AQUATIC NUISANCE SPECIES TASK FORCE: MINUTES OF THE 2016 MAY MEETING

MAY 4 - 6, 2016; TRAVERSE CITY, MICHIGAN

On May 4-6, 2015, the Aquatic Nuisance Species Task Force (ANSTF) held a three-day meeting at Park Place Hotel in Traverse City, Michigan. Action items are listed below, followed by a summary of the meeting.

Decisional Items

The ANSTF made the following decisions:

- ANSTF approved the revision of the New York State Management Plan.
- ANSTF recommended approval of the National Marine Manufacturers Association and National Aquaculture Association as ex officio members to the ANSTF.
- ANSTF approved the "Options for Next Steps" table (with respect to Options 1-5) within the document titled "Federal Policy Options: Addressing the Movement of Aquatic Invasive Species Onto and Off of Federal Lands and Waters." See corresponding action item below.

New Action Items

The ANSTF assigned the following action items:

- ANSTF Executive Secretary will distribute status of November 2015 actions items and post to meeting website.
- ANSTF Members will submit written updates to the Executive Secretary for distribution.
- ANSTF Executive Secretary will revise the Activity Reporting Form and provide guidance / examples on form completion. Form will be distributed to ANSTF members and Panels in September 2016 for collection of FY 15 and 16 accomplishments.
- ANSTF (working with Panels and NISC) will explore options for a workshop on CRISPR and gene-drive technologies as a part of the Innovation Summit.
- ANSTF will facilitate communication between USCG, EPA, and NBIC and the Western States on ballast water management reporting.
- NOAA will identify a speaker for the November 2016 meeting that will provide an update regarding Arctic issues (e.g., Arctic Council).
- ANSTF Executive Secretary will invite representatives from the American Waterways Operators (AWO) to attend the next ANS Task Force meeting and engage in discussions about ANS prevention and control.
- ANSTF Federal agency members to provide an update on their agency's participation on all Regional Panels at the 2016 Fall ANSTF meeting.
- ANSTF Executive Secretary will report on USFWS FY 17 funds for the Chesapeake nutria eradication project.
- ANSTF will hold a discussion at the Fall 2016 meeting regarding membership.
- USFWS will meet with Economics sub-committee to develop detailed outline of the aquatic invasive species (AIS) Economics report.
- Federal member agencies will provide the ANSTF Executive Secretary with the activities (steps, status, and timeline) they will undertake for Options 1-5 of the Federal Policy Options

Implementation Table as well as perspectives on proposed activities for Options 6-8. Information will be provided by the Fall 2016 meeting. See corresponding decision above.

- ANSTF Executive Secretary will work with Regional Panels to develop a follow-up discussion on AIS interbasin transfer and control technologies at the Fall 2016 meeting.

Wednesday – May 4, 2016

1. Welcome

David Hoskins (U.S. Fish and Wildlife Service) and Jennifer Lukens (National Oceanic and Atmospheric Administration) welcomed attendees and thanked them for attending. The co-chairs also thanked the Great Lakes Panel for hosting the meeting and proceeded to provide an overview of the meeting agenda.

Bob Wakeman (GLP Chair & WI DNR) welcomed everyone on behalf of the Great Lakes Panel and shared the purpose of the panel to pursue education, research, and policy to protect the Great Lakes from AIS. He thanked members for all of their contributions. He expressed his interest in sharing information about the Great Lakes and the work being done in the region to manage aquatic invasive species.

Tom Shomin provided a traditional welcome from the Grand Traverse Band of Ottawa and Chippewa Indians. He thanked the ANS Task Force for their work to understand invasive species issues.

Self-Introductions

ANSTF members and audience members introduced themselves. The list below includes actual and call-in attendees.

Name	Affiliation
James Ballard	Gulf States Marine Fisheries Commission
Kim Bogenschutz	Association of Fish and Wildlife Agencies & Iowa DNR
Bill Bolen	U.S. Environmental Protection Agency
Ron Brooks	Mississippi Interstate Cooperative Resource Association
Mark Brouder	U.S. Fish and Wildlife Service
Elizabeth Brown	Colorado Parks and Wildlife
Stas Burgiel	National Invasive Species Council Secretariat
Mark Burrows	International Joint Commission - Great Lakes Regional Office
Michael Carter	U.S. Department of Transportation, Maritime Administration
Lindsay Chadderton	The Nature Conservancy
Greg Conover	U.S. Fish and Wildlife Service
Sarah Cook	Great Lakes Commission
Jeremy Crossland	U.S. Army Corp of Engineers
Becky Cudmore	Fisheries and Oceans Canada
John Dekam	American Water Works Association
Matt Doss	Great Lakes Commission
Tim Eder	Great Lakes Commission

Holly Embke	University of Toledo
Ray Fernald	Mid-Atlantic Panel on Aquatic Invasive Species
Eric Fischer	Indiana Department of Natural Resources
Nick Frohnauer	Minnesota Department of Natural Resources
Pam Fuller	U.S. Geological Survey
Tory Gabriel	Ohio Sea Grant
Jim Galloway	U.S. Army Corp of Engineers
Brian Goodwin	American Boat and Yacht Council
Jim Grazio	Pennsylvania Department of Environmental Protection
Dave Hamilton	The Nature Conservancy
Mark Heilman	SePRO
Stephen Hensler	U.S. Fish and Wildlife Service
Seth Herbst	Michigan Department of Natural Resources - Fisheries
Phyllis Higman	Michigan Natural Features Inventory
Danielle Hilbrich	Illinois-Indiana Sea Grant
Michael Hoff	U.S. Fish and Wildlife Service
Steve Hoff	Michigan Department of Natural Resources
Katherine Hollins	Great Lakes Commission
David Hoskins	U.S. Fish and Wildlife Service
David Hu	Bureau of Land Management
Terrance Hubert	U.S. Geological Survey
Doug Jensen	Minnesota Sea Grant
Erika Jensen	Great Lakes Commission
Nicole King	University of Toledo Lake Erie Center
Patrick Kocovsky	U.S. Geological Survey
Amanda Kunzmann	U.S. Forest Service
Jo Latimore	Michigan State University
Sarah LeSage	Michigan Department of Environmental Quality
Mark Lewandowski	Maryland Department of Natural Resources
Jennifer Lukens	National Oceanic Atmospheric Administration
Francine MacDonald	Ontario Ministry of Natural Resources and Forestry
Donald MacLean	U.S. Fish and Wildlife Service
David MacNeill	New York Sea Grant
Craig Martin	U.S. Fish and Wildlife Service
Felix Martinez	National Oceanic Atmospheric Administration
Karen McDowell	San Francisco Estuary Partnership
Catherine McGlynn	New York State Department of Environmental Conservation
Meg Modley	Lake Champlain Basin Program
Alison Morris	Ontario Federation of Anglers and Hunters
Hilary Mosher	Finger Lakes Institute
John Navarro	Ohio Department of Natural Resources - Division of Wildlife

Matt Neilson	U.S. Geological Survey
Tammy Newcomb	Michigan Department of Natural Resources
Susan Pasko	U.S. Fish and Wildlife Service
Kristine Pinkney	Invasive Species Centre
William Rapai	Author
Thomas Rayburn	Lake Carriers' Association
David Reid	Saint Lawrence Seaway Development Corporation
Dennis Riecke	Mississippi Department of Wildlife, Fisheries, and Parks
Mike Ripley	Chippewa Ottawa Resource Authority
Alexis Rudd	National Oceanic Atmospheric Administration
James Schardt	U.S. Environmental Protection Agency
Chuck Shea	U.S. Army Corp of Engineers
Tom Shomin	Grand Traverse Band of Ottawa and Chippewa Indians
Darin Simpkins	U.S. Fish and Wildlife Service
Hilary Smith	U.S. Department of Interior
Ron Smith	U.S. Fish and Wildlife Service
Rochelle Sturtevant	Sea Grant
Michele Tremblay	Naturesource Communications; contractor to the Northeast Aquatic Nuisance Species Panel
Jolene Trujillo	U.S. Bureau of Reclamation
Andrew Tucker	The Nature Conservancy
Bob Wakeman	Wisconsin Department of Natural Resources
Dwight Washington	Great Lakes Action
Chris Weeks	North Central Regional Aquaculture Center
Sarah Whitney	Pennsylvania Sea Grant
Erin Williams	National Park Service
John Wullschleger	National Park Service
Libby Yranski	National Marine Manufacturers Association
Dennis Zabaglo	Tahoe Regional Planning Agency
Paul Zajicek	National Aquaculture Association

2. Adoption of Agenda/Approval of Minutes

Following introductions, David Hoskins called for approval of the current meeting agenda and the meeting minutes from the November 2015 ANSTF meeting in Silver Spring, Maryland. Both motions were approved unanimously.

3. Overview of the Great Lakes Restoration Initiative – Accomplishments and Opportunities

Jamie Schardt (U.S. Environmental Protection Agency) provided an overview of the Great Lakes Restoration Initiative (GLRI) funding for invasive species. Since 2010, GLRI has provided funding to address the backlog of needed restoration projects and to develop and implement prevention

programs; to date nearly 400 projects related to invasive species have been funded. The Great Lakes are an invasion corridor to the freshwater ecosystems in the interior of the country. This is apparent from the zebra mussel invasion. As a result, Great Lakes invasive species work helps protect the entire nation. Several Great Lakes initiatives led to the current GLRI. In the 1990s and early 2000s, the Great Lakes Panel led the effort to synthesize knowledge, share technical information, and broadly communicate the issue of invasive species to the general public. In 2002, the Great Lakes Federal agencies, States, and Tribes put together the Great Lakes Strategy which articulated the need to coordinate resources and improve ecosystems. In 2004, an Executive Order established the Great Lakes Interagency Task Force and developed the 2005 "Great Lakes Regional Collaboration Strategy" which provided rationale additional funding for environmental restoration and management activities throughout the Great Lakes system; invasive species was one of the many issues addressed. Building on these past efforts GLRI was launched in 2010 to provide funding to accelerate the protection and restoration of the Great Lakes. The major focus areas in GLRI related to invasive species are to prevent new introductions, control established species, and develop or refine invasive species control technologies. Invasive species projects are funded at approximately $40 million each year, of which 30% has been directed towards Asian carp management, 30% for prevention and early detection measures, 25% to control existing populations, and 15% for technology and species-specific collaborations. The enhanced funding of State ANS management plans is accounted for under the prevention and early detection category, although some states also use this funding for control activities. GLRI has provided funding for the Asian carp Action Plan as well as hundreds of species risk assessments and new tools for early detection. In addition, GLRI has funded 100,000 acres of GLRI control activities; while this is equal to approximately150 square miles, this is still just 0.1% of the U.S. watershed. GLRI has also funded ballast water system performance testing for over 20 ships and helped to establish collaborations (e.g., Asian carp, Phragmites, Hydrilla, mussels) to improve coordination and management of invasive species. The full list of all projects funded by GLRI can be found at http://glri.us.

Q: What are your thoughts on the budget breakdown?

A: The actual budget breakdown changes each year in part due to a lot of the work being done through competitive processes. Overall, there needs to be a balance between forward-looking prevention and more immediate on-the-ground control work. Most scientist and agency folks are focused on prevention. Most stakeholders are focused on on-the-ground control work at sites within their community. The breakdown presented was arrived at organically, through several years of budgeting adjustments. It seems to be working and covers the range of professional and stakeholder concerns.

Q: Are MOUs in place for EDRR responses in the event that a species is found and immediate action is necessary?

A: The most formal MOU exists through the Mutual Aid Agreement within the Great Lakes states. There have been recent suggestions to establish a similar agreement for the Federal family. Even without a MOU Federal agencies will mobilize if requested. Rapid response requires a high level of effort, usually beyond the capabilities of a single jurisdiction. Our experience in the Great Lakes is if a jurisdictional authority does call for a response, federal, state, tribal, and non-governmental agencies will lend support. Ultimately, the initiation of a response comes down to the jurisdictional authority deciding to pursue a response and it often becomes a political question since they are significant financial commitments. Because of all the ongoing GLRI implementation efforts and the already-existing readiness to support rapid

responses, diverting federal staff from implementation to develop a formal agreement may or may not be a good use of resources.

Q: Is there any connection between combating invasive species and habitat restoration?

A: Prior to GLRI, invasive species work was pursued directly within the context of ecological restoration. For example, once habitat work begins on a site, the first action is usually to suppress invasive species. Congress mandated a stand-alone invasive species section in the GLRI, which means that's how we have to approach budgeting. GLRI invasive species work often focuses on providing federal funding for the first few years on species suppression and then communities pursues other opportunities (e.g., ongoing volunteer stewardship efforts or sometimes seeking other ecological restoration funding) to go beyond this initial funding period.

Comment: The Great Lakes Regional Collaboration established the Federal Interagency Taskforce, but also established a broad partnership that worked together to develop the GLRC Strategy document (finalized in 2005). After that, there was no funding to implement that plan. Prior to the 2008 election, there was advocacy work by non-governmental groups to get campaign promises from the candidates. Once elected, President Obama created the GLRI. Non-governmental groups have gone to Congress every year since to advocate for the continuation of GLRI. Currently there is no authorization for GLRI; there is authorizing legislation that was recently passed by the House.

Q: How does GLRI determine what technology to fund?

A: Recognizing that there is a wide universe of potential technology control and management technology that could be pursued with GLRI funding, a framework was developed to help guide what work would be funded. GLRI does not fund pure Research and Development projects, rather it looks for projects that have past proof-of-concept stage and that can be tested in Great Lakes conditions or out in the field. It is still a debate to find ways of targeting money that is promising, but R&D is considered risky and may not produce a good return on investment (see 2nd action plan for articulating technology investments).

4. Implementing Michigan's AIS Program

Sarah LeSage (Michigan Department of Environmental Quality) provided an overview of Michigan's State ANS Management Plan, which was approved by the ANSTF in 1996. From 1996 to 2010 funding was limited and there was no dedicated staff to implement the plan. As such, only short term projects were conducted, including control efforts for nuisance plants and invasive mussels, producing outreach materials, and jurisdictional analysis. GLRI funding received in 2010 was used to support state agency staff to build program capacity via a new interdepartmental AIS Core Team. Work conducted as a result of the increased funding included a revised State Management Plan, development of an EDRR plan, development of a decontamination policy, targeted monitoring efforts, outreach efforts to address the boating pathways, and several control projects to suppress existing populations. In 2015 state general funds were dedicated to a coordinated AIS and terrestrial invasive species program. GLRI funds continue to support the AIS State ANS Management Plan implementation and projects for AIS prevention, early detection and response, and advancing management and control while state funds are used to support staff and a new grant program.

Q: Since the State invasive Species Council ended, do the other collaborative efforts make up for this effort?

A: Yes, Michigan has several existing advisory councils; these existing bodies are dedicated to working together.

Q: What is the messaging about the current status of Didymo?

A: Didymo is within the historic record, based on the current research; as such it is being messaged under the AIS program as it fits with the clean-drain-dry campaign. They will proceed in a conservative way and focus on a pathways rather than species-specific efforts.

5. Implementing Indiana's AIS Program

Eric Fischer (Indiana Department of Natural Resources) provided an overview of Indiana's AIS program. The State's ANS Management Plan was approved in 2003. The plan provided support for the creating and maintaining staff and the program activities of the State AIS program. The plan includes a series of goals and strategies focused on coordination, prevention, EDRR and mitigation and planning, yet activities were hard to implement with minimal funding. GLRI funding greatly increased the capacity of the State to fund its goals toward implementing the AIS program to the level envisioned in the original management plan. New funding from GLRI bridged the gap between the State struggling to respond and the implementation of EDRR activities (e.g., parrot feather, Brazilian elodea, Hydrilla). GLRI funding also increased the State's outreach program using a combination of printed materials, electronic fact sheets, public sign placement, and social media. A temporary fence to block Asian carp within Eagle Marsh Watershed was also completed along with telemetry and spawning surveys. Future plans are to complete installation of a berm to permanently separate the watershed. This and other projects would have been limited, or not possible, without GLRI funding.

Q: How was boat inspection conducted during the Hydrilla removal project?

A: There was a complete closure of the ramps during the growth season of the first 2-3 years. People living on the lakes had to go through an inspection/cleaning process if they wanted to move their watercraft.

Q: Was there any pushback to using pesticides?

A: Yes, but conducted outreach to the public to explain the positives of removing the invasive plants.

6. An Interstate Plan for AIS Prevention, Early Detection and Response

Sarah LeSage (Michigan Department of Environmental Quality) and Lindsay Chadderton (The Nature Conservancy) presented an overview of the development of an AIS surveillance plan for the U.S. waters of the Laurentian Great Lakes. The GLRI Action Plan I, Invasive Species Focus Area identified one of its long term goals as "A comprehensive program for detection and tracking newly identified invasive species in the Great Lakes is developed and provides up to date critical information needed by decision makers for evaluating potential rapid response actions." The Great Lakes States received a GLRI grant in 2014 to develop interstate early detection and response plans and to carry out an interstate response exercise. The Nature Conservancy is leading project implementation and coordination with Federal agencies, provincial agencies, and a suite of researchers. A draft science-based surveillance strategy is currently being reviewed and refined. The plan includes a species watch list, methods to evaluate and prioritize sites, procedures to optimizing surveillance efforts. Future efforts include consideration site vulnerability and suitability

for site prioritization, update the watch list, and evaluate individual surveillance needs for different invaders and pathways.

Q: Once a site is selected, will sampling be conducted for all species?

A: This is not known yet; the plan is in phase one with preliminary approval to continue work on the plan. The next step is to work with partners to consider how to prioritize and further develop surveillance techniques.

Q: Do you have a published draft strategy or report?

A: A draft is in process. Because of the site-prioritization aspect, it will be peer reviewed prior to publication.

Q: If a sampling trip reveals something new, what will be the response?

A: Currently response is not part of the project, yet it is clearly relevant and has been informally considered. The appropriate jurisdiction would likely lead the response. Each state has a response plan and there are mechanisms for emergency funding. From a timing perspective, the time between introduction and spread differs among species based on life cycle characteristics, which would influence how a response would be conducted.

Q: Is there a focus on interrupting pathways in the short-term?

A: This is not within the scope of the current project; yet new funding will look into pathway risk assessment.

Comment: Tremendous progress is being made in the Great Lakes as a result of GLRI. This is the largest freshwater body on the planet, and has been devastated by invasive species. There are $7 billion worth of expenditures from sport fishing, $16 billion from recreational boating, as well as cities, communities, and tribes that are dependent on the Great Lakes. We have been living with these problems for decades and are working to stay ahead of this curve as well as underscore that invasive species are a national problem. Without GLRI, progress could not be made. Efforts are reported to the Governors, and they recognize invasive species as the number one environmental threat to the Great Lakes.

7. USFWS Early Detection Surveillance for Non-native Aquatic Species in the Great Lakes

Stephen Hensler (U.S. Fish and Wildlife Service) reported on the efforts of the U.S. Fish and Wildlife Service (USFWS) to establish an early detection surveillance program for non-native aquatic species across the Great Lakes. The work was started by the 2010 GLRI Action Plan, which contained a goal to develop a comprehensive program for detection and tracking of newly identified AIS in the Great Lakes such that up-to-date information could be made available to decision makers. The program was also guided by the Great Lakes Water Quality Agreement, as it calls for an EDRR initiative that develops species watch lists, identifies priority locations, develops monitoring and information sharing protocols, identifies new AIS, and coordinates effective response actions to prevent the establishment of newly detected AIS. Following guidance from regional leadership, four Fish and Wildlife conservation offices representing the USFWS Midwest and Northeast regions collaborate on site selection, field collection, and data analysis focused on finding new non-native fishes, amphipods, and bivalves in the Great Lakes before they become invasive. The program has identified a list of eight vector categories that are being used to consider potential risks. It has also generated a priority species list that is used to weigh the vector list and determine sampling plans and locations. Examples were given of USFWS early detection surveillance methods and results from each of the Great Lakes, emphasizing that the program is wide ranging, yet focuses on specific

areas for sampling efficiency. The Plan has an adaptive framework that is used to interpret data and use it to inform future decisions related to sampling design and program evaluation.

Q: How can citizen science contribute to these efforts?

A: With the proliferation of smart phones, there are apps that can help send information to the appropriate individuals. Bio-blitzes are also great opportunities to partner experts and citizens.

8. Advancing AIS Control using an Integrated Pest Management Approach

Terrance Hubert (U.S. Geological Survey) provided an overview of Integrated Pest Management (IPM). IPM is defined as a decision support system for the selection and use of pest control tactics singly or harmoniously coordinated into a management strategy, based on cost-benefit analyses that take into account the interests of, and impacts on, producers, society, and the environment. IPM requires many aspects to be considered such as ecosystem properties, laws and regulations, perceptions from society, economics, control technology, and life history characteristics and population numbers of the pest. Asian carp efforts were presented as a case study for IPM. Research on the development of new tools for controlling Asian carps is currently underway and includes novel barriers like repurposed carbon dioxide, sound and pulse-pressure technologies, as well as the identification of new piscicides and a targeted delivery formulation. In addition, scientists are conducting studies to better understand the life history of the animal to allow for efficient and effective use of the new control technologies. As a result, resource managers are provided with a greater variety of tools to manage invasive fishes at various life stages as part of an IPM strategy.

Q: Have you tested light intensity? Observations suggest that silver Carp would rather be shocked than go into a raceway with sunlight.

A: Not aware of any research involving light intensity.

Q: What other species groups are you focusing on?

A: Crayfish, other fish species, zebra mussels as well as ways of treating vessels during locking operations.

Q: What's the environmental fate of microparticle formulations used?

A: Answer is still unknown but tests are being performed. The micro particles should not decay and kill indiscriminately; rather they should slowly release so that it does not produce lethal levels.

Q: If registration of the microparticle formulations is pursued; would it be specifically for Asian carp?

A: Yes, that would be first priority.

9. A Regional Framework for Collaborative Aquatic Invasive Species Prevention, Response, and Regulatory Consistency

Tammy Newcomb (Michigan Department of Environmental Quality) discussed the development of a regional collaborative framework for AIS under the direction of the Conference of Great Lakes and St. Lawrence Governors and Premieres. Invasive species are a significant issue to the region, as such the framework is intended to grow the region's economy and protect the world's largest system of surface fresh water. Accomplishments thus far include an agreed upon least wanted list and a

Mutual Aid Agreement for response. A pilot project is currently underway to provide for regulatory harmonization for three Great Lakes jurisdictions for AIS with an eye to incorporating additional jurisdictions after development of the pilot framework.

Thursday – May 5, 2016

10. Review of Previous Action Items

Susan Pasko (ANS Task Force Executive Secretary) provided an overview on the status on the action items from the November 2015 meeting:

- *ANSTF to invite GAO Staff to attend the Spring ANSTF meeting to discuss results of the GAO report.*

  STATUS: Complete, Tama Weinberg (U.S. Government Accountability Office) will be providing an overview of the Report on Thursday (May 5) afternoon

- *ANSTF will move forward with creation of an ad-hoc Committee on Boating Industry Partnerships.*

  STATUS: Complete, Dennis Zabaglo (Tahoe Regional Planning Agency) and Joanne Grady (U.S. Fish and Wildlife Service) are co-chairing this committee. An update on the committee will be provided on Friday (May 6).

- *To assist tracking efforts from ANSTF members and Regional Panels, the draft fillable form will be revised to focus on accomplishment information previously captured by the reporting matrix (financial reporting will remain the same). The form will be sent to ANSTF for review by Nov. 30th; comments to be submitted by December 11th.*
- *Once finalized the ANSTF Activity Reporting Form will be distributed with a request to complete for FY15 and submit information to the ANSTF Executive Secretary.*

  STATUS: Complete and ongoing, the Activity Reporting Form was revised and distributed for comment. The revised form and timeline for completion will be discussed following the GAO Report overview on Thursday (May 5).

- *Fish and Wildlife Service will work to implement the three grass carp recommendations as outlined in the recommendations from the Mississippi River Basin and Great Lakes Regional Panels.*

  STATUS: Complete and ongoing, USFWS will hold a stakeholder meeting in 2017, at which the modifications to the scope and Standards of the USFWS National Triploid Grass Carp will be discussed with states and Grass Carp distributors. Changes to standards are agreed upon at regular biannual Producer meeting, which will likely occur concurrently with the Stakeholder meeting. In addition, USFWS has recently funded a project to develop ploidy detection methods. These procedures will also be discussed at the Stakeholders meeting in 2017. However, USFWS has been directed by the Office of the Solicitor not to engage in law enforcement in support of state random inspection programs. Therefore they will not be part of the future stakeholder meeting

- *ANSTF Executive Secretary to invite a CRISPR (clustered regularly interspersed short palindromic repeats) expert to give a presentation to the ANSTF at the spring meeting.*

STATUS: Complete, Kevin Esvelt (Massachusetts Institute of Technology) will be presenting on CRISPR on Thursday (May 5).

- *Fish and Wildlife Service will check back with National Wildlife Refuge System and Ecological Services Program on the funding status of the Chesapeake Bay Nutria Eradication Program.*

  STATUS: Complete, FY 15 funding for the program was $1,081,000. In FY 16 levels were slightly decreased to: $1,044,109.

- *National Invasive Species Council to provide more details on the proposed innovation summit so ANSTF Members can get involved.*

  STATUS: Complete and ongoing, the Innovation Summit is tentatively planned for December 5, 2016. NISC will provide updates on opportunities to participate as planning continues.

- *Bureau of Land Management to share its new Aquatic Invasive Species Policy with the ANSTF.*

  STATUS: Complete, BLM distributed its draft AIS policy section for BLM Manual Section 6720 - Fisheries and Aquatic Resources Management to the ANSTF in November 2015.

- *Federal Lands Committee to develop a proposed plan for moving forward on the Policy Options paper.*

  STATUS: Complete, Stas Burgiel (NISC Secretariat) will be providing an overview of the proposed plan on Friday (May 6).

- *Research Committee to:*
  - *Gather information from ANSTF members in relation to the purpose, audience, scale, and information needed for an economic study as well as how other studies have been used (e.g., the United Kingdom study). The committee will also explore potential collaboration with the National Invasive Species Council.*
  - *To explore who would complete such a report and how it might be funded.*
  - *Report back to the ANSTF*

  STATUS: Complete and ongoing, a new Economics committee was formed following the November meeting. The committee proposed a path forward to provide information on economic impacts from AIS. The committee will be providing details on this recommendation on Friday (May 6).

- *NISA Reauthorization:*
  - *ANSTF Co-chairs to seek internal guidance on the role the ANSTF can play in discussions on NISA Reauthorization.*
  - *Executive Secretary to share the document titled "NISA Reauthorization Discussion Policy Needs and Possible Provisions" with ANSTF*

  STATUS: Complete, The ANSTF Co-chairs were informed that Federal members of the Task Force can develop legislative text for review and delivery to Congress through proper channels (such as through the annual Administration budget proposal or formal transmission in response to an assistance request from a Congressional Member or Committee). The Federal members of the Task Force cannot engage with non-Federal members in developing or negotiating this legislative text. The document was shared with the ANSTF in January 2016.

- *ANSTF Executive Secretary will communicate with our Canadian colleagues and remind them of their observer status and the ANSTF Meeting schedule.*

STATUS: Complete, letters were sent to Canadian invited observers from the ANSTF Co-chairs. Becky Cudmore (Fisheries and Oceans Canada) is attending at this meeting and will be presenting on Thursday (May 5).

11. Discussion: ANSTF Update

David Hoskins gave an overview an ANSTF business items as well as perspective on the FY 16 and FY 17 budgets. The Executive Secretary position of the ANSTF was filled in December 2015. Dr. Susan Pasko was selected for this position and started in January 2016. Member vetting through the Department of the Interior and the White House Liaison's process continues; 9 members were recently vetted, 5 are in the process of being re-vetted right now, and there are 6 more that will begin the process following this meeting. The ANSTF 2015 Report to Congress is in the process of being submitted to the Office of Management and Budget for review.

The Government Accountability Office (GAO) has finalized its Federal Government-wide review of AIS activities in November 2016. The Report made one recommendation: "that the Task Force develop a mechanism to measure progress toward its strategic goals and help meet certain statutory requirements." Tama Weinburg (GAO) will be joining us later by phone to provide an overview of the report's scope, key findings, and recommendation.

The President's FY 2016 budget for the USFWS continues the focus on key invasions. The Branch of AIS has three primary focus areas: national coordination; prevention; and control and management. The President's funding request has focused a large percentage of the AIS Program's resources on addressing threats from zebra and quagga mussels and Asian carp.

In FY 2016, an additional $1 million was appropriated by Congress for the State/Interstate ANS Management Plan Grant Program; bringing the total to $2 million. If all 42 of the plans currently approved by the Aquatic Nuisance Species Task Force seek funding in 2016, then each plan should receive approximately $47,600 to implement the top priority actions outlined in their plans. The Service's 2016 State/Interstate Plan Grant Program is currently under way with preliminary-proposals due on May 8th. The President's FY17 budget maintains FY16 funding levels for State/Interstate Plans at $2M.

The FY 2016 President's budget included an increase of $42,000 for Regional Panel support. Although this increase was approved by the Senate, it was not approved by the House. As a result Regional Panel funding will continue at the $40K/Panel through FY 16. The President's FY17 budget maintains FY16 funding levels for Regional Panels.

In FY 2016, USFWS will allocate approximately $940K to partners through grants for projects to control the spread of invasive mussels in the western U.S., with emphasis on preventing the spread via trailered watercraft from areas already contaminated. Funded projects will address the highest priorities of the Quagga-Zebra Action Plan. A request for proposals was posted on March 31, 2016. Proposals will be accepted through June 3, 2016. The President's FY17 budget maintains FY16 funding levels.

For FY 2016, USFWS received $7.9 million for Asian carp, of which $5.3 M was allocated to the Great Lakes to support existing efforts and $2.6M to augment existing funding and management efforts outside of the Great Lakes as described in the National Asian Carp Management and Control Plan. The President's FY17 budget maintains FY16 funding levels.

12. Informational: New Species Occurrences

Pam Fuller (USGS - U.S. Geological Survey) provided an overview of the alerts from the NAS Alert System in the past 6 months. Alerts are generated when a species is new to one or more geographic levels. 70 alerts have been generated in the last 6 months; 0 new to the United States, 8 were new to states, 51 new to drainages, 19 new to counties, and 1 bonus alert (species present previously, but data not published immediately). Of these alerts, 27 were fish, 21 were mollusks, and 18 were plants. Twelve of the alerts were from Asian carp, 6 from zebra mussels, and 5 from Hydrilla. Other new species occurrences included the coqui (reported in California); rosyside dace (reported in Vermont); bigmouth buffalo (reported in New York); Asian swamp eel (reported in Maryland); northern snakehead (reported near the mouth of the Susquehanna River, Maryland); banded killifish (reported in Washington); red-rim melania (reported in California, South Carolina, and Florida); and New Zealand mudsnail (reported in South Platte River, Colorado).

13. Informational: GLANSIS Update

Rochelle Sturtevant (NOAA -National Oceanic and Atmospheric Administration) presented information about the Great Lakes Aquatic Non-indigenous Species Information System (GLANSIS), a NOAA project to compile and make accessible information on aquatic nonindigenous species in the Great Lakes, including both established species and those predicted as likely to invade. GLANSIS functions as a Great Lakes specific node of the USGS NAS (national) database. The database contains, technical fact sheets on each of the 186 non-native species established in the Great Lakes, 12 species identified as expanding ranges within the Great Lakes, and 67 species identified as at risk of invading the Great Lakes, species-specific information supporting early detection, rapid response, risk assessment and control efforts, and collection records for thousands of individual reports of non-native species in the Great Lakes Basin. The project is supported by volunteers and students that collect and enter data, yet all information goes through an expert review process. An Advisory Panel is planned for 2017 to help assess information needs to support science and management objectives. In the future, GLANSIS may include enhanced capacity to act as a clearinghouse, linking to available products such as risk assessments, management case studies, habitat mapping, eDNA libraries.

No new species have been reported in the Great Lakes since 2006 (down from a peak of 2 species per year); this declining trend is attributed to ballast water regulations. Potential species that may invade in the future include grass carp, water hyacinth, and water lettuce. The latter two species have already been reported in the Great Lakes, but are not able to overwinter. When the distribution of invasive species by watershed is reviewed, it is found that no single aquatic nonindigenous species is reported in every sub-watershed of the Basin. Forty-six species are considered to be widespread, as they are found all 6 basins. These species are being studied to identify what characteristics have allowed them to proliferate. The traits of high impact species are also be examined to identify traits and better understand what makes a non-indigenous species invasive.

14. Informational: Canada's Asian Carp Program

Becky Cudmore (Fisheries and Oceans Canada) provided an overview of AIS efforts in Canada. In 2005, the Canadian government implemented a 5-year AIS program, which was funded at $4 million (approximately half of the funding was used for sea-lamprey control). This program was rolled over in 2010 to focus on research science advice, monitoring, and risk assessment. Following recommendations made in the 2011 Binational Ecological Risk Assessment for Bigheaded Carps in the Great Lakes Basin, Fisheries and Oceans Canada implemented a 5 year (2012-2017) program

aimed at the prevention of Asian carp arrival, establishment and spread in the Canadian waters of the Great Lakes. The program focuses on implementing prevention, early warning, response and management activities, most in strong collaboration with American, provincial and non-governmental partners. National regulation for Asian carp came into effect June 2015, which regulate the import of Asian carp and other high risk AIS. Future efforts will expand work to other species and pathways as well as improve the balance between science and management.

Q: Is the social and economic risk assessment available?

A: Yes, it is available on the Fisheries and Oceans Canada website.

15. Informational: Forecasting Asian Carp Impacts on the Lake Erie Food Web

Felix Martinez (NOAA) presented on a recent study that forecasts potential Asian carp effects on the Lake Erie food web. Of all the Great Lakes, Lake Erie is most susceptible to an Asian carp invasion because of its high productivity, connectivity to other watersheds where Asian carp have already established, and availability of suitable spawning habitats. Scientists used a food web model to study how an Asian carp invasion might change the populations of other fish species in Lake Erie. Like any model, this one required input variables - how the food web works, who eats how much of whom, etc. The scientists used a technique called "structured expert judgment" to come up with values for their input variables, where they questioned a number of fish experts for their estimates of the variables. The model predicted Asian carp would reach their carrying capacity within twenty years after invasion. Two different model scenarios were run, one in which Asian carp (bighead and silver carp) do not invade Lake Erie and one in which they do. Overall, the models predict that Asian carp food web effects were greater at high lake productivity and biomass levels. Most Asian carp effects were negative for planktivores, but positive for some piscivores feeding on Asian carp. Future work will focus on nearshore habitats in Lakes Michigan and Erie and offshore habitats in all three lakes.

Q: Can links be provided to papers produced form this study?

A: The Lake Erie paper has been published contact Felix Martinez for a copy. The other work is ongoing and has not yet been published.

16. Focus Session: AIS / Interbasin Transfer

Dennis Riecke (Mississippi Department of Wildlife, Fisheries and Parks) provided an introduction to this session and its intent. Interconnected waterways are a pathway for the transport or movement of AIS between watersheds and drainage basins. The interbasin transfer of AIS into the Great Lakes has received considerable attention in recent years due to the results of the U.S. Army Corps of Engineers' (USACE) Great Lakes and Mississippi River Interbasin Study (GLMRIS). This session will include updates from USACE and USGS on research and development of technologies to prevent AIS transfer through interconnected waterways in the Great Lakes region. The Regional Panels will provide examples of other AIS interbasin transfer concerns and engage in a discussion with ANSTF members regarding opportunities and strategies for expanding research, and implementing and evaluating newly developed technologies in interconnected waterways outside the Great Lakes region to prevent the two-way movement of AIS between interconnected basins throughout the U.S.

17. Focus Session - Informational: Development and Evaluation of Technologies to Prevent Interbasin Transfer of AIS

Charles Shea (USACE) provided an update on the status of the electric dispersal barrier system and the Great Lakes and Mississippi River Interbasin Study and then focus on the results of the recent research completed in support of these efforts. The Corps operates and maintains 3 electrical barriers on the Chicago Sanitary and Ship Canal – the demo, IIA and IIB. Since 2014, the Corps strives to operate all 3 barriers simultaneously; necessary maintenance that requires a shutdown is scheduled so that at least 2 barriers remain in operation. The demo barrier has been operational since 2002, and we've applied lessons learned to construct Barrier II, which now operates at settings capable of deterring fish as small as 4 inches. Construction of new larger barrier, Permanent Barrier I, will be completed in fall 2016 with startup and safety testing following in 2017. Other research has been conducted to optimizing effectiveness of electric barriers by evaluating the effects of temperature and different size classes of fish. Work is also been performed to understand if the current created by barges is able to trap smaller fish and potentially move them across the electronic barriers. Laboratory results indicated that water currents created by moving barges are capable of moving lures significant distances. Field testing that involved directly introducing fish into the water near moving barges has confirmed that fish may be moved by water currents created by barges. Further field testing will be done to investigate the likelihood of fish that aren't artificially introduced becoming entrained by these vessel-induced water currents

Q: Is the GLMRIS tentatively selected plan scheduled for release in 2017 specific for Brandon Road Lock & Dam?

A: Yes.

Q: Are carbon dioxide control measures being considered at Brandon Road?

A: Yes.

Q: What size fish have been tagged for the telemetry field studies of the effectiveness of the CSSC Barriers?

A: Typically bigger fish, the smallest was likely 6 – 12 inches.

Terrance Hubert (USGS) discussed the development of chemical approaches to prevent the interbasin transfer of AIS. GLMRIS gave 8 control options that could be potentially used to prevent species movement. However, these proposed solutions, such as construction of physical barriers, will likely require more than 20 years to implement and will provide no improved control in the interim period. Treatment of vessels during locking operations is one option that potentially could be implemented in a relatively short time. Initial focus has been on the idea of establishing vessel treatment measures in the locks on the Illinois River at the upper (O'Brien) and lower (Brandon Road) end of the Chicago Area Waterways System (CAWS) to create one-way barriers that together would prevent movement of organisms into and through the canal system. Work being conducted at the Upper Midwest Environmental Sciences Center will evaluate potential methods for vessel treatment procedures. Forty different chemicals were evaluated for factors including viability for large scale, human safety, and structural impacts. A report was completed in January 2016 (available on the USGS products website). EPA has been consulted to determine which chemicals are likely to be registered quickly such that they could be given a higher priority for testing. Initial chemicals that will further tested are water (35-50 °C), ozone, chorine, and menadione. Other control options being evaluated include carbon dioxide and sound. Carbon dioxide has been effective in deterring fish movement in closed systems; however it has not worked well in the field. Trials are underway to develop a better method to administer the gas. Also being evaluated is the

response of Asian carp to underwater sound. This work has just started, so results are not yet available.

Q: Have you considered ozone with peroxide, as this has been used in drinking water treatment?

A: Not yet, but we will consider.

Q: Could you also evaluate movement of aquatic plants in the testing labs?

A: Yes.

Q: Is this work funded by GLRI?

A: Mostly, there has also been some base funding from agencies.

Q: How does this work synch with the GLMRIS schedule?

A: They are working in parallel; we are trying to get as much done to help support USACE without impeding their timeline.

Q: Are you also testing various life stages of the different organisms (i.e., veligers and eggs)?

A: Yes.

18. Focus Session - Discussion: Advancing Interbasin Prevention Efforts Nationwide

For this discussion each Regional Panel provided an example of an area from their regional where interbasin transfer of species has either occurred or is of concern. It was emphasized that preventing invasion across the nation is important and there are opportunities and measures should be applied in areas outside the Great Lakes Basin to protect other water basins. As opposed to focusing on fish species, a multi-taxa approach should be taken in order to become fully prepared for future invasions. The ANS Task Force continued to discuss how some of the control technologies discussed in the previous presentations could be evaluated for use in other areas of the country. Although each location is unique as to what preventative measures could be applied, communication with the Great Lakes should continue to identify opportunities to expand the scope of technologies. Economic assessments should also be considered to demonstrate the benefits to being proactive vs. reactive. Such assessments could be used to leverage money from Federal partners. The discussion ended by noting that interbasin transfer was a significant issue and advice is needed from the ANS Task Force on what the Regional Panels can do to advance prevention in this area. The Task Force agreed to continue this conversation and work towards recommendations at the Fall 2016 meeting.

19. Informational: Harnessing CRISPR and Gene Drive to Precisely Remove Invasive Species

Kevin Esvelt, Ph.D. (MIT Media Lab) provided an overview of Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) genome editing technology and its possible applications towards invasive species management. The advent of CRISPR genome editing has opened the door to novel methods of altering wild populations and ecosystems. From sterile-daughter organisms to gene drive systems capable of suppressing local or even global populations, a myriad of potential ways to control or remove invasive species can be envisioned. Genomic technologies for ecological engineering could be very precise, but are highly dependent on the characteristics of the target organism. They will also demand a more open and responsive approach to technology development than is afforded by our current system. Gene drive technologies could potentially alter entire ecosystems; as such all gene drive research should be done in the open - from the proposal stage onwards.

Q: You could use local drives to get around the concern that once it is released it could affect populations in the native range?

A: Yes, you can directly implement suppression using Daisy Drive, but it is not yet known if this is stable enough to use. There is a threshold such that you release a certain fraction of the population, use that to change the sequence of an important gene in the local population, then use CRISPER to target the altered sequence. It may also be possible to use a global drive system to alter the local population such that it won't affect the native populations. However, these take longer and are early stages of research.

Q: Do you have a sense of how to figure out how many individuals would need to be released to cause change?

A: That depends entirely on what sort of drive you use. If you use a threshold drive, you need to release more than 30% of the local population. Other approaches may require 10% or less. Often the number depends on migration patterns and gene flow.

Q: What species are researchers studying at this point in terms of application?

A: Major candidates are currently in public health (i.e., malaria, zika).

Q: What sort of government approvals are needed to release something like this?

A: FDA has primary authority, as CRISPR is treated similar to a veterinarian drug. At the local level, state fish and wildlife agencies may have some authority.

Q: When would the Daisy Drive system be ready for lab trials?

A: Working on a number of species (2-4) in a year. Round goby or Asian clam may be good aquatic trials.

Q: Some research has suggested that shortening telomeres may be used to phase out genetic alterations. Is this promising?

A: We don't understand enough about telomere biology. It is possible that could work, but it is complicated.

Comment: There is an ongoing process in the U.S. Government to develop a coordinated framework for biotechnology. Agencies are looking forward to developing applications for human health and food applications. We need to be thinking about how to consider applying similar technologies for invasive species management.

20. Informational: GAO's 2015 Report on Aquatic Invasive Species—Spending, Activities, and Measuring Progress

Alyssa Hundrup (U.S. Government Accountability Office; presenting for Tama Weinberg) reviewed the process and outcomes of the recent GAO report on AIS. The Water Resources Reform and Development Act (WRRDA) of 2014 includes a provision that GAO assess federal costs of, and spending on, aquatic invasive species. In November 2015, GAO issued its final report (GAO-16-49) related to this review titled "Aquatic Invasive Species: Additional Steps Could Help Measure Federal Progress in Achieving Strategic Goals." This report provided estimated federal expenditures on AIS, an overview of key AIS activities and challenges, and an assessment of how ANSTF is measuring progress in achieving its strategic goals. The report was focused on the ANSTF and its 13 Federal agency members. Interviews, site visits, and questionnaires were used to gather information from the Agencies on their AIS activities, priorities, and spending. GAO noted that although numerous AIS activities were ongoing, it may not be adequate to address the widespread

problem. Sustaining control measures is also challenging, as progress would unravel if support was not sustained. Within the report GAO recommends that the Task Force develop a mechanism to measure progress toward its strategic goals and help meet certain statutory requirements. GAO believes that use of a tracking mechanism would provide a starting point for identifying funding gaps and priorities.

Q: What was NOAA's disagreement with the recommendation?

A: NOAA did not disagree that a tracking system is needed. However, the Agency stated that the recommendation did not address the greater problems faced by the ANSTF. The ANSTF is lacking a dedicated staff support and sufficient funding to address all components of NANPCA. Implementing a tracking system will also not address the larger challenges of invasive species management including declining or stagnant funding levels for an issue that continues to grow in magnitude, the need for reauthorization of NANPCA, and a greater focus on prevention of new invasions rather than reacting to a few highly problematic species. Further, NOAA believes that GAO did not sufficiently address the initial objectives mandated by the WRRDA.

Q: What does the ANSTF need to do to fulfill the recommendation?

A: Specify the roles of the member agencies, develop a method to track activities and progress toward goals, and develop a method to report that information annually.

21. Discussion: Addressing the GAO Report Recommendation

During the discussion the ANSTF discussed the GAO recommendation to develop a mechanism to measure progress toward its strategic goals and meet statutory requirements. At the Fall 2015 meeting, the ANSTF reviewed the past Activity Report Matrix, previously used to report on Member and Regional Panel activities. An action item from that meeting was to transform the spreadsheet format of the Matrix into a fillable pdf form. This form was presented for Task Force for their final input and suggestions. The ANSTF agreed to minor changes to improve the functionality of the form; recognizing that it is extremely challenging to meet the specific reporting requirements and activity levels for each agency, ex officio, and Regional Panel. However, the tracking system will be useful to precipitate more strategic conversations on how we can move forward more collaboratively across agencies and jurisdictions. Following the meeting, the ANSTF Executive Secretary will revise the Activity Reporting Form and provide guidance / examples on form completion. The form will be distributed to ANSTF members and Panels in September 2016 for collection of FY 15 and 16 accomplishments. This information will be reported out at the November 2016 meeting.

22. Update on the Technical Information Report on Boat Design and Construction in Consideration of AIS

Brian Goodwin (ABYC - American Boat and Yacht Council) provided an update on the process of the Technical Information Report (TIR). The U.S. Fish and Wildlife has engaged with ABYC to develop an information document to educate boat and accessory manufacturers on AIS. The TIR will give manufacturers of boats and associated equipment, guidelines and best practices to reduce the likelihood of spreading AIS and assist in the "clean, drain and dry" (including decontamination) process. A first draft of the TIR was been distributed for comment, after the comment period there will be a meeting to discuss the comments and work on a revised draft.

Q: What is the purpose of the TIR?

A: This is an informational document that will help boat manufacturers design boats that are less likely to spread AIS as well raise awareness with its consumers regarding this threat. It includes best practices, but will not mandate any practices.

Q: There are many industries where a company can get certified by following particular standards, has this been considered?

A: Yes, and it may be a possibility for the future. First need to deliver the message to manufacturers is that consideration of invasive species is good for your customers and therefore good for you (to sell boats). We will need to see how well this message is embraced by the industry before standards can be introduced.

Q: Have the industry representative been selected for the TIR?

A: Not yet, several will be targeted.

23. Informational: Idaho's Watercraft Inspection Program

Thomas Woolf (Idaho State Department of Agriculture) provided a report from Idaho's Watercraft Inspection Program, initiated in 2009 as a response to the detection of quagga mussels in the West. Since that time, watercraft inspection efforts have expanded throughout the western states and more resources are directed to AIS prevention every year. Watercraft inspections intercept mussel fouled vessels every season, with about half originating from waters in the Midwest. Often these vessels have been recently purchased through a broker, marina or online and often they are commercially transported. This presents an opportunity for focused outreach and Western states are seeking opportunities to coordinate on efforts to target these groups. These vessels represent the highest risk vectors for mussel transport and working with these groups will improve AIS prevention nation-wide. Notification is the best way to ensure vessels are not transporting AIS; inspection and decontamination efforts upon arrival should be well coordinated. Help is needed to help educate boat haulers, brokers, marinas, and online sales. The Western Regional Panel has developed a card that includes contact information and website link for boat haulers.

Q: Since zebra mussels are listed as an injurious species, shouldn't crossing state lines be a Federal violation?

A: Yes, but there has not been support for Federal prosecution, hold harmless is with respect to state law.

Comment: Colorado has intercepted over 100 boats, boaters have been found to be compliant and want to do the right thing. Instead of prosecuting, educating boaters may be more effective to change behaviors.

Q: How do we get the message out to boat owners?

A: Card and other materials can be shared for your use. It takes ground work to go to boat auctions, marinas, and online sales to distribute the materials and speak with boat owners, sellers, and boat-hauling companies. Vessel registration procedures as well as direct mailing may also be effective. Several webpages and social platforms may also be used as a source of information.

23. Decisional: Updated New York State Management Plan

Catherine McGlynn (New York State Department of Environmental Conservation) provided an overview of the updated AIS Management Plan. New York was one of the first State plans;

receiving approval from the ANSTF in 1993. The revised plan focuses on priority actions to reduce the introduction and spread of nonindigenous aquatic species into New York waters, to minimize impacts from existing AIS, and to engage the public in prevention and early detection efforts. The state of New York has recently passed new regulatory efforts aimed at preventing aquatic invaders through the boating pathway. The state has also hired a new AIS Coordinator and an education/outreach coordinator to help implement plan. In addition, the response and management coordinator has finalized rapid response guidelines and is working on refining best management practices. The State has also benefited from regional response teams, increased collaboration among agencies, additional resources and more avenues to reach target audiences.

Don MacLean, the coordinator for the State / Interstate ANS Management Plans grant program, provided an overview of the review process of the Plan. The NYDEC started the preliminary review process back in 2014 and the ANSTF provided preliminary comments on their revised plan in early 2015. They have done a great job of incorporating most of the comments they received. The New York Department of Environmental Conservation should be commended for their hard work to keep the effort moving forward. One comment was received from the U.S. Forest Service after the comment period ended. The comment was minor and should not impact approval of the plan; however the ANSTF is asking New York to acknowledge the work conducted by the Forest Service in the Finger Lakes and continue to coordinate with the Agency.

Decision: ANSTF unanimously approved the revision of the New York State Management Plan.

24. Public Comment

Allen Pleus (Washington Department of Fish and Wildlife) addressed the ANSTF regarding the Vessel Incidental Discharge Act (VIDA). The pending legislation may reempt current and future State authorities to keep or establish more stringent environmental standards. VIDA would also transfer the vast majority of Clean Water Act authorities over vessel discharges including the establishment of discharge standards for enforcement, to the U.S. Coast Guard. VIDA applicability extends to all waterborne vessels (kayaks to ships), on all fresh and marine navigable waters nationally, and across more than 31 categories of "incidental" vessel discharges that include invasive species, chemicals, metals, and other aquatic pollutants. Those who are able to do so (non-Federal employees) are encouraged to contact State Senators and Representatives with concerns on VIDA, spread the word to environmental and other groups, and work with media outlets to inform the public.

25. Member Updates

The meeting was running behind schedule, as such the ANSTF made a decision to only hear from Federal members. Ex officio member updates will be provided in writing following the meeting for inclusion in the minutes and distribution by the ANSTF Executive Secretary.

National Oceanic and Atmospheric Administration

As in past years, NOAA does not have dedicated funding for invasive species activities and continues to leverage funding from other programs and projects. One opportunity to incorporate invasive species more is the Habitat Blueprint. Ten focus areas have been chosen for the project, creating opportunity for invasive species management. In additional, Sea Grant provided $1,501,205 and the National Estuarine Research Reserve System spent $251,468 on AIS efforts. NOAA also

continues in its role as co-chair to the ANSTF and National Invasive Species Council (representing the Department of Commerce). In this role NOAA has assisted development of the 2015 ANSTF report to Congress, reviewed State ANS Management Plans, and responding to GAO recommendations. The Agency has also contributed to the NISC cross-cut budget, reviewed policy papers, and responded to Congressional requests.

In the Great Lakes Region, NOAA is conducting studies on dreissenid mussels and Asian carp. The Western region has focused efforts on control and management of invasive weeds as well as eDNA sampling within Lake Washington to gather information on walleye habitat. The Gulf of Mexico/Southeast region continues its research on lionfish and Asian tiger shrimp as well as Hydrilla management. The Northeast region continues it leadership role of the Invasive Catfish Task Force and also produced an early detection and rapid response plan for the Chinese mitten crab.

U.S. Environmental Protection Agency

EPA issued first Vessel General Permit (VGP) in 2008: reissued permit in 2013. The VGP covers 27 types of incidental discharges nationwide from more than 60,000 vessels. Ballast water is one of those 27 discharges. The 2013 VGP establishes management practices and effluent limits for ballast water discharges that are similar to U.S. Coast Guard (USCG) and International Maritime Organization (IMO) requirements. It allows vessels to use any system to meet the permit's ballast water effluent limits; vessels that use either USCG Type Approved or USCG Alternative Management System (i.e., a foreign type approved Ballast Water Treatment System) are subject to less onerous monitoring requirements. Unlike the USCG and IMO, the EPA VGP requires vessels to perform compliance monitoring. Since no USCG type-approved systems yet exist, the EPA Office of Water (OW) and Office of Enforcement and Compliance Assurance (OECA) signed a letter announcing a joint strategy to address vessel owners' preference for installing a USCG type approved system. As part of this strategy, EPA issued an Enforcement Response Policy (ERP) in December 2013, acknowledging that EPA views vessels with a USCG extension as a low enforcement priority, provided that they that comply with all other applicable aspects of the VGP.

EPA Office of Research and Development (ORD) continues to work toward development of revised technology verification protocols for ballast water treatment systems, including a concerted effort to address concerns regarding appropriate tests for assessing UV treatment. ORD is currently working with EPA Office of Water (OW)to develop research aimed at better understanding invasion risks posed by inter-lake transfer in the Great Lakes Basin, and are exploring opportunities to collaborate with researchers in Canada and with The Nature Conservancy to leverage available data and resources. ORD continues to work closely with FWS and other Federal and State agencies to inform development of the Great Lakes Basin-wide AIS early detection and monitoring network, as mandated by the Great Lakes Water Quality Agreement. Researchers in the EPA Duluth lab continue to develop strategies to optimize survey design for detecting rare species, and work together with the Cincinnati lab to explore the utility of DNA-based monitoring tools. A new research project started last year focuses on application of geospatial analytical tools to understand the drivers of aquatic invasions at a continental scale; specifically, ORD is using available AIS distribution data (much provided through the USGS NAS database) and various EPA models to assess the role of recreational demand on patterns of non-native species richness. Another ongoing project focuses on using high-throughput sequencing to assess the movement of biodiversity into U.S. ports via ballast water discharge. This effort is part of a broader effort to better understand the relationship between propagule release and risk of invasion associated with ballast water. Finally, EPA is planning a collaborative project with the Naval Research Laboratory to use similar genetic technologies to assess the efficacy of treatment and treatment plus exchange, by describing changes in zooplankton and microbial community structure that accompany these management approaches.

Other efforts within the EPA include collaboration with the NISC on a pilot project to support their Early Detection and Rapid Response Framework. Also, new funding opportunities for GRLI were recently announced.

National Park Service

The NPS continues to build capacity to respond to zebra and quagga mussels within parks. The Agency is coordinating with states on some efforts, including containment efforts on Lake Powell. Yellowstone Lake is using recreational fee money, yet looking for permanent money to continue work on invasive mussels. The Grand Canyon National Park worked with the state of Arizona to conduct a rapid response to a green sunfish population. The project was completed in in 4 months, with plans to follow up in the future.

Bureau of Reclamation

Reclamation scientists Sherri Pucherelli, Jacque Keele, and Denise Hosler presented their research on mussels at the 19th annual International Conference on Aquatic Invasive Species (ICAIS), April 10-14 in Winnipeg, Canada. Jolene Trujillo is the new IPM/Invasive Species coordinator at Reclamation and will be Reclamation's official representative on the ANSTF once the vetting process is complete.

Bureau of Land Management

The BLM manages the most land of any Federal agency, with over 3 million lake and reservoir acres, including land in 13 states in the west and scattered tracks in the east. The Agency is making a new effort to emphasize aquatics in tandem with terrestrial invasive efforts, with an emphasis on prevention. BLM has conducted outreach and education efforts, research to explore eDNA technologies, and responded to invasive tunicates in Alaska. The Agency is currently reviewing comments to finalize it AIS policy. Future work is planned to development of additional outreach materials and will be looking to the ANSTF for quality control of these materials.

U.S. Geological Survey

The USGS NAS Database web programmers are working on some new functionality for the maps. Soon users will be able to perform queries directly from the map. They will be able to select a region to find out all species in that area, or select an area and add parameters such as species, years, or status to that. A NAS news feed will soon be live on our home page. It will update users on program activities, new web features, and datasets recently added to the system. The program has had a phone reporting app designed for several years but could not obtain approval to release it. That is finally changing. Both Android and iPhone apps will be available soon. I will notify everyone when it goes live. Two USGS botanists are working their way through the list of obligate aquatic plants to be updated. They are generating one to two species per week and making them available on the web site after review and approval. Lastly, Pam Fuller is the Department of Interior lead for the Invasive Species Working Group for RESTORE proposals associated with the BP Deep Horizon oil spill. She is trying to promote aquatic invasive species work through that venue.

U.S. Army Corps of Engineers

The 2015 WRDDA guidance asked USACE to fund inspection stations in the Columbia River Basin. USACE is working on a plan to implement this request and Congress has provided $3.75 million to assist this effort. GAO is conducting an assessment on the USACE's work on hazardous algal blooms (HAB), specifically how much Federal funding is being used to control HABs.

U.S. Fish and Wildlife Service

On October 30, 2015, the USFWS's Branch of Aquatic Invasive Species (BAIS) published the "11 species" proposed rule for public comment and peer review in the Federal Register. The rule proposes to list 10 freshwater fish and 1 crayfish as injurious species. This is the first rule the Agency proposed since it signed a Memorandum of Understanding with Pet Industry Joint Advisory Council (PIJAC) and the Association of Fish and Wildlife Agencies (AFWA) in 2013, which outlines an agreement regarding the voluntary refrain from importation of species not yet in trade in the United States. The 60-day public comment period ended on December 29. Publication of a final rule is expected by August 2016.

In 2010, BAIS published a proposed rule to list nine species of large constrictor snakes as injurious species. In 2012, four species were listed (Burmese and two other pythons, plus the yellow anaconda). In 2014, the comment period was reopened on the five remaining constrictor snakes (reticulated python, green anaconda, Beni anaconda, DeSchauensee's anaconda, and boa constrictor). In March 2015, the final rule was published to list the reticulated python and the three anacondas; however, the proposal to list the boa was withdrawn. As soon as the second final rule published, the United States Association of Reptile Keepers (USARK), filed an amendment. On May 12, 2015, the U.S. District Court for the District of Columbia granted USARK's motion for a preliminary injunction finding that the plaintiffs were likely to prevail on the merits of the case that the Service lacks authority to prohibit interstate transport of species listed as injurious wildlife under Title 18 of the Lacey Act. A decision to appeal the preliminary injunction was made on December 2nd, 2015. The oral argument for this appeal was heard in D.C. Circuit Court on April 1, 2016. The judgment could take months or longer.

On January 13, 2016 the Service published an interim rule in the Federal Register to list 201 species of salamanders as injurious because they pose a serious threat to native salamanders as carriers of the lethal fungus *Batrachochytrium salamandrivorans* (Bsal). The interim rule took effect January 28. The listing applies to both live and dead specimens and will prohibit the importation and interstate transport of the listed species without an approved permit for scientific, educational, medical, and zoological purposes. The public comment period ended March 14, 2016. Comments are currently under review. USFWS is working with the Office of Law Enforcement and Division of Management Authority to answer stakeholder questions about how the rule will be implemented.

On November 2, 2015, FAC unveiled a new publicly available webpage called "Species Ecological Risk Screening Summaries" that posts 150 Ecological Risk Screening Summaries (ERSSs). These ERSSs were conceived and led by Region 3's Mike Hoff, with assistance from R5 and HQ-FAC. Although these ERSSs and many more were completed several years ago, USFWS delayed making them publicly available until we conducted peer review on the risk screening process as requested by the National Aquaculture Association. The peer review process commenced in December 2012 and was completed in August 2014. The site organizes the taxa of fishes, crustaceans, and mollusks into three categories of risk—high, low, and uncertain—and explains to the public how to use the site to choose a low risk species for trade rather than a high or uncertain risk species. We will continue to post new ERSSs as our resources permit. The website is located at http://www.fws.gov/fisheries/ANS/species_erss_reports.html.

The Stop Aquatic Hitchhikers! campaign is being refreshed and with regional initiatives (like "Don't Move a Mussel" and “Clean, Drain, Dry”). Components of this refresh include an updated and mobile-compatible website, multi-initiative brand standards, ongoing engagement with the recreational fishing and boating industries, greater engagement of the military, and stronger community engagement, networking and capacity building. This campaign is essential to Federal, State and local efforts, directed at preventing the spread of AIS by empowering outdoor recreation users to become part of the solution through environmentally responsible behaviors, such as “Clean, Drain, Dry.” Once the new site and multi-initiative brand standards are finished, we are hoping to re-launch the campaign later this year.

Under a Department of Interior (DOI) and PIJAC MOU, the Habitattitude website continues to be updated and modernized. Currently PIJAC, FWS, and NPS serve on a Steering Committee for the campaign. A request for NOAA’s Sea Grant Network to serve on the Steering Committee has also been made. The new web site will include content regarding the need for the pet owning public to responsibly select their companion animals while at the same time prevent release of animals and pets into the environment. Information tracks will be included into the website redesign dealing with aquatics, water gardens, reptiles/amphibians, and educators. A late July 2016 website launch is planned. Once launched, an advisory committee will be formed to provide advice to the Steering Committee on re-branding strategies; how best to broaden campaign partner engagement by States, businesses, and local partners; and, how best to promote national, regional and local delivery of the HabitattitudeTM campaign. The Steering Committee is also interested in forming an Implementation Committee. This committee will assist the MOU parties with implementing Habitattitude. Its work will be focused on developing the tools and assets needed for the website to be used by partners to implement the campaign. The Committee will also implement strategies designed to achieve greater engagement by local partners who are positioned to educate the pet-owning public on environmentally responsible decisions when choosing and owning pets.

U.S. Department of Transportation

Recent focus of DOT has been on ballast water and hull fouling; three facilities are booked doing testing for ballast water treatment systems. Great Ships Initiative (GSI) and the Maritime Environmental Resource Center (MERC) continue to test and evaluate systems to the Coast Guard requirements. Much of this work is funded by GLRI. Aspects of hull fouling include capture of debris and dissolved metals from hull coatings.

Additional updates provided, in writing, after the meeting:

U.S. Forest Service

The U.S. Forest Service continues to conduct a wide range of research and management activities against AIS across the agency, with particular emphasis on work in major watersheds to restore areas impacted and prevent invasions from establishing. Significant issues at the national level include work on national policy advancements through the Forest Service Handbook. The Handbook will provide additional tactical policy requirements and guidance to all National Forests and Grasslands for the prevention, control, and other management activities against all taxa of invasive species, including aquatic invasive species. Key chapters of this draft handbook are currently undergoing Tribal Consultation with Native American Tribes across the U.S. As the handbook work moves forward there will be opportunity for broad public review before finalization and issuance.

At the regional and local levels, the U.S. Forest Service continues to support and participate in the work of the ANS Regional Panels, and is trying to maintain our support for invasive species prevention and control, as well as education and outreach, within very limited and declining budgets. The U.S. Forest Service continues to provide support where it can for educational campaigns such as Stop Aquatic Hitchhikers; Clean, Drain, Dry; Play, Clean, Go; and others. Costs associated with increasing wildfire suppression needs each year are directly impacting our integrated ANS/AIS funding, along with other invasive species funding. There is now no dedicated funding for ANS/AIS at the Washington, D.C. level, but our regions are attempting to maintain these programs. The status of funding within other regions is as follows:

- R1 – No regional allocation directed for ANS but they estimate that they spend $100k per year around the region on ANS projects funded out of the Collaborative Forest Landscape Restoration Program, the National Fish and Wildlife Foundation and National Forest Inventory and Monitoring (NFIM) program.
- R2 - has worked with Colorado Parks and Wildlife (CPW) using different agreements to address ANS through boat inspections. With limited budgets, this funding has been reduced over the last couple of years and the state would like to see increased support from the Forest Service. USFS funding support to CPW began in 2008 and reached its highest level in 2010/11 ($400k) and has declined since then.
- R4 – Enter into participating agreements with 3 states (WY, ID, UT) AIS agencies which run for 3 years. The region has done this since 2009 and has just funded 2016-2018. Each 3-year interval is funded through regional commitments for $300k, split unequally across the states based on size of the program. So, $900k total over 9 years. The money goes to state seasonal employees for boat inspection and decontamination, and state AIS monitoring on FS waterbodies. The funds are 50:50 from the USFS' Wildlife and Fish Habitat Management (NFWF) and National Recreation Heritage and Wilderness (NFRW) program.
- R5 – Two significant contributions by Forest. Lake Tahoe Basin Management Unit (LTBMU) has a multistate State agency (CA and NV) and FS partnership. Multifaceted boat inspection stations funded out of NFWF and NFRW for around $50K per year matched by the Sierra Nevada Public Land Management Act (SNPLMA) for total of $100K. Also a separate ANS program on the Eldorado National Forest that involved partnerships with local water municipalities. This was managed by partners, but the FS contributed $20-30K per year out of NFWF funds.
- R10 – A total of $105k has been spent over an unidentified time period for ANS. Diverse mix of funding that includes Cooperative Work Regional Knutson-Vandenberg Sale Area Projects (CWK2), Pacific Northwest Research Station funds and grants, NFWF, and National Vegetation and Watershed Management (NFVW) program (in this case the ANS is a plant).

The U.S. Forest Service is hopeful that the Administration will develop a consolidated comprehensive budget request for invasive species through the leadership of the National Invasive Species Council. Such a consolidated budget request could increase funding for ANS work from which federal agencies tier their own budget requests. In addition, the U.S. Forest Service is hopeful that the leadership of the ANSTF will advance the revision and reauthorization of the National Invasive Species Act of 1996 to allow all ANSTF member agencies to become equal partners in the activities, appropriations management, oversight, and policy priorities to advance ANS/AIS work across the nation, including increasing funding allocations to support the work on all federal lands and better implementation of state ANS plans. This suggested legislative action, and budget formulation work, could be included as priority actions within the new NISC Management Plan to be finalized this year.

U.S. Coast Guard

U.S. Coast Guard activities continue, with a major focus on the type-approval process for Ballast Water Management Systems (BWMS). Twenty manufacturers are currently working with Coast Guard-accepted independent laboratories to conduct testing and prepare application packages for submission to our Marine Safety Center. Another 15 have stated their intent to pursue Coast Guard type-approval. The USCG has also reviewed and accepted 56 foreign type-approved BWMS as "Alternate Management Systems". These do not necessarily meet the Ballast Water Discharge Standard (BWDS), but were determined to be at least as effective as ballast water exchange. In the meantime, the USCG is granting extensions to BWDS compliance dates to a vessel's next scheduled dry-docking. To date, we have received about 9,000 applications, and granted about 7,000 extensions, with 4,000 of those for vessels with 2016 drydock dates.

Scientific research and technical work on sampling and analysis methods continue with our partners at Naval Research Laboratory, DOT's Volpe Center, and Smithsonian Environmental Research Center. The USCG is also holding a series of calls/meetings with the Independent Labs and their sub-facilities to enhance the type-approval process. On the international side, the recent IMO Marine Environment Protection Committee ended without any new ratifications by member states. The Convention will enter into force globally 12 months after ratifications exceed 35% of world merchant tonnage. However, this will not supersede Coast Guard jurisdiction inside 12 nautical miles.

Association of Fish and Wildlife Agencies (AFWA)

AFWA held its spring meeting on March 16, 2016, during the North American Wildlife and Natural Resources Conference in Pittsburgh, Pennsylvania. The fall meeting is scheduled during the AFWA Annual Meeting in Philadelphia, Pennsylvania on September 11-15, 2016.

Wildlife Forever (WF) trademarked the words Clean, Drain, Dry on October 27, 2015. WF has donated the trademark to AFWA for free and open use by AIS partners conducting outreach.

Members of the AFWA Invasive Species Committee were engaged in the development of the Department of Interior document "Safeguarding America's Lands and Waters from Invasive Species: A National Framework for Early Detection and Rapid Response." The AFWA Invasive Species Committee is looking forward to helping implement the EDRR framework.

The AFWA Invasive Species Committee submitted a National Conservation Need (NCN) for the 2017 Multistate Conservation Grant Program. The NCN focused on the need to develop approaches that effectively address threats from ANS while simultaneously minimizing impacts to angling and boating opportunities. The NCN was not selected as a funding priority for the 2017 grant cycle.

Ongoing work includes continued participation in Building Consensus in the West, especially in development of model regulatory approaches to ANS issues for the states. AFWA also continues to support efforts to increase membership in the Congressional Invasive Species Caucus and to identify Congressional champions for increasing the capacity and effectiveness of invasive species programs. The AFWA Invasive Species Committee continues ongoing implementation of the AFWA-FWS-PIJAC MOU on aquatic species not yet in trade by providing recommendations on species that need to go through a screening process and by reviewing the results of risk screening efforts. AFWA continually tracks and solicits state agency input on proposed and relevant invasive species legislation (e.g., Wildlife Health Bill), develops AFWA positions on legislation, and prepares Congressional testimony or briefings on legislation as needed.

An AFWA working group including members from the Invasive Species Committee, Fish and Wildlife Health Committee, and Amphibian and Reptile Sub-Committee continues development of a whitepaper to identify a) existing authorities for addressing wildlife-to-wildlife transmitted diseases, particularly foreign and novel pathogens, and b) any gaps in those authorities and to recommend relevant policy actions.

San Francisco Estuary Partnership

To help monitor new arrivals and their impacts on California's coastal ecosystems, the California Department of Fish and Wildlife (CDFW), in collaboration with the Smithsonian Environmental Research Center, has created the Cal-NEMO (California Non-native Estuarine and Marine Organism) database – an online public website which replaces the previous California Aquatic Non-native Organism Database (CANOD). Cal-NEMO provides key information about the biology, ecology, distribution, occurrence and impacts of over 200 species introduced into the coastal waters of the state. It is a long term initiative, representing a subset of the larger Smithsonian National Exotic Marine and Estuarine Species Information System (NEMESIS), and will continue to be updated as new species are discovered and new research becomes available, including data from the CDFW statewide survey program to monitor for newly arriving species. The Cal-NEMO database can be found at: http://invasions.si.edu/nemesis/calnemo/intro.html.

Other key activities happening in California include the San Francisco Estuary Partnership's work with the California State Lands Commission to develop and finalize biofouling regulations for commercial vessels. In addition, the Partnership is working with the Western Regional Panels Coastal Committee on the draft report: "Biofouling on the U.S. West Coast: The need for a regional plan to address marine bioinvasions," and focusing committee efforts on commercial ships, recreational vessels, commercial fishing vessels, and marine infrastructure as key vectors for marine biofouling. We are also developing Biofouling BMPs and Legal Framework for the key vectors.

Chesapeake Bay Program

The Maryland Department of Natural Resources (DNR) is preparing for its third year of the Hydrilla Management Plan in Deep Creek Lake. Last year's program was very successful, with just one small new patch found and no Hydrilla observed in the treatment areas. The plan consists of population monitoring, chemical control, education and outreach. Maryland DNR will continue this level of treatment for three more years in hopes of exhausting the tuber bank and achieving positive control.

Zebra mussels continue to proliferate in the upper Chesapeake Bay. Maryland DNR will inspect buoy anchors from around the upper Chesapeake Bay to monitor the spread. Educational signs have been placed at all state and county facilities to encourage boaters to inspect for zebra mussels and properly clean their vessels before launching. There is currently no plan to manage for zebra mussels in the Chesapeake Bay.

Maryland DNR will resume monitoring for water chestnut in the Bird and Sassafras Rivers. In VA, a much larger infestation of a related species, *Trapa bicornis*, was found in Pohick Bay, on the VA side of the Potomac River. VA biologists and volunteers removed an estimated 5.8 tons of plants in 2015, compared to 3.6 tons measured last year.

The 2015 actions taken by Maryland DNR to help control and prevent spread of northern snakehead in Chesapeake Bay watershed included:

1. Reviewing and commenting on the ANSTF adopted, National Control and Management Plan for Members of the Snakehead Family (Channidae);
2. Working with USFWS to directly remove snakeheads with boat electrofishing in a targeted tributary of Potomac River;
3. Incentivizing harvest by anglers and archers;
4. Encouraging reporting and harvest by the general public with press releases and tournaments;
5. Discussing approaches to improve enforcement of existing regulations that prohibit live possession.

Snakeheads have been reported throughout most major tributaries of Maryland's Chesapeake Bay watershed, including the upper Chesapeake Bay. New sightings are reported and verified by MD DNR before being sent to USFWS, and then to USGS to be incorporated into their on-line database for aquatic invasive species.

Maryland DNR is currently working on restricting/banning the import and use by anglers, as well as limiting the number anglers can possess.

Blue/flathead catfish have continued to expand in Maryland and Virginia. Tributary Summaries are available for the Susquehanna, Potomac, Patuxent, Nanticoke, Choptank, York, James, and Rappahannock Rivers. Maryland and Virginia have been collaborating on developing a plan to create a fishery that will control the current population and limit the spread into other rivers in the Chesapeake Bay region.

Great Lakes Commission

The GLC continues efforts to investigate, forge consensus, and advance solutions to the threat of Asian carp and other AIS passing through the CAWS while maintaining current uses of the system. Specifically, the GLC supports and serves on a 30-member advisory committee that is the primary regional stakeholder forum seeking solutions to the problem of AIS transfer through the CAWS. The committee entered a new consensus-seeking phase in 2014 with support from an experienced facilitation team (Gail Bingham, president emeritus of RESOLVE, and Tim Brown, founder and president of Wabashco LLC) and has developed consensus positions on short- and long-term recommendations. The committee met ten times during the current phase, most recently on December 17. The Committee recently finalized its recommendations on the most promising avenues for a long-term solution to preventing AIS transfer through the CAWS. In a letter to President Obama and Congress, the Committee shared its conclusion "that a system of possible control points in the CAWS to address AIS is worth further study." The Committee requested that "sufficient funds be allocated, beginning with the proposed fiscal year 2017 budget, that will allow the U.S. Army Corps of Engineers (USACE), under existing authorities, to complete specific studies necessary to develop a Chief's Report on a system of control points" and that the USACE investigate two specific questions:

> "1. Whether an AIS lock or system of AIS locks can be designed and implemented in the CAWS to be effective at two-way prevention, compared to other alternatives, including what is known to be most effective; and
>
> 2. Whether and how control points could be implemented consistent with the mid-system locations identified in several GLMRIS alternatives."

In addition, the committee continues to support the evaluation of the Brandon Road Lock and Dam as a control point to prevent Asian carp and other species moving from the Mississippi River into the Great Lakes Basin.

Significant technical analysis was conducted for the Advisory Committee by HDR Engineering, Inc. This has provided important new information on options for configuring control measures in a navigation lock and the level of risk reduction that can be achieved, which is estimated to be between 85% and 95%, depending upon species. While this level of risk reduction can be theorized, actual rates will depend upon the specific control measures selected and the targeted species. The uncertainty of control measure application, weakest pathway link, and potential cumulative effects of multiple control points drives overall risk reduction estimates.

This work likely will set the foundation for more extensive future studies and demonstrations to be conducted by the Army Corps of Engineers, Metropolitan Water Reclamation District, and other agencies. Further research and development, combined with adaptive management, is expected to improve efficiencies and reduce uncertainty, including investigation of a focused set of control measures and combinations, evaluation of mixing effects in lock chambers and interactions of control measure combinations, and assessment of criteria related to maritime safety and operations. Demonstrating how ANS locks can be incorporated into an AIS-free buffer zone concept, together with infrastructure to address existing problems in the CAWS, offers significant potential to couple a regional benefit (increased AIS risk reduction) with local benefits (reduced flooding and CSOs) to generate both regional and local cost-share partners.

The members of the Advisory Committee have expressed a desire to continue meeting to receive information on the Brandon Road Feasibility Study, the work of the Asian Carp Regional Coordinating Committee, and related efforts. The committee likely will not work on new consensus statements at this time, although such statements could be developed if warranted. All of the Advisory Committee's products, including all three letters and the consultant's report to the Commission summarizing technical research conducted for the committee, are available online at http://glc.org/projects/invasive/chicago-waterway/.

Work is wrapping up on the first phase of a Great Lakes Restoration Initiative-funded project to develop software and tools to track, identify and monitor the sale of invasive species via the internet. The web-crawling software system – the Great Lakes Detector of Invasive Aquatics in Trade (GLDIATR) – is complete and in operation. The GLC will be reporting on the overall effort later this year and plans are underway to continue to make improvements and maintain and operate the software system for basinwide use. The GLC was awarded funding through a second GLRI grant to support continued enhancement and implementation of GLDIATR and coordinate outreach, and staff are optimistic that this work will be funded and sustained. Ongoing work will be coordinated with a multi-stakeholder team that includes NGOs, industry, and state and federal agencies.

The GLC continues to support federal efforts to prevent the importation of potentially harmful non-native species. The GLC responded in support of a recent move by the U.S. Fish and Wildlife Service to list eleven new species as "injurious" under title 18 of the Lacey Act. As the GLC is previously on record calling for more effective pre-import screening efforts, staff undertook several activities to communicate GLC support for this action, including a letter to the Service submitted through the public comment process, a press release, and a resolution passed at the 2015 Annual Meeting in Chicago: http://glc.org/files/main/resolutions/FINAL-GLC-Resolution-Lacey-Act-Listing-20150929.pdf.

Working in partnership with USGS, the Great Lakes Fishery Commission and NOAA, the GLC is supporting the Invasive Mussel Collaborative, which is providing a framework for communication and coordination among scientists, managers and others to share information and lessons learned, guide supporting research, and inform management actions related to control of zebra and quagga mussels. A steering committee for the Collaborative has been convened and has met several times; a science team was convened early in 2016 to work towards developing a research and science agenda for mussel control. The Collaborative is hosting webinars to facilitate learning and information

sharing on topics related to control of dreissenid mussels; webinar recordings are available online at www.invasivemusselcollaborative.net. The Collaborative website was recently updated with more comprehensive information about the issues and a web-form for submitting ongoing research projects and published work. An email listserv is also established to share information, webinar announcements and recent news, and to connect researchers and managers.

The GLC continues to expand a partnership with the USGS-Great Lakes Science Center to lead communications and research on the non-native plant Phragmites. The Great Lakes Phragmites Collaborative, established in 2012, engages the resource management community, reduces redundancy, links science and management, facilitates adaptive management, and encourages a systems approach to management and conservation efforts for this invasive species. The Collaborative supports an interactive web hub (www.greatlakesphragmites.net), webinar series, social media presence and email list, and is guided by a regional advisory committee, which is currently developing a formalized governance structure. The GLC also supports the Collaborative for Microbial Symbiosis and Phragmites Management, established in partnership with the USGS, to bring together researchers to explore symbiotic relationships to both control non-native Phragmites and encourage establishment of native plants. These collaboratives use the principles of Collective Impact to address this natural resource challenge and staff developed a manuscript to showcase this approach as a novel strategy to align priorities and resources for complex issues, which was submitted to the journal Biological Invasions for publication. Several products are being developed, including best practices case studies, a strategic plan, and an adaptive management decision tool.

The GLC passed a resolution at its semiannual meeting in Washington, D.C., in February acknowledging the value of coordinated outreach to increase awareness and educate stakeholders as an essential component of efforts to prevent the introduction and spread of AIS in coastal and inland waters; committing the GLC to collaborate with the Great Lakes Water Quality Agreement Annex 6 Subcommittee, national Aquatic Nuisance Species Task Force, the Great Lakes Panel on Aquatic Nuisance Species, the Conference of Great Lakes and St. Lawrence River Governors and Premiers' AIS Task Force and other partners, to advance coordinated AIS prevention and control campaigns and outreach efforts in the Great Lakes-St. Lawrence River region, as well as other regions of the U.S. and Canada contending with similar AIS problems; and encouraging its members, Observer agencies and other partners to coordinate and collaborate on AIS outreach through state, provincial, regional, national and binational forums to advance their own prevention and control efforts. The full resolution is available online at http://glc.org/files/main/resolutions/FINAL-GLC-Resolution-AIS-Outreach-20160224.pdf.

The GLC, in collaboration with the Great Lakes Fishery Commission, has been enhancing the barrier mapping application. The application is available at http://data.glfc.org. Enhancements have been added to further improve the search, inset map and user interface. Approximately 7,000 more barriers have been added to the original ~900 in the system. Historical max extent data has been added to show how far up a given waterway sea lamprey larvae have been found, barrier fact sheets have been added, and images of lamprey traps where relevant.

Lake Champlain Basin Program

The Lake Champlain Basin Program's (LCBP) Director, Bill Howland, will retire in June 2016 after seventeen years of leading water quality initiatives in the Lake Champlain Basin.

The Lake Champlain Boat Launch Steward Program will enter its tenth year in 2016. Partnering with Vermont Department of Environmental Conservation, LCBP stewards will have two boat wash stations available at the Shelburne Bay and Guillemette boat launches in Vermont to address high risk vessels that may be carrying aquatic invasive species. Boat washing is voluntary. Additionally,

there will be two boat wash stations at Ticonderoga and Plattsburgh, NY that will be operated by Adirondack Watershed Institute stewards in partnership with LCBP. The Lake Champlain Steering Committee supported the addition of two stewards at Quebec launches on Missisquoi Bay on Lake Champlain for 2017. LCBP has also worked with QC partners to create an AIS rack card in French which should be printed in time for the field season.

The spiny water flea population in Lake Champlain is doing well. According to the Lake Champlain Basin Program's Long-Term Monitoring Program the species has first shown up (first detections of the field season in 2014 and 2015) at stations in the Main Lake and in Shelburne Bay. Impacts to the phytoplankton community are already evident.

Asian clam management in Lake George continues with a limited number of priority sites for eradication, the rest are managed for containment.

Lake Champlain Basin Program is working with the ANS Task Force on the Boat Design Ad-hoc Workgroup to work with ABYC on developing recommendations for boat design to reduce the spread of AIS.

The Lake George mandatory boat wash and decontamination program has completed its two-year pilot program and the Board of the Lake George Park Commission voted to make the regulations permanent.

The Lake Champlain Basin Program has participated in the development of a strategic landscape level AIS spread prevention plan for the Adirondack region. 2016 is the second year of a pilot program where stewards and decontamination stations are being deployed throughout the Adirondack region at critical points and invasion spread hubs (infested waters with outbound traffic to uninvaded lakes as well as at high use waterways that link heavily visited lakes in the region) based on the boat launch steward data collected by partner programs.

Mississippi Interstate Cooperative Resource Association

MICRA hosted a meeting of the seven diploid grass carp states July, 2015, to discuss the recommendation for a consistent national grass carp policy to prohibit the commercial use of diploid grass carp. Three takeaways from the meeting:

1. Five of the seven states were in attendance at the July meeting and agreed to change state agency policies and practices to only allow triploids;
2. MICRA has organized a grass carp symposium at the National AFS meeting in August; and
3. Diploid grass carp states will meet following the AFS symposium to consider taking action on the requested regulation change for all grass carp use.

In March, 2016, MICRA sent its 6th consecutive delegation of fisheries chiefs/representatives to Washington DC to discuss ANS issues affecting fishery resources in the Mississippi River Basin. The delegates visited offices of 18 Senators and 29 House Representatives. They also met with staff from the Department of Interior, U.S. Fish and Wildlife Service, Northeast Midwest Institute, and the Atlantic States Marine Fishery Commission. We discussed four topics:

1. Acknowledge the previous year's increase of $1 million in appropriations for implementation of state ANS management plans and to ask the offices to support a further increase to the fully authorized level of $4 million;
2. The importance of a multi-agency effort to implement a national strategy for Asian carp prevention and control as outlined in the manuscript entitled "Management and Control Plan for Bighead, Black, Grass, and Silver Carps in the United States" and approved by the Aquatic Nuisance Species Task Force. We also asked for an increase in funding to the

USFWS by $2.1 million (to a total of $10 million annually) to facilitate an expansion of efforts to implement the plan to additional sub-basins. As part of a request for more funding to expand our effort, we specifically requested changes to wording in the WRRDA language from "Upper Mississippi River and Ohio River" to say "Mississippi River and its tributaries". Almost all offices showed considerable interest towards increasing the state ANS funding and amending WRRDA to allow expanded effort in the basin. They also asked for specific language to the appropriations increase for the state plans and the proposed WRRDA amendments. However, one office requested language that would provide assurances such that increasing the scope of the effort to additional sub-basins would not result in any decrease in funding to the Upper Mississippi River or Ohio River sub-basins.

3. Asked for the U.S. Army Corps of Engineers next steps for the GLMRIS to include concurrent evaluations to reduce risks of ANS movements in both directions, as originally directed by Congress.
4. Encouraged offices to join the Invasive Species Caucus.

Prior to leaving DC, the MICRA delegates prepared written appropriations language and WRRDA amendments and sent them to each of the offices visited; as requested.

Friday – May 6, 2015

26. Informational: Regional Panel Updates

Great Lakes Panel on Aquatic Nuisance Species

The spring GLP meeting was held on Tuesday, May 3, and included committee sessions and a plenary session on state and provincial invasive species councils. In addition, the GLP voted to establish and ad hoc committee on risk assessment to advance progress on risk assessment priorities. Meeting information is available on the GLP website at http://glc.org/projects/invasive/panel/glp-meetings/.

Biennial elections of the GLP were also held and new officers were announced at the May 3 meeting (GLP officers serve a two year term):

- Bob Wakeman, GLP Chair
- Sarah LeSage, Vice Chair / Chair-Elect, Michigan DEQ
- Francine MacDonald, Policy Coordination Committee Chair, Ontario MNRF
- Lindsay Chadderton, Research Coordination Committee Chair, The Nature Conservancy
- Doug Jensen, Information/Education Committee Chair, Minnesota Sea Grant

The GLP also voted to re-elect Doug Jensen, Minnesota Sea Grant, and Pat Conzemius, Wildlife Forever, as at-large members to the GLP (serving a 4 year term)

Information/Education (I/E) Committee: the Great Lakes Panel I/E Committee to complete a comprehensive review and update of the Great Lakes Aquatic Invasions (GLAI) booklet, last published in 2007. The majority of the content has been reviewed and updated, editing has begun, and progress toward the design overhaul has been made. The results will ensure this publication provides the timely, relevant, credible, and comprehensible information that is needed for the region. In coordination with the Great Lakes Water Quality Agreement (GLWQA) Annex 6 Subcommittee, the inventory of education and outreach initiatives that was developed (http://glc.org/projects/invasive/panel/glp-committees/) previously is being reviewed to ensure the most up-to-date information is maintained, and the development of a more easily searchable display

is being considered. The committee is continuing its work to update AIS outreach priorities for the region and to provide resources for the larger Panel as needed.

Research Coordination Committee: The committee continued to exchange information and identify priority research needs for both specific species and pathways. The committee recently updated its priorities document with revised research priorities for addressing the canals and connecting waterways pathway. The committee is also working on a gap analysis of AIS funding in the Great Lakes region and developing criteria for the formation of invasive species collaboratives.

Policy Coordination Committee: The committee continued to serve as forum for exchanging information on regional policy activities. The committee is reviewing its priorities document to assess the status of and regional progress in addressing those issues. The committee also recommended that the GLP consider the convening of an ad hoc risk assessment committee to help advance progress on the risk assessment priorities of the policy coordination committee, GLWQA Annex 6, and the Conference of Great Lakes Governors and Premiers AIS Task Force.

Grass Carp Committee: The newly established Grass Carp committee met for the first time on Tuesday to provide informational updates; review updates to the status of GLP GC priorities; and develop next steps for the committee. The committee will be discussing developing general recommended activities to respond to GC in the Great Lakes basin as a key next step.

Northeast Aquatic Nuisance Species Panel

The Northeast Aquatic Nuisance Species Panel (NEANS Panel) met in December 2015 at the New York State Department of Environmental Conservation in Albany, New York and in May 2016 at the Save the Bay facility in Providence, Rhode Island. Each meeting featured a "Spotlight on Species" session that provided a focus on invasive species and technologies such as pressure washing specifications. The Panel must now negotiate gratis meeting space with its contractor acting as caterer because of financial constraints.

The Climate Change Work Group is compiling a list to gauge the spread and risk of freshwater and marine plants and animals. The Spread Prevention Work Group finished its floating key chain and community-based social marketing project. The contractor has solicited requests for the third re-print of its Asian Clam Watch Card and fulfilled purchase orders. There is no longer funding to support several information technology functions including the Panel's innovative Online Guide, which allows users to create customized identification documents.

The NEANS Panel has begun discussions for a possible joint meeting in lower New York or Long Island with the Mid-Atlantic Panel for May 2017. The NEANS Panel looks forward to hosting the Aquatic Nuisance Species Task Force in May 2018.

Gulf and South Atlantic Regional Panel

The Panel held its spring meeting on April 5-6th, in Orange Beach, AL. The Panel heard presentations on some of the work funded under the Region 4, FWS's ANS Small Grants Program. These included the testing of a new control technique for invasive apple snails and the development of a qPCR (quantitative polymerase chain reaction) tool to detect the invasive nematode parasite (*Anguillicoloides crassus*). The Panel has added talks from the ANS Small Grants Program as a standing agenda item at their meetings to help disseminate the findings from these projects through the region and to make to research community more aware of the Panel. We are entering the third year of this cooperative program between Region 4 FWS, GSMFC, and the Panel and it has been very successful, with interest in the program continuing to increase every year. There was a session

on Asian carp that covered the FWS's grass carp certification program and efforts are currently underway to switch all states over to using triploid grass carp. There were also presentations on the impacts that Asian carp are having on sportfish populations in lakes in the Mississippi delta and their distribution in other Mississippi waters.

The Panel decided to establish a clearinghouse of relevant outreach materials that have already been developed with links to the points of contact that can provide more information on the availability of a particular product. The hope is that this will help to reduce duplication of effort by just modifying materials that have already been developed to meet a particular state's needs and help to increase a unified message about invasive species in the region. The GSMFC is currently collecting pdfs of developed materials to incorporate into the clearinghouse, so if anyone has materials they would like to add to the website, please send pdfs of the materials and the appropriate point of contact to James Ballard (jballard@gsmfc.org).

The Panel had a long discussion about their AIS Traveling Trunks. The Panel decided that it was time to update the content in the trunks and expand the number of species covered, given the amount the trunks are being utilized. The Panel charged the Education and Outreach Workgroup with this effort. All of the information for the 11 species currently covered in the trunks will be updated and 3-4 new species will be added to the content. The workgroup will also explore the possibility of incorporating a game for elementary aged children and developing a poster that the teachers can display in their classroom that will keep the message about invasive species in the class after the lesson is complete. The Traveling Trunk program is administered by the GSMFC.

The Panel also had a discussion on Panel membership and meeting attendance. They made an amendment to the standard operating procedures to address meeting attendance and will continue to try and find representatives to fill some long-standing vacancies. The panel is also interested in gaining representation from the Caribbean, and will try to find a representative from Puerto Rico and/or the U.S. Virgin Islands. The next meeting will be held in Lafayette, LA the week of October 3rd, 2016.

Western Regional Panel

The 2016 Annual Meeting is planned for Jackson Hole, WY for October 19-21 2016. The meeting will be hosted by the Wyoming Game and Fish Department.

The Coastal Committee has been actively pursuing the development of a Marine Invasive Species Biofouling Regional Management Plan. A regional plan will increase marine partnerships and opportunities to share resources, and provide a framework to facilitate regional marine invasive species management. The committee has compiled regulations and rules on authorities to manage marine invasive biofouling from Alaska, Washington, Oregon, California and Hawaii. An in-person work session in December 2015 determined that the committee would create a white paper to help guide the development of a plan. On March 31, 2016 the committee gathered to determine next steps.

The Building Consensus Legal team is currently addressing the model regulations. Over 2016 winter, a task team comprised of AGs, AIS coordinators and LEs have worked in coordination with Sea Grant Law Center to develop model regulations. WRP provides a forum through Building Consensus for communication regarding watercraft inspection and decontamination station operations by a variety of jurisdictions to prevent and contain zebra and quagga mussels, and other ANS, throughout the Western U.S. A subcommittee of Building Consensus developed improved regional training standards and documents for inspectors and decontaminators. The committee has released the updated 2016 training documents to be freely utilized by managing entities across the U.S. The committee also assisted in the completion of revising the Uniform Minimum Standards

and Protocols (PSMFC, 2016). The committee continues to update www.westernais.org for interested parties. A workshop in was held in April 2016 to address action items from the Phoenix 2012 and Denver 2013/2014 Building Consensus workshops.

Mississippi River Basin Panel

MRBP held its Executive Committee and Panel Meeting in January 2016 in Gulfport Mississippi. 37 people attended and there were 13 presentations. Committees reviewed their 2015 work plans and developed 2016 work plans. In addition, Executive Committee conference calls are held on a quarterly basis; December 9, 2015, March 1, 2016 and April 21, 2016. An Action Item Task List spreadsheet based on panel meeting and Executive Committee meeting and conference call minutes has been developed to guide the panel's work.

MRBP planned an Attorney General's workshop on AIS at the Upper Midwest Invasive Species Conference in October 2016. They signed a contract with Bergner Associates for conference management and administrative services. The panel also purchased a Whac-A-Mussel to loan out as an ANS educational tool and is currently developing guidelines/MOU for use of the Whac-A-Mussel. The panel revised commercial harvest guidelines for ANS document based on panel membership review.

Ongoing work from the Panel includes continued revisions to the current Panel website for launch of the new website. The prevention and control committee is developing work plans for implementation of several recommendations in the MICRA grass carp report. MRBP is revising panel membership composition and working to find new, active members from Federal agencies and nongovernmental organizations. Panel members participate and comment on the ANSTF Economics Study Committee; the ANSTF tracking form; and the national EDRR plan effort. MRBP is also developing a Request for Proposals for an evaluation of the baitfish industry within the Mississippi River Basin.

Mid-Atlantic Panel on Aquatic Invasive Species

The fall meeting was held November 17-18, 2014 in Lewes, Delaware. The meeting focused on AIS activities and issues of concern in Delaware, with presentations on invasive shore crabs (European green crab, Chinese mitten crab, and Asian shore crab); Delaware's Invasive Species Council; innovative use of water buffalo for invasive plant control and wetland restoration; Phragmites control in Delaware; and impacts of Phragmites, and Phragmites control, on a northern diamondback terrapin nesting beach. Additional presentations addressed the Chesapeake Bay Sentinel Site Cooperative, and possible opportunities for coordination between the Chesapeake Bay Sentinel Site Cooperative and MAPAIS; our effort to rebuild and upgrade our MAPAIS website; and discovery and potential spread of the invasive (and carnivorous) waterwheel plant (*Aldrovanda vesiculosa*) at Ft. A.P. Hill in central Virginia. Updates on three ongoing or recently completed small grant projects were presented, including development of the Field Guide to Aquatic Invasive Species of the Mid-Atlantic Region, Investigating Options for Facilitating Access to Private Lands for the Eradication and Control of Aquatic Species, and Characterizing the Invasive New Zealand Mud Snail Population in Central Pennsylvania. An afternoon field trip provided an opportunity for participants to tour research facilities at the adjacent University of Delaware campus.

The Panel has conducted a small-grants competition annually since 2007 to fund on the-ground activities addressing MAPAIS' mission and regional priorities. One project has been completed since our November 2015 report; the development and distribution of "The Good, the Bad, and the Ugly; An Invasive Species Toolkit for Educators."

Annual progress reports were received and work continues on three ongoing small grant projects including Characterizing the Invasive New Zealand Mud Snail Population in Central Pennsylvania, development of the Mid-Atlantic Field Guide to Aquatic Invasive Species, and Training and Evaluation of Dogs for Early Detection of Nutria (*Myocastor coypus*) in Virginia. Work also continues on our project to rebuild and upgrade our MAPAIS website.

Eight proposals were received for small grant funding pursuant to our 2016 Request for Proposals, we will review these proposals and make decisions regarding this year's funding at our upcoming spring 2016 meeting in Annapolis, on 17-18 May.

27. Decisional: Regional Panel Recommendations

Great Lakes Panel on Aquatic Nuisance Species

None submitted for this meeting

Northeast Aquatic Nuisance Species Panel

1. Restoring full funding for the six regional panels to last year's level will cost a total of only $60,000 nationally. The Northeast Aquatic Nuisance Species Panel recommends that the Aquatic Nuisance Species Task Force identify and secure $60,000 to restore this funding and work within the U.S. Fish and Wildlife Service and other agencies to identify and secure additional and dedicated sources of support so that the panels may continue to provide the high level and high quality services and products for which they were tasked by the Aquatic Nuisance Species Task Force.

   Response: The ANSTF recognizes that the regional Panels provide essential coordination and work production for the Task Force at the Regional and local levels. As described at past meetings, Sequestration resulted in a significant deficit within the AIS program in FY13 and USFWS continues to have to make difficult budget decisions. USFWS were hoping to make up some of the deficit in FY 16, where the President's budget included an increase of $42,000 for Regional Panel support, which would have given the panels $47,000. However, this increase was not appropriated by Congress, thus panel funding will continue at $40K/Panel.

Gulf and South Atlantic Regional Panel

1. Provide increased financial support to the Panels and identify alternative funding sources that the Panels can utilize to support annual meetings, coordination and panel activities.

   Response: See response from Northeast Regional Panel.

2. Coordinate, with collaboration from the Regional Panels, and host an international workshop on the use of CRISPR and gene-drive technologies as a control tool for aquatic invasive species.

   Response: As we heard in Dr. Esvelt's presentation yesterday, CRISPR is an emerging technology and has potential as a control measure for invasive species. The ANSTF will work to explore possible options to pursue this workshop. ANSTF will coordinate efforts with NISC, as this topic may be appropriate for the NISC Innovation Summit (tentatively planned for December 2016).

Western Regional Panel

1. Funding: Provide increased financial support to the panel(s) and identify methods for panels to raise additional funds to support annual meetings, coordination and panel activities.

   Response: See response from Northeast Regional Panel.

2. Funding: Continue to provide funding to support highest priority implementation components of QZAP.

   Response: The ANSTF Co-chairs support this recommendation. The U.S. Fish and Wildlife Service continues to support the implementation of QZAP through the funding of the State/Interstate ANS Management Plans and through grant support for projects to control the spread of invasive mussels.

3. Next steps for the Federal Lands Committee: Explore options of joint rule-making for federal land management agencies that do not have clear authority (as noted by Federal Policy Options: Addressing the movement of AIS onto and off of federal lands and waters, Appendix II, pages 22-29).

   Response: This action will be discussed later on today. The Federal Lands Committee has developed a framework to implement the recommendations from the "Federal Policy Options: Addressing the Movement of Aquatic Invasive Species Onto and Off of Federal Lands and Waters." As a next step to completing the Framework, Federal ANSTF member agencies will be asked review the Framework and identify activities that that are able to undertake as well as the specific steps they will take to implement. Joint rule making is included as an activity in the framework; the response from the Federal members will determine the steps and timeline to move this action forward.

4. Increase communication and cooperation: The recent USCG final rule altering ballast water management reporting requirements resulted in significant challenges to the states to perform their ballast water management activities. USCG, EPA, and NBIC should increase communication and cooperation with west coast states on ballast water management reporting.

   Response: ANSTF will facilitate communication between USCG, EPA, and NBIC and the Western State

5. Biofouling Legal Framework Support: The model legislative provision for watercraft inspection and decontamination programs for dreissenid management has been effective. The WRP Coastal Committee requests financial support to develop a similar model regional legal framework for reducing introductions/transport of marine biofouling organisms on West Coast. This process will draw on expertise from National Sea Grant, including the National Sea Grant Law Center.

   Response: The model legislative framework for watercraft inspection document was prepared by the National Sea Grant Law Center and the Association of Fish and Wildlife Agencies, with financial support provided by the U.S. Fish & Wildlife Service, U.S. Department of Interior through the 100th Meridian Initiative and the National Oceanic and Atmospheric Administration, U.S. Department of Commerce under award number NA09OAR4170200. In-kind support was provided by the Western Regional Panel, the National Association of Attorneys General, Sea Grant Oregon, and Colorado Parks and Wildlife. The National Sea Grant Law Center's work built on a workshop convened in August 2012 by the U.S. Fish and Wildlife Service, the National Association of Attorneys General, Oregon Sea Grant, the National Sea Grant Law Center, and the Western Regional Panel on Aquatic Nuisance Species and hosted by the Arizona Game and Fish Department. The co-chairs suggest that the Western Regional Panel contact the National Sea Grant Law center to discuss the process, including regional

meetings, which would be necessary for creation of model legislation and create a plan and timeline.

6. Biofouling BMP Development Support: Using ANSTF voluntary recreational guidelines as template, WRP Coastal Committee requests financial/staff support to develop BMPs for biofouling vector management.

   Response: ANSTF co-chairs support this recommendation. The voluntary recreational guidelines were created though dedicated participants with an ad-hoc committee. The WRP is encouraged to establish a similar committee to develop this document.

7. Arctic Update: The Coastal Committee remains concerned about commercial activity in the Arctic and the risk of invasive species spread. The WRP requests an update from NOAA at the fall 2016 ANSTF meeting regarding activities to limit introductions to the Arctic (Arctic Council).

   Response: NOAA supports this recommendation and will identify a speaker for the November 2016 meeting.

Mississippi River Basin Panel

1. The MRBP requests the ANS Task Force lead efforts to coordinate, with the Regional Panels, an international workshop on CRISPR gene-drive technology in 2016 or early 2017.

   Response**:** See response from Gulf and South Atlantic Regional Panel

2. The MRBP recommends that the ANS Task Force invite the American Waterways Operators (AWO) to attend the next ANS Task Force meeting (Fall 2016) and engage in discussions about ANS prevention and control with ANS Task Force members at the National and regional levels.

   Response: The ANSTF co-chairs support this recommendation. The Executive Secretary will explore options for presentations at a future ANSTF meeting.

3. See accompanying letter requesting ANS Task Force member assistance with filling vacant and inactive MRBP membership positions.

   Excerpts from letter:

   - *Specifically, MRBP requests assistance in soliciting representation from the U.S. Coast Guard, U.S. Department of Agriculture – APHIS, U.S. Environmental Protection Agency, and an active replacement for the National Oceanic and Atmospheric Administration.*
   - *We request ANSTF federal agency members to provide an update on their agency's participation in all regional panels at the 2016 Fall ANSTF meeting.*
   - *We also request the assistance of all the ANSTF members in recruiting active participation from non-government and key stakeholder groups in the MRBP, and all regional panels as needed. Maintaining diverse representation and active participation in all regional panels should be an on-going and shared priority of the ANSTF and regional panels.*

   Response: This request has been shared with the Federal agencies. ANSTF will work with the Federal members to provide an update at the Fall 2016 meeting in regards to Federal participation. The ANSTF is also willing to assist in the recruitment of participants from non-government and key stakeholder groups; however, the MRRP should provide a list of groups / interests that absent from the panel. The ANSTF can then work with the Panel to identify and recruit potential representatives.

Mid-Atlantic Regional Panel

1. Recommendation to the Aquatic Nuisance Species Task Force to secure and restore previous levels of funding to the regional panels: The Mid-Atlantic Panel on Aquatic Invasive Species requests that the ANS Task Force restore at least $10,000 in additional funding to each of the regional panels, bringing them to the original $50,000 in annual support, and that the Task Force work to secure additional and dedicated sources of financial support for the regional panels.

   Response: See response from Northeast Regional Panel.

28. Decisional: Ex Officio Member Requests

ANSTF nominates, selects, and appoints its members as directed by the Nonindigenous Aquatic Nuisance Species Prevention and Control Act of 1990 (Act). The Act directs the co-chairs to invite entities to participate as ex officio members of the Task Force to represent non-Federal governmental interests and other entities relating to AIS. Two new ex officio members to the Task Force are under consideration.

National Marine Manufacturers Association (NMMA)

During the public comment period of the Fall, 2015 ANSTF meeting, Ms. Libby Yranski, from the the NMMA, announced that the NMMA would be submitting a formal request to join the ANSTF as an ex officio member. The official letter from the NMMA was received on December 8, 2015.

Libby Yranski was asked to provide more information regarding the National Marine Manufacturers Association. NMMA is the leading recreational marine industry trade association in North America, representing 1,400 boat, engine, and accessory manufacturers. One of NMMA's long-term goals is to reduce the threat and spread of ANS with regards to boat design, manufacturing and information distribution to both the industry and individual boat owners. NMMA currently works with state, federal, environmental and other industry groups to ensure the development of smart, practical regulations, as well as industry standards. NMMA believes that as a member of the Task Force there will be a partnership and continual dialogue as to how the two entities can better align goals and work together.

National Aquaculture Association (NAA)

The National Association of State Aquaculture Coordinators (NASAC) has served as an ex officio member of the ANSTF since its inception. Over the years, NASAC has provided expertise on the functionality of fish farming and has contributed to better understanding of how farmers manage their operations to reduce ANS risks. Unfortunately, NASAC is no longer able to fulfill its responsibilities as an ex officio member of the ANSTF and has recommended that the National Aquaculture Association (NAA) become the ex officio member to represent U.S. aquaculture interests.

Paul Zajicek was asked to provide more information about NAA. NAA is the largest non-profit trade association for U.S. aquaculture. They believe that membership with the ANSTF will provide an opportunity for the aquaculture community to partner with the federal and *ex officio* members to better manage AIS, share farmer experiences in culturing aquatic species, and improve the effectiveness of federal regulatory, policy, and programmatic efforts.

Decision: ANSTF unanimously approved ex officio membership of the National Marine Manufacturers Association and National Aquaculture Association. However, recognizing the size of the ANSTF continues to grow, the ANSTF will have conservation at the next meeting to discuss membership criteria and expectations.

29. Informational: Committee Updates

The Boating Industry Committee Report is co-chaired by Dennis Zabaglo (Tahoe Regional Planning Agency) and Joanne Grady (USFWS) and includes a diverse membership. They have compiled a charge document that details the scope and future work of the committee. That will also work closely with ABYC to address the comments to the TIR and work on the next revision.

The Economics Committee consists of 16 members, which participated in call since the last meeting to determine the type of study to be conducted by the group. The group proposed an approach that would focus on anecdotal information and data cited from industry and other sector studies and reports. The completed product would include quotes and testimonials from industry leaders based on their respective sector studies. These testimonials would focus on incurred costs associated with mitigation or lost services, including costs passed on to consumers and taxpayers. The finished product would include stories from industry leads and government associations as well as additional information from the media, peer-review literature, and other publications that focus on invasive species impacts and their costs to sectors. This approach avoids the complications of collecting extensive data or performing a comprehensive economic analysis. The objective of this approach is to produce a product that focuses on localized impacts, e.g., a particular habitat or industry. Over time, a collection of these stories can be developed that show the widespread, diverse manner in which invasive species impact the environment, economy, and human health. To pursue this project the committee is asking the ANSTF for input to develop a list of relevant sectors and their trade organizations or associations as well as what studies or industry publications should be included in the initial literature search. Although supportive of this approach, the ANSTF members would like to see a detailed outline of the report. In particular the Committee should carefully consider the targeted audience of the report, what question(s) they would like to address through this effort, and what specific data or case studies are needed. The Committee was also encouraged to seek input and assistance from economists within Federal agencies.

The Communication Education and Outreach Committee has been working on updating the SAH website to make it more audience friendly and provide more resources. The website is being designed to focus on people, projects, and products. The homepage prototype is nearly final and includes an enhanced navigation bar. Four panels on the homepage give a brief over view of the call to action, AIS of concern, building community capacity, and the proven success of the SAH! campaign. The next stage is to populate with content based on site architecture.

30. Decisional: Federal Policy Options

Stas Burgiel (National Invasive Species Council Secretariat) provided an update on the draft plan to implement the document titled “Federal Policy Options: Addressing the Movement of Aquatic Invasive Species Onto and Off of Federal Lands and Waters.” At the November 2015 meeting, the ANSTF requested that the Federal Lands Committee develop a proposed plan to implement the report. In response, a Framework, “Options for Next Steps,” was developed to serve as a Framework of activities to support implementation of the recommended Federal agency actions outlined in the Report. It focuses on movement of AIS onto and off federal lands by recreational watercraft in order to concentrate efforts on this priority pathway; future work of the committee will consider other potential pathways.

Decision: The ANSTF approves the "Options for Next Steps" table with respect to Options 1-5 and Federal members agreed to assist completion of the Framework. Options 6-8 will be re-evaluated based on additional input from the ANSTF member agencies.

31. Informational: Policy and Planning from the NISC Secretariat

Stas Burgiel (National Invasive Species Council Secretariat) provided an overview of the NISC Secretariat. Over the past several months, the NISC Secretariat has initiated a number of activities to re-envision itself as an institution. A central element of this effort is the revision of the NISC Management Plan, which will serve as a mechanism to re-engage NISC member agencies and their principals. This update provided an overview of the status and intent of the Management Plan revision, institutional priorities, and discussion of substantive items of interest to ANSTF, including the early detection and rapid response framework, NEPA guidance, the Arctic, and the North American Action Plan.

Q: Are all the future meeting for the Invasive Species Advisory Council to be held in DC? There are concerns about the challenges, particularly for western representatives, to keep traveling to Washington D.C.

A: Yes, for the near future all meeting will be help in the DC region. The purpose is to get Federal partners to become more regular participants with ISAC. However, there may be more regional meetings for specific activities.

Q: Are there specific funding proposals for the EDRR Framework?

A: The original charge was to look at funding mechanisms. A previous funding request was not appropriated. Once the NISC Management Plan is approved, this will be an element to discuss further with OMB and others.

31. Public Comment

Paul Zajicek (National Aquaculture Association) commented that the meeting was a great experience. He attended ANSTF years ago, and much has evolved since that time. Previously, the national body was not discussing control methods, there seems to have been a positive change in attitude and approach.

Doug Jensen (Minnesota Sea Grant) commented that today outreach is much more strategic, as a result of the ANSTF and its Regional Panels, it involves more social science.

32. Meeting Summary

A list of final action items and decision items was discussed (see pages 1-2 above). The next meeting of the ANS Task Force will be held November 8-10, 2016, at U.S. Fish and Wildlife headquarters in Falls Church, Virginia.

The Spring 2016 ANSTF Meeting was adjourned.