discussion

Base monitoring and state management plans for AIS are currently under-funded, how will EPA monitor success?

- Base programs that are currently experiencing funding issues will probably be brought up to a more robust level using GLRI funds. The proposed budget includes \$9 million for the implementation of state/interstate management plans (SMPs). Partners are expected to demonstrate how they will monitor and show progress through their project proposals. Although the USEPA is responsible for showing accountability, the agency will be looking to states and other partners reporting to develop their annual report.

What is the detailed breakdown of projects that are included in specific line-item funds?

- The USEPA GLRI webpage provides this information. Although nothing is set in stone, the actual funding amounts will depend on final appropriations from Congress. Some projects are specifically listed as grants and contracts; some are not listed in that way but are intended to run through other programs. The FY2010 funding plan was put together in consultation with other federal agencies but there will be greater opportunity for the Panel and other to weigh in more for FY2011-2014.

What are the criteria for choosing projects?

- The criterion for GLRI funding includes, but is not limited to, on the ground activity, cost-effectiveness and ability to show progress. They will not focus heavily on research or planning. Projects should be “on-the-ground” and show achievements that would not have been possible without the money.

How does the Panel fit into the GLRI process?

- There are some activities that make sense to coordinate on a regional level rather than state by state; members have the opportunity to coordinate activities identified by state management plans or other programs. Panel will have to compete against other applicants but can seek funding for a number of invasive species priorities. Important to inform USEPA on GLP priorities to provide guidelines on decisions on grant selection.

Emerging items and additional discussion

Amendment to allow remote participation

- Grazio introduced the discussion to adopt an amendment modifying the Panel Guidance Document whereby panel members who cannot travel to meeting in person but who participate over phone and/or WebEx may be counted as part of the quorum. While all present were in favor of the amendment, the exact terms need to be worked out and should include language encouraging in-person participation.

Fall Meeting

- Shwyder proposed Dec. 10-11, 2009 in Ann Arbor, Mich., with the NOAA Great Lakes Environmental Research Lab as a possible site for the meeting.

Renegotiation of the Great Lakes Water Quality Agreement

- Recently officials from Canada and the United States committed to renegotiating the Great Lakes Water Quality Agreement (GLWQA). The GLWQA will continue to address water quality issues the parties are considering broadening the scope of the Agreement to include other issues such as AIS. The Panel should consider how it can engage in the renegotiation process. If federal agency officials can not sign onto a formal public comment, they can consider recusal. James Schardt (USEPA) is interested in any individual observations of what members feel the GLWQA should focus on—members can call or email him outside of the comment process.

U.S. federal screening legislation (H.R. 669)

- Both Jen Nalbene (Great Lakes United (GLU)) and the Commission have various fact sheets of information. Panel staff will make materials available. Members will continue to work with the ANSTF to update the bill. Great Lakes Commission staff were acknowledged for their advocacy work on the Hill in support of H.R. 669 during the AIS Fly-In held in Washington D.C. at the beginning of May.

St. Lawrence Seaway Anniversary

- This year is the 50th anniversary of the opening of the Seaway. GLU and a few other non-profits organizations have published a principles document regarding needed improvements including preventing aquatic invasive species.

Meeting Participants

Panel Members

Jim Grazio, Penn. Dept. of Env. Protection (*Panel Chair*)
Phil Moy, Wisconsin Sea Grant (*Panel Vice-Chair*)
Dave Adams, New York State Dept. of Env. Conservation
Sarah Bailey, Fisheries and Oceans Canada
Bill Bolen, USEPA GLNPO (*alternate*)
Mark Burrows,* International Joint Commission
CDR Tim Cummins, U.S. Coast Guard (*alternate*)
Roger Eberhardt,* Mich. Dept. of Environmental Quality
Jim Galloway, U.S. Army Corps of Engineers
Mike Hoff, U.S. Fish and Wildlife Service

Doug Jensen, Minnesota Sea Grant
Doug Keller, Indiana Dept. of Natural Resources
Mike Murray, National Wildlife Federation
Jennifer Nalbone, Great Lakes United
John Navarro, Ohio Dept of Natural Resources
Dave Reid, NOAA-Great Lakes Env. Research Lab.
Isabelle Simard, Quebec Ministry of Sustainable Development, Environment and Parks
Jeff Stollenwerk,* Minn. Pollution Control Agency (*alternate*)
Rochelle Sturtevant, NOAA-Great Lakes Sea Grant Network
Jim Weakley, Lake Carriers' Association
Chris Wiley, Transport Canada

Interested Parties

Ryan Albert,* US EPA
Marvo Dolor, Sea Grant Knauss Fellow
Steve Fisher, Am. Great Lakes Ports Association
Alan Fuchs, NYS Dept. of Env. Conservation
Marc Gagnon, Fednav Limited
Mike Goehle, U.S. Fish and Wildlife Service
Caroline Gravel, Shipping Federation of Canada
Phyllis Green,* National Park Service
Sara Grise, Pennsylvania Sea Grant
Andrew Losos,* Canadian Shipowners Assoc.
Kerry Mitchell, Consulate General of Canada
Joy Mulinex,* Northeast-Midwest Institute

Chuck O'Neill, Cornell University/New York Sea Grant
Sean Ramach,* USEPA
Juhi Saxena,* USEPA
Carol Swinehart,* Michigan Sea Grant
Susan Sylvester, Wisconsin Dept. of Natural Resources
Ray Vaughan, NYS Attorney General's Office
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Frances Zagorski, New York State Dept. of Env. Conservation
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* Participated by WebEx and/or conference call