

AQUATIC NUISANCE SPECIES TASK FORCE: MINUTES OF THE 2015 NOVEMBER MEETING NOVEMBER 4 - 5, 2015, SILVER SPRING, MD

On November 4-5, 2015, the Aquatic Nuisance Species Task Force (ANSTF) held a two-day meeting at the National Oceanic and Atmospheric Administration's Headquarters in Silver Spring, Maryland. Action items are listed below, followed by a summary of the meeting.

Decisional Items

The ANSTF made the following decisions:

- ANSTF approved the formation of a Boating Industry Partnership ad-hoc Committee.

New Action Items

The ANSTF assigned the following action items:

- ANSTF to invite GAO Staff to attend the Spring ANSTF meeting to discuss results of the GAO report.
- ANSTF will move forward with creation of an ad-hoc Committee on Boating Industry Partnerships.
 - Tahoe Regional Panel Agency Member Dennis Zabaglo offered to chair the effort to develop the Committee charge.
 - Other volunteers include: Michele Tremblay, Meg Modley, and Joanne Grady and Craig Martin.
- 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.
- 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.
- 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.
- 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.
- National Invasive Species Council to provide more details on the proposed innovation summit so ANSTF Members can get involved.
- Bureau of Land Management to share its new Aquatic Invasive Species Policy with the ANSTF.
- Federal Lands Committee to develop a proposed plan for moving forward on the Policy Options paper.

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

Wednesday – November 4, 2015

1. Welcome and Introductions

Peg Brady, acting NOAA co-chair, welcomed attendees and stated that NOAA was pleased to be hosting this meeting. She then then reviewed the meeting agenda.

Craig Martin (speaking for David Hoskins), thanked NOAA for hosting the ANSTF meeting as well as the note-takers and Acting Executive Secretary, Donald MacLean. Martin then thanked participants for attending and stated that these meetings are vital to protect natural resources and an important component of the U.S. Fish and Wildlife Service’s (Service) Fish and Aquatic Conservation Program.

Self Introductions

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

<u>Name</u>	<u>Affiliation</u>
Benjamin Lenz	New York Power Authority
Bill Bolen	Environmental Protection Agency
Brian Bohnsack	U.S. Fish and Wildlife Service
Craig Martin	U.S. Fish and Wildlife Service
Dave Miko	U.S. Fish and Wildlife Service
David Britton	U.S. Fish and Wildlife Service
David Hoskins	U.S. Fish and Wildlife Service
David Hu	Bureau of Land Management
Dennis Reicke	Mississippi Dept. of Wildlife, Fisheries, and Parks
Dennis Zabaglo	Tahoe Regional Planning Agency
Don MacLean	U.S. Fish and Wildlife Service

Doug Jensen	Minnesota Sea Grant
Dr. Al Cofrancesco	U.S. Army Corps of Engineers
Dr. Whitman Miller	Smithsonian Environmental Research Center
Elizabeth Brown	Colorado Parks and Wildlife
Erika Jensen	Great Lakes Commission
Greg Conover	U.S. Fish and Wildlife Service
Harry Fuller	U.S. Fish and Wildlife Service
Hilary Smith	U.S. Department of the Interior
James Caudill	U.S. Fish and Wildlife Service
Jamie Reaser	National Invasive Species Council
Jeff Underwood	U.S. Fish and Wildlife Service
Joanne Grady	U.S. Fish and Wildlife Service
John Adey	American Boat & Yacht Council
John Darling	Environmental Protection Agency
John Morris	U.S. Coast Guard
John Navarro	Ohio Department of Natural Resources
John Sprague	Sport Fishing and Boating Partnership Council
John Wullschelger	National Park Service
Joshua Jones	Pet Joint Industry Advisory Council
Karen McDowell	San Francisco Estuary Partnership
Kim Bogenschutz	Iowa Department of Natural Resources
Kristen Summers	Florida Fish and Wildlife Conservation Commission
Leah Elwell	Invasive Species Action Network
Libby Yranski	National Marine Manufacturers Association
Linda Nelson	U.S. Army Corps of Engineers - ERDC
Mark Cornish	U.S. Army Corps of Engineers – Rock Island
Mark Lewandowski	Maryland Department of Natural Resources
Marshall Meyers	Meyers and Alterman
Matthew Johnston	NOVA Southeastern University
Meg Modely	Lake Champlain Basin Program
Melanie Sturm	American Sportfishing Association
Meridena Kauffman	U.S. Coast Guard
Michael Hoff	U.S. Fish and Wildlife Service
Mike Ielmini	U.S. Forest Service
Mrs. James Caudill	Public attendee
P. Gary Egrie	Animal Plant Health Inspection Service
Pam Fuller	U.S. Geologic Survey
Peg Brady	National Oceanic and Atmospheric Administration
Phil Andreozzi	National Invasive Species Council
Ray Fernald	Virginia Department of Game and Inland Fisheries
Richard Aiken	U.S. Fish and Wildlife Service

Ron Johnson	National Association of State Aquaculture Coordinators
Ronald Smith	U.S. Fish and Wildlife Service
Shailesh Sharma	National Oceanic and Atmospheric Administration
Stas Burgiel	National Invasive Species Council
Susan Jewell	U.S. Fish and Wildlife Service
Susan Pasko	National Oceanic and Atmospheric Administration
Susan Wells	U.S. Fish and Wildlife Service
Susan Shingledecker	Boat U.S. Foundation
Timothy Strakosh	U.S. Fish and Wildlife Service
Tom McMahon	Arizona Game and Fish Department

2. Adoption of Agenda/Approval of Minutes/Review of Previous Action Items

Following introductions, Peg Brady called for approval of the current meeting agenda. Motion to approve was made by Mike Ielmini, seconded by John Wullschleger. Brady then called for approval of the meeting minutes from the Spring 2014 ANSTF meeting in Fort Lauderdale, Florida. Motion to approve was made by John Wullschleger, seconded by Dennis Riecke.

Don MacLean reviewed and provided an update on the action items from the May 2015 ANSTF meeting:

- *ANSTF members and panels will review and provide comments on ANSTF charter. Comments should be submitted to Laura Norcutt by May 22, 2015.*
 - As a result of reluctance of solicitors to making changes to the Charter, only minor changes were made to the charter to clarify the role and operation of the ANSTF.
 - The Charter was signed by Secretary Jewell on August 26, 2015. The final charter was filed on September 10, 2015.
- *ANSTF members and panels will review ANSTF membership list and provide updated information. Updates should be submitted to Laura Norcutt by May 22, 2015.*
 - Information was compiled to update the ANSTF membership list.
- *ANSTF Reporting Matrix will be distributed to ANSTF members and Regional Panel for input on timeline and modifications. Schedule follow-up calls for early June 2015.*
 - Calls were held this summer. Update from the calls and discussion of next steps will be held later this morning (Presentation 4 – Development of an ANSTF Activity Reporting System).
- *Identify individuals (external to ANSTF) that could provide information on the economic impacts from AIS; compile information to assess current work, identify gaps, and potential future needs.*
 - Action complete, special session on economics will be held later this afternoon (Presentations #10 A - F)
- *Identify speakers for the Fall 2015 ANSTF meeting to present information on studies or models regarding AIS and economic assessments and provide a basis for discussion on next steps.*
 - Action complete, special session on economics will be held later this afternoon (Presentation #10 A - F)
- *Draft RTC will be distributed to ANSTF members and panels for final comment. (Two week turnaround for comment)*
 - Draft was distributed and all comments were compiled. The Draft Report has completed Agency leadership review and has been submitted to OMB for review.

- *Pam Fuller (USGS) will distribute a survey to determine priority aquatic plants to be (first) added into the USGS NAS database.*
 - Complete, over 70 responses were received and the USGS was able to develop a list of highest priority plants.
- *Acting ANSTF Exec Sec will work with Jeff Hill (UF) to distribute risk assessment documents to ANSTF members and panels.*
 - Complete, all applicable documents were distributed.
- *Regional Panel Chairs and Coordinators will continue conversations regarding specific changes that may be warranted for NISA reauthorization.*
 - Panels are leading this effort and discussions regarding reauthorization are underway.
- *USFWS will inquire if reallocating funds from the SMP to Region Panels is possible.*
 - Reallocation of funds will not be possible under the current budgetary structure.
- *ANSTF member agencies will review GLRP grass carp priorities and actions to see what assistance may be possible. GL Panel will identify potential opportunities for agency involvement.*
 - Complete. Erika Jensen provided handout of potential opportunities for agency involvement. The Great Lakes Panel is prepared to discuss these recommendations and how to move forward.
- *ANSTF will provide information to GCERC on the ANSTF structure and available assistance for review and development of proposals in relation to the RETORE Act.*
 - This effort was delayed as a result of staff changes; however, efforts to complete this action are underway.
- *Outreach Committee will assist ABYC (and other partners) in the development of AIS outreach materials for boat dealers and manufactures.*
 - Ongoing, Committee will continue conversations with ABYC. Information was provided on the Stop Aquatic Hitchhikers' website, with the intent to develop additional projects.
- *ANSTF will continue to support ABYC efforts to minimize the spread of AIS through initiatives such as the development of boat standards.*
 - Ongoing. USFWS has funded a proposal from ABYC to develop a Technical Information Report that would follow the procedures outlined by the American National Standards Institute. Update will be provided in Presentation #7 A and B – Boating Partnership Session.

3. ANSTF Update

Craig Martin (speaking for USFWS Co-chair David Hoskins) gave an update on the following ANSTF items:

- The ANSTF Executive Secretary position is in the process of being filled; interviews are ongoing and USFWS expects to make a selection by mid-November. Don MacLean will serve as the ACTING Executive Secretary until the position is filled.
- ANSTF Charter has been updated and approved. According to the Federal Advisory Committee Act, the ANSTF Charter must be renewed every two years. The renewed Charter was signed and dated on September 10, 2015 and copies were sent to the appropriate House and Senate Committees and the Library of Congress. At the Spring ANSTF meeting, Laura Norcutt reported that Service policy now allowed for *ex-officio* term limits to be extended from three to four years. However, when we sought to implement this change within our charter, the DOI solicitor's denied the change, therefore *ex-officio* members will continue with three-year terms.

- The Report to Congress, prepared in conjunction with the Task Force's federal and ex-officio members and its Regional Panels, focuses on key activities that demonstrate the progress of the ANS Task Force in the development and implementation of a comprehensive program to combat ANS within U.S. waters. Federal legislation requires the ANSTF to submit a Report to Congress (RTC) detailing progress in carrying out the provisions of the Act. At the Spring meeting we reported that the RTC was being finalized; however, OMB has requested to review the document before it can be transmitted to Congress.

Greg Conover: What period does this RTC cover?

Peg Brady/Susan Pasko: Last RTC submitted to the Congress was in 2004, so this current RTC covers 2004-2014.

Kim Bogenschutz: When will the next be submitted?

Susan Pasko: We will talk about it during this meeting.

Erika Jensen: How long does it take the Report proceed from OMB?

Craig Martin: We do not know as of now.

- Status of Member Vetting – The ANSTF Exec Sec continues to get ANSTF members vetted through the Department of the Interior and the White House Liaison's vetting process. 8 members were recently vetted, 9 are in the process of being re-vetted right now, and there are 3-4 more that need to be vetted very soon.
- The FY16 President's Budget included programmatic increases for the AIS Program:
 - + \$2.4 million for Asian carp
 - + 669,000 for Prevention, including risk assessment, rule promulgation, and partnerships
 - + \$42,000 for Reg. panels (\$7,000/panel) in addition to the \$240,000 received in FY15.The Senate report approved what was requested; however, the House did not approve the request. The House did approve a \$1 million increase for the State/Interstate ANS Management Plan Grant Program. We currently have a Continuing Resolution that is scheduled to end on Dec. 11th, which includes a 0.2% reduction. It is unclear whether there will be another CR or whether we will receive a final budget for FY16.
- The Fish and Wildlife Service continues to manage the State/Interstate ANS Management Plan Grant Program. To date there are 42 ANSTF-approved plans. FAC received \$1 million in 2015 for the State/Interstate ANS Management Plan Grant Program and each of the 40 ANSTF-approved plans that applied for funding received between \$23,800 - \$25,300. Before the Continuing Resolution was passed, the FY16 language from the House Report included an additional \$1,000,000 for the State/Interstate ANS Management Plan Grant Program. We are hopeful that Congress will act in the future to increase State ANS Plan funding. North Carolina is experiencing delays in getting its ANS Management Plans submitted through its Governor's offices. In addition, NY needs additional time to finalize its revised ANS Management Plan. We are hopeful both plans will be submitted to the Task Force for approval at future meetings. New plans are still under various stages of development include: Florida, Maryland, and West Virginia.

- The Government Accountability Office (GAO) is finalizing its Federal Government-wide review of AIS activities. The review was mandated by Congress under the Water Resources Reform and Development Act of 2014. GAO has assessed the federal costs of, and spending on, AIS and opportunities to strategically address AIS. While federal agencies have seen the draft recommendations and provided early feedback, we are unable to discuss the report or share our comments until GAO publishes its final report. Final results are expected from the GAO review within the next few weeks. This information will be shared with Task Force members to review.
 - Peg Brady mentioned that GAO was requested to attend the meeting however, they were not allowed to do so because the final report had not yet been released.

4. Fish Passage Needs and AIS Threats – Susan Wells, U.S. Fish and Wildlife Service

Susan Wells, U.S. Fish and Wildlife Service (Service), discussed issues associated with removing barriers and the potential risk to AIS introduction in relation to native populations where there is a lack of vital habitat. The Service's Fish Passage Program has existed since 1999 to address the fragmented rivers and waterways and aquatic species decline due to habitat loss in order to increase aquatic habitat available to allow for species resiliency. Fish passage projects restore unimpeded flows and fish movement by removing barriers or providing ways for aquatic species to bypass them. The program is unique as it is not a grant program, but rather a cooperative conservation program that works one on one with partners.

The Program is administered out of the eight Service regions and works with over 700 partners including Federal, State, local, and tribal agencies, as well as private partners and stakeholders. It also has a network of Service biologists that service local communities with their fish passage needs. Projects are selected based on Regional needs and priorities that fulfill the mission of the Fisheries Program. The Mission of the Program, as stated in policy, is *"to restore native fish and other aquatic species to self-sustaining levels by reconnecting habitat that barriers have fragmented, where such reconnection would not result in a net negative ecological effect such as providing increased habitat to aquatic nuisance species."*

In general, the Program does not remove barriers that would promote the spread of AIS, but must consider:

- if AIS are already above the barrier,
- if the habitat is suitable for AIS, and
- if there has been documented sightings of AIS in or around the barrier.

It has become common practice to install barriers to stop the movement of some AIS (e.g., Asian carp, sea lamprey). Recently the Service has been asked if barriers to fish passage are being installed faster than they are being removed in the west and if program funding is more effective if focused on prevention instead of restoration. Barriers may temporarily stop the spread of AIS which may protect genetic integrity of native species and reduce competition between native and invasive species. These and other reasons speak to the bigger goal of protecting the genetic diversity and species population of the nation's native aquatic species. The goals for installing barriers for invasive species and removing barriers under the Program are similar as both actions are done with intent to protect native species; however, these goals can be in conflict at times.

There are other environmental benefits to removing barriers including providing native species access to habitat, feeding, and spawning areas; restoring flows and natural temperature regimes; improving flood resiliency; and allowing sediment transport to rejuvenate downstream habitats such as sandbars, bank stabilizations, and barrier beaches. Risk assessments and models are needed to address these competing methods that have similar goals. Wells concluded by asking the ANSTF to consider how to determine the point where the benefit of one method outweighs the benefit of another.

Mike Hoff: Provide some models that may be useful (e.g., dam in Ohio and Wisconsin that completed risk assessments to consider AIS). Such studies have shown that dams may improve flow and improve spawning. Also the Service's risk assessment tool incorporates climate change and may also be of some use.

Response: Will examine the models suggested by Hoff. Many models to date have only considered stopping movement of AIS, yet such models should also consider impacts to native species.

Mike Hoff: Each dam is an individual situation and should be considered on an individual basis.

Michele Tremblay: This issue has come up in the Northeast Region and has prompted many questions about movement of AIS. There are no funds to conduct a risk assessment, but seems inevitable that movement of AIS (e.g., *Phragmites*) will spread if barrier is removed.

Response: Program does not fund projects, but works with others that do. Restoration is often needed, but funding is often unavailable.

Michele Tremblay: Could the Program come up with some kind of formula to provide guidance when controversies arise.

Response: This may be possible, will look into it.

John Darling: It is often assumed that barriers stop AIS, yet it may encourage spread in other ways.

Response: That may be true, but barriers are viewed as a common way to prevent AIS. Education is needed to emphasize other considerations.

John Darling: Restoring the habitat through barrier removal may prevent AIS.

Response: It is often a case by case basis. More studies are needed to provide guidance. Such studies must also consider climate change in order to consider what species will be able to compete with AIS.

Al Cofrancesco: The ACOE is involved with many barrier removals; does the program work with the Corp?

Response: Yes, the Program works with the Corp on individual projects as well as on the national scale.

Al Cofrancesco: Is the funding received by the Program only for barrier removal?

Response: The focus is on barrier removal, but funding may also be applied for science focused on the removal. The Program does not focus on impacts to species, instead relies on partners to provide this expertise.

Al Cofrancesco: Do you deal with contaminated sediments?

Response: Sometimes, the Program usually relies on partners to provide expertise and deal with any issues that arrive.

Erika Jensen: in the Great Lakes Region, the Great Lakes Fishery Commission and Great Lakes Commission developed a mapping tools that identifies barriers as well as location of AIS populations (i.e., lamprey)

Response: Would like to work with the Region to do a more in depth analysis of the issue.

5. Development of an ANSTF Tracking System – Susan Pasko, NOAA

Susan Pasko, provided an overview of the ANSTF Operational Plan, renamed the Activity Reporting Matrix in 2012, and its progress to date. The Matrix was intended as a means to capture details of ANSTF activities, including the time frame of activities, lead and supporting agencies or groups, and allocated funding. Although the Matrix was intended to be updated annually, several circumstances have delayed its progress and it has not been updated since 2012. This effort was recently resumed by the committee and calls were held in June and October 2015 to discuss mechanisms to refresh and gather data and ANSTF activities. A draft standardized form was developed as a potential alternative to the Matrix as an attempt to streamline and combine past reporting requirements, allowing ANSTF to track accomplishments as well as meet contractual obligations for State and Regional Panel funding. The information gathered through a reporting system could be used to report progress on the Strategic Plan, develop communication tools that emphasize ANSTF accomplishments and needs, develop a searchable database that can be viewed by ANSTF members and panels, and track State and Species Plan actions to provide a national perspective on ANS accomplishments, priorities, and gaps. Pasko presented the Matrix and Standardized Form formats and asked the ANSTF to consider which format is preferred, what additional information should be included, and the timeframe for submitting reports. Discussion of the tracking system will continue the following day.

Al Cofrancesco: What kind of information does the Congress want, since our report is going to the Congress?

Susan Pasko: In the latest RTC, we only highlighted our important work. This is the correct time to discuss the tracking tool which may form the base of the next Report To Congress (RTC).

Peg Brady: The initial RTC was very generic and in line with other reports presented to the Congress (e.g., Coral Reef RTC).

Mike Ielmini: There are long- and short-term projects currently undertaken, how will the “timeframe” issue be resolved in the new form?

Kim Bogenschutz: Accomplishment reporting for the State/Interstate ANS Management Plans is different from reporting to the ANSTF Strategic Plan so this issue should be addressed.

David Hoskins: The question is how do we keep track of the work for our own record and also form the basis of the next RTC. Now, the question arises whether to revitalize the older Matrix or go with newer fillable PDF form.

6. National Invasive Species Council: Opportunities for Collaboration – Jamie Reaser, National Invasive Species Council

The National Invasive Species Council provides national leadership and policy guidance on both terrestrial and aquatic invasive species and ensures that federal programs and management activities for invasive species are coordinated, effective, and efficient. Jamie Reaser, the new Executive Director of NISC, discussed emerging opportunities to increase collaboration between ANSTF and NISC. The Council as well the Invasive Species Advisory Committee (ISAC) are both in transition; for example, NISC is seeking to increase staff involvement of policy liaison and ISAC is restructuring its sub-committee to form task teams that are focused on specific topics. The Co-chair Principal Priorities include:

- 1) Implementation of the EDRR framework;
- 2) Analysis of impact of federal authorities relevant to E.O. 13112 to evaluate accomplishment, identify gaps, and establish priorities (current priorities include continuing work on the EDRR Framework, addressing invasive species impacts on infrastructure, and focus on animal pathogens);
- 3) National assessments on cross-cutting invasive species issues to link science with decision making (e.g., water security, fire management, climate change, infrastructure);
- 4) Communication strategy to strengthen NISC outreach efforts; and
- 5) Regional-scale coordination and cooperation on invasive species at the landscape level.

In addition, NISC is considering organizing an innovation summit before ISAC meetings intended to focus on new tools, cutting edge technology, and upcoming threats. The next steps to collaborate with ANSTF include meeting with the ANSTF Exec Sec and other leaders to discuss managerial-level coordination and communication, Cross reference NISC Management Plan with the ANSTF Strategic Plan to identify opportunities for technical collaboration, identify shared goals between NSC task teams and ANSTF committees, collaborate in species events including the Innovation Summit and National Invasive Species Awareness Week.

John Darling: Is it possible to include policy issues in Summit, with additional focus on connecting science to management

Response: Yes, possible if the topic relevant to focus of ISAC meeting

Al Cofrancesco: What is the role of ISAC?

Response: ISAC’s objective is to provide advice and communicate with stakeholder groups; yet this role is changing to become a true advisory committee by responding to requests from federal members.

Michelle Tremblay: What are your ideas regarding coordination between NISC and ANSTF?

Stanley Burgiel: Getting the staff engaged at various levels (e.g., state, federal and landscape level)

7. Status of Grass Carp in Western Lake Erie - John Navarro (Chair, Great Lakes Regional Panel/Ohio Department of Natural Resources) and Erika Jensen (Great Lakes Commission)

John Navaarro discussed how the Great Lakes States and the Province of Ontario are working together to assess recent captures of diploid grass carp in Western Lake Erie and steps to prevent establishment. Grass carp have been used as a biological control for aquatic plants since 1960's. Triploids were developed in 1980's to address concerns, yet regulations vary by state. Recently there has been evidence of natural reproduction of grass carp in Lake Erie that need to be addressed both regionally and nationally.

A Lake Erie Response Exercise was initiated, which was a collaborative multi-agency approach that used a unified Incident Command System. The exercise was intended to increase staff preparedness, increase information on grass carp, pilot the use of eDNA for targeted sampling of grass carp, and implement the Mutual Aid Agreement. During the exercise 219 electrofishing runs, 53 gill net lifts, and 3 seine hauls were performed. As a result of these efforts, 2 grass carp were collected and 2 were observed. Lessons learned from the exercise include that the Mutual Aid Agreement and other regional AIS response efforts can be successfully implemented; the Incident Command System was an effective framework for planning and implementation, but needs to be tailored to the framework for fisheries response; and grass carp eDNA results exhibit temporal variation which makes planning for traditional gear sampling difficult.

In Ohio and the Great Lakes, actions to control carp populations are being considered, but more information is needed to determine risks. To assist national efforts, MICRA produced a report with the following recommendations:

1. All states should prohibit diploids in trade.
2. Triploid states should develop minimum standards.
3. Consistent regulations that allow only certified triploid fish.
4. Increase random inspections and enforcement.
5. Improve state regulation for the live fish shipping industry.
6. Modify certification program to involve states and industry.
7. Develop defensible ploidy testing procedures for quality control.
8. Develop outreach materials for managers, aquaculturists, and the public.

Grass carp are a high priority for the Great Lakes Panel. The Great Lakes Panel's Grass Carp Priorities Document focuses on the movement of grass carp in trade, status of grass carp in the Great Lakes, grass carp policy and coordination, and grass carp information and education. This document was submitted to the ANSTF in May 2015. The ANSTF requested information on agencies that could become involved in helping advance specific priorities within the document. The Panel met in October 2015 to establish an ad-hoc committee dedicated to advancing priorities within the document and to identify agencies that could assist such efforts.

8a. Boating Partnership Session: Building Consensus in the West – Joanne Grady, U.S. Fish and Wildlife Service

Joanne Grady provided an overview of the Western Regional Panel's Building Consensus effort, a cross-jurisdictional effort to develop a multi-state vision for watercraft inspection and decontamination programs. The goal of this effort is to address the recreational boating pathway, gain reciprocal acceptance of low risk boat inspections or decontaminations, and prevent spread of mussels while keeping boaters boating. Building Consensus has a series of subcommittees that work towards this goal. The Legal Subcommittee is co-chaired by National Sea Grant Law Center & the Association of Fish and Wildlife Agencies Invasives Committee. The committee has recently updated its compilation of Western AIS laws and is working to include Canadian provinces. In addition, the committee is evaluating legal authorities and enforcement within each state and creating a team to draft a model implementation framework for the inspection and decontamination of boats. A meeting will be held February 2 - 3, 2016 in Denver, Colorado to discuss watercraft inspection and decontamination program definitions, protocols, and standards¹.

Other products in development include guidelines for conducting boat inspections and a train the trainer class. The group has also been working with American Boat and Yacht Council; during their recent summit numerous items were identified that were needed by boat manufacturers (e.g., information for owners' manuals). The next steps are to coordinate with the National Park Service to ensure boat inspections are conducted in a consistent manner, draft model regulations, continue outreach, develop ABYC / TIR Partnerships, and encourage an ANSTF ad-hoc committee that supports AIS efforts in the boat industry partnership.

8b. Boating Partnership Session: Technical Information Report: Boat Design in Consideration of AIS –John Adey, President, American Boat & Yacht Council

John Adey provided an update in efforts being taken to increase awareness and action regarding AIS within the boating industry. The American Boat and Yacht Council (ABYC) held a summit on boat design and construction in consideration of AIS in January 2015. This led to additional engagement with the boat manufacturer industry at the September International Boat Builders Exposition in Louisville, Kentucky and the annual meeting of the State Organization for Boating Access in Burlington, Vermont. At the Expo, the group staffed an informational booth and presented a boat builder session. Boat manufacturers have been open and actively sharing diagrams that will help the decontamination professionals pinpoint what they need to do and where they need to decontaminate.

As a part of the funding dedicated by FWS to the Quagga-Zebra Action Plan (QZAP), ABYC was recently awarded a grant to develop and publish a Technical Information Report (TIR) dealing with Boat Design and Construction in consideration of AIS. The goal is to develop standards to make Clean, Drain, Dry, easier so that boats are no longer a significant vector. The document will follow the ANSI process and will include the required balance of manufacturers, ANS interested parties and government members.

¹ The meeting was cancelled as a result of inclement weather conditions. It was rescheduled for April 19-20, 2016.

Before December, 2015 ABYC expects to have contacted the interested parties for inclusion in the process. Committee members and “those materially affected by the standard” will be included. The document will have to be validated, meaning tested by the boat manufacturers to ensure that compliance is actually possible. Once the document is complete, it will be made widely available and free of charge. Afterward, the document will be reviewed after 3 years to capture all issues and ensure widespread use of the standards. Following the second publication, the documents will default to a 5 year review cycle unless compelling evidence says we should continue on the 3 year.

8c. Boating Partnership Session: Request for a new Boating Industry Partnership ad-hoc Committee – Craig Martin, U.S. Fish and Wildlife Service

Craig Martin discussed ANSTF interaction with the boating industry and the recent recommendation from the Gulf and South Atlantic and Western Regional Panels to create an ad-hoc sub-committee specific to boating industry partnerships. Joanne Grady’s earlier presentation provided an analysis of the legislation and use boat inspections throughout the West, which are used to help protect the boating process and environment. As a result of this work, many protocols and guidelines are being developed and updated. ABYC then presented their potential to develop boat manufacturing standards that consider AIS. An ANSTF committee could assist boat industry partners in the development of the Technical Information Report, inform manufacturers of national AIS issues, and help coordinate a research agenda. Martin turned to ANSTF co-chairs to vote on the development of a new Boating Industry Partnership ad-hoc committee.

Doug Jensen (on phone): Stated that any standards or comminution tools should include the Stop Aquatic Hitchhikers and Clean Drain Dry messages.

Ray Fernald: The Mid-Atlantic has not implemented many cleaning or inspection stations; however, concern is rising. There is a request to take action and protect specific water bodies.

Craig Martin: An ad-hoc committee could serve as a clearing house for industry. ANSTF may be appropriate place for this information.

Dennis Zabaglo: Encouraged approval of an ad-hoc committee as there is a high level of concern in Lake Tahoe, an area that is important for economy and tourism.

Kim Bogenschutz: Asked if the ad-hoc committee can help fill spots on ABYC Steering committee or provide technical information to the TIR.

John Adey: The committee subset could be used to inform; it may be beneficial to have one individual from the committee on the steering committee to submit comments that are indicative of the ANSTF.

John Darling: Should we make sure we have volunteers to serve on committee before approval?

Craig Martin: There is the possibility of the opposite problem, as there may be too many volunteers, ANSTF may need to narrow down who can participate.

Doug Jensen (on phone): Requested to have one member from the Outreach committee on the ad-hoc committee.

Dennis Riecke. Asked if boat industry representatives will also serve on committee

Craig Martin: Will be up to committee to determine, depending on what type of expertise they need.

Motion made by Dennis Zabaglo to approve formation of a Boating Industry Partnership ad-hoc Committee; motion seconded by John Darling. ANSTF voted to approve development of the sub-committee. The vote passed unanimously. Dennis Zabaglo, Michele Tremblay, and Kim Bogenschutz volunteered to lead startup of the committee.

9a. Communications Session: Update on the Reformation of the Communications, Education, and Outreach Committee Update – Doug Jensen, Minnesota Sea Grant (*presented remotely*).

Doug Jensen provided an update of the Communications, Education, and Outreach Committee. The CEO Committee had a teleconference on Aug 25, 2015 concerning membership selection. The committee has proposed updating the Stop Aquatic Hitchhiker's Website to make it more user-friendly. A contractor has been hired who will work on updating the website. The website should be redesigned to provide key resources for task force, panels, their members, and their partners, while focusing on the "3 P's". The three 'P's are people (include people from federal, state, and academia), projects (high-level campaigns and their success stories) and products (there are many tools and objects produced out there). The current website includes features for partners, yet it needs updating. For project updates, a new proposal has been made featuring a title, description, and contact person. A whole host of SAH! products and tools are used throughout the nation however; none of those products are currently featured on the website.

In addition to the website, the committee plans to evaluate the National Implementation of ANSTF-approved Recreation Guidelines, as well as work on in-reach and outreach messages and products. An ad-hoc committee was proposed for implementation of the recreation guidelines and inreach and outreach. Inreach is more directed towards coordination and communication with ANS workers and policy makers whereas outreach component is more directed towards public communication.

9b. Communications Session: Stop Aquatic Hitchhikers Update – Jeff Underwood, Deputy Assistant Director, Fisheries and Aquatic Conservation, and Acting Chief, Branch of Communications and Partnerships

Jeff Underwood provided an update on FWS activities in coordination with partners for the Stop Aquatic Hitchhikers and Habitattitude public awareness campaigns. Since unveiling Stop Aquatic Hitchhikers! in 2002, the Internet has become more integrated into our everyday lifestyles and mobile technologies have become prevalent as ways to access the web. To account for these changes, the campaign websites need updating. Multi-initiative standards will be developed to boost various regional initiatives while building upon the brand's history of empowering aquatic recreation users to become part of the solution by adopting sustainable recreation behaviors. FWS also plans to strongly enforce brand guidelines as loose guidelines provided partners with the latitude to alter the brand to fit their needs, which resulted in a fragmented brand. State fish and

wildlife agency partners will be engaged to help them sort out the potential confusion of competing awareness initiatives.

By conducting a statewide brand review and providing state partners with an inclusive set of tools to embrace these smaller initiatives while still getting the benefits of participating in the national SAH campaign, we can help to bring clarity to the local and statewide marketplaces and promote synergistic awareness and actions designed to prevent the spread and introduction of aquatic invasive species. SAH's target audiences are being enlisted to educate others about adopting invasive species prevention behaviors. The campaign provides partners with various tools; however, connecting the target audiences with each other will help to reinforce individual behavior adoption. Creating a network of informed conservationists will help in defining a community's expectations for achieving large-scale behavior adoption.

Another important component is to create the capacity to facilitate behavior adoption. By working through the Service, the States can access WSFR funding to establish readily available infrastructure (boat wash stations, power-washers), and work with communities to make prevention adoption as easy as possible. FWS is working with the boating industry as well expanding SAH to be a critical part of many more military installations.

Habitattitude was created in 2004 and is guided by the PIJAC and Department of Interior MOU signed in 2009 to "Create public awareness about the threat of invasive species and to promote responsible pet ownership practices to prevent the accidental or intentional release of invasive species by pet owners." A Steering Committee formed an ad-hoc workgroup to update the outdated Habitattitude website.

Following initial development of the new website, an Advisory Committee and Implementation Committee will be formed to "*advise the Steering Committee*" and "*implement strategies designed to achieve greater engagement by local partners who are best positioned to educate the pet-owning public on environmentally responsible decision when choosing and owning pets.*" The Habitattitude campaign will broaden to include terrestrial species and include both a front end (buy responsibly) and back end messaging (don't release your pet). Ecological risk screens will be developed (led by our Great Lakes Region) to inform environmentally responsible business practices and decisions by the industry and hobbyist. Habitattitude can be an important risk management consideration for FWS when evaluating species as injurious wildlife under the Lacey Act: The more risk that can be managed by industry in partnership with others within the Organism in Trade pathway, the less need that may be required through Federal regulatory action.

Gary Egrie: Funds were given to address VHS, APHIS developed messaging to prevent spread by working with SAH. Since this time SAH has become fragmented – what happened?

Response: Individual projects strayed from the original intent and guidelines. Now working with a contractor to revise standards for better control. There is a need to leverage local programs, but keep the message consistent across the nation.

Craig Martin: There were some regional campaigns, which led to fragmentation of SAH.

Doug Jensen (on phone): More support is needed for localized initiatives; these efforts should be brought under one umbrella.

Dennis Riecke: Often websites are stale and measure should be taken to keep them updated. The Communications committee also needs to consider social media.

Karen McDowell: The SAH! News page needs to be deleted since it is not being updated. It makes the website look outdated when other info is still valid.

Mike Ielmini: US Forest Service is a customer and supporter of these campaigns. Happy to help develop a national campaign that is all taxa and that local efforts can fall under.

Jeff Underwood: We are also considering incorporating social media in the websites.

10. Which is it for AIS: “Acceptable Risk” is an oxymoron, OR “Unacceptable Risk” is a tautology? FWS and partner risk assessment and risk management response – Mike Hoff, U.S. Fish and Wildlife Service

Mike Hoff provided an update on his risk assessment work including the Ecological Risk Screening, Bayesian Network, and Risk Assessment Mapping Program (RAMP). The terms risk assessment, risk management, and risk communication, risk analysis, and screening tool were defined. Governments and industries can use risk assessment to determine whether risk, of a nonnative species, impact on native species and ecosystems is uncertain, low, or high. For a species, best predictors of invasiveness are history of invasiveness and climate/habitat match, the FWS screening process uses both. If species establishment and impact risk is found to be “low” by the risk assessment, then the species is acceptable for importation and/or use in trade. If species impact risk is found to be “high”, then a decision is needed about either, or both, voluntarily preventing/halting trade or regulating trade. For uncertain results, a different approach for risk assessment is needed. Advanced risk assessment processes have been developed to characterize risk for potential use in decision support; for example, Bayesian models use multiple variables to project the probability of invasiveness.

Outputs will be used for Service decision making and Ecological Risk Screening Summaries (ERSS) will be available on the internet so state and industry partners can also use information to advance regulatory approaches and non-regulatory approaches intended to help promote sustainable commerce. ERSSs were used for FWS’ proposed rule (Lacey Act) to list 11 species as Injurious (Lacey Act), the final rule is expected to be completed in 2016. Michigan and Ohio law require assessment of risk of various lists of species including nonnative species in trade. FWS signed a MOU with Pet Industry Joint Advisory Council and the Association of Fish and Wildlife Agencies agreeing to provide risk assessment for species not in trade. The President’s FY16 Budget includes AIS prevention funding to provide additional for risk assessments.

11. Special Session on Economics: Moderator – Erika Jensen, Great Lakes Commission

Erika Jensen, Great Lakes Panel, stated that there has been interest in AIS economics at both the ANSTF and Regional Panel level. Economic costs and benefits of AIS prevention and control continually comes up, most often to justify investments in AIS programs and projects. Similar to the ANSTF, the Great Lakes Panel identified this issue as a priority and moved forward with a planning session at its Fall meeting to get more information on how an economic assessment

would be done and what information is needed. The objectives for this session are to share information about what and how similar economic assessments have been done in the hopes of informing what type of assessment work ANSTF would like to advance or support.

11a. Special Session on Economics: Forest Invasive Species and Economics – Stas Burgiel, National Invasive Species Council

Stas Burgiel provided an overview of some recent work on the economics of forest pests, which builds on a series of analyses by the National Center for Ecological Analysis. Definitions were provided for economics and environmental & natural resource economics. The Nature Conservancy engaged the National Center for Ecological Analysis and Synthesis to initialize a study on the economics of forest pests, later engaging the Cary Institute of Ecosystem Studies. The study found 450+ non-native insects and 16 pathogens introduced (an average of 25 insects/year); 14% of insects and 100% of pathogens have caused significant damage. The study looked at different feeding guilds (sap feeders, foliage feeders, borers, pathogens) and identified a pathway for each (e.g., live plant imports, wood packing). The study found that plant imports had increased 33% per decade over past 43 years. Further in 2009, approximately 72% of infested plant shipments passed through US ports undetected. The study chose to evaluate the economic impacts of three high impact “poster pests” (hemlock woolly adelgid, gypsy moth, and emerald ash borer), recognizing that results for these species may receive more attention. The study analyzed several categories of costs, science and policy linkages, and policy options to target identified pathways.

Burgiel then described international assessments including Economics of Ecosystems & Biodiversity (TEEB) (www.teebweb.org), a process to examine the economic benefits of biodiversity and the costs of biodiversity loss and ecosystem degradation. This multi-use process resulted in a series of publications with details of how the assessment was conducted as well as how it translated to policy and outreach. In addition, the Stern Review on Climate Change (in 2006) was commissioned by the British Government with ~700 pages and 27 chapters on climate change issues. The review found the benefits of strong, early action on climate change outweigh the costs and the “business as usual” emissions path may result in serious, irreversible impacts. Further, the impacts of climate change are not evenly distributed; the poorest countries and people will suffer earliest and most while some developed countries may initially have small positive effects. The study indicated that transition to a low-carbon economy will bring challenges for competitiveness, but also opportunities for growth. Establishing a carbon price, through tax, trading, or regulation, is an essential foundation for climate change policy.

Burgiel concluded by recommending a balance across scope, objective and cost for economic studies along with the utility of a core group and consistent categories and poster species, In addition all studies should work to extract technical information, yet put it into a form that can be used by decision makers.

Craig Martin: Any there any funds for ISAC to take on this issue?

Response: Socioeconomics was specifically addressed in ISAC priorities, more details to come

Al Cofrancesco: Gypsy moth was used a poster pest; did the study consider how management has helped control this species?

Response: Not in this assessment, but this has been addressed by other studies.

Mike Ielmini: Many times society makes the choice to shift behavior rather than react to an invasive species. How big of a cost is needed to persuade leadership to change policy on invaders?

Response: Critical question, a threshold has not yet been identified.

11b. Special Session on Economics: The National Survey of Fishing, Hunting, and Wildlife-Associated Recreation 1985-2016: Methods, Costs, and Insights – Richard Aiken, U.S. Fish and Wildlife Service

Richard Aiken (for Harry Fuller) provided an overview of the National Survey of Fishing, Hunting, and Wildlife and provided insights into the current survey climate. The National Survey of Fishing, Hunting, and Wildlife, conducted by the Bureau of Census and sponsored by the U.S. Fish and Wildlife, has been conducted every five years since 1955. The survey samples the adult U.S. population to get their fishing, hunting, and wildlife-watching activity for a calendar year, it focuses on getting the number of participants, their days afield, and their expenditures. Households are increasingly difficult to successfully survey, usual telephone-centered interviewing has become problematic; possible improvements are mixed mode interviewing and incentives.

After many years of relying on Census, the Service is now exploring private data collection. For the 2016 survey, the Census is hiring the Rockville Institute to conduct the survey and adding mail as a mean to collect data. A properly-done survey costs more than you might think, after you factor in such things as quality control, data processing, and questionnaire development. Costs to conduct the survey have been between \$14 and \$27 million. The survey has found that wildlife watching, hunting, and fishing numbers and the money spent on these activities has remained constant overtime; however population has grown since the start of the survey, thus additional funds are needed to increase sample size. Survey format has also changed through time. Earlier it used to be paper and pencil based which was overtaken by telephone surveys.

Erika Jensen: The Great Lakes Region uses results of this survey to justify funds spent to protect natural resources, evidence that they are economically important.

11c. Special Session on Economics: The Economics of Invading Lionfish – Matthew Johnston, Ph.D. Nova Southeastern University, Halmos College of Natural Sciences and Oceanography

Matthew Johnston discussed efforts to measure ecosystem damages of lionfish. Lionfish are highly predatory, produce 30,000 eggs/four days, and exhibit early maturity. They are also highly depth, salinity, and temperature tolerant and spread by ocean currents. Impacts measured in field surveys include an 80% reduction in recruitment of all lionfish prey fishes and 65% reduction in biomass of all fish. Lionfish feed primarily at low trophic levels, with some predation on commercially important species. This predatory behavior has direct and cascading impacts, yet long term consequences are unknown.

Habitat Equivalency Analysis has been used to translate the environmental harm of lionfish to economic impact. Habitat Equivalency Analysis has been used in the past to address the U.S.

government “no net loss” policy for wetland in which the damaged area was offset by a replacement habitat of equal ecological and economic value. To apply this technique to lionfish, information must be known including lionfish damages (e.g., lower recruitment of prey species) and recovery (gains as a result of removal efforts). Finally, to translate results to fiscal terms, the cost and rate of return for lionfish control must be known as well as the monetary contribution of a resource (the value of tourism, fisheries, ecosystem function).

Results show a loss of - \$549.4k (recruitment function) and \$91.0k (biodiversity function) per km² without lionfish controls. One year recovery showed a minimum loss of \$155.3k (recruitment function) and \$30.7k (biomass function) per km². One year recovery value of lionfish controls was estimated at \$394.3k and \$60.3k per km². The study contributes a unit-less evaluation, considers time-value of money and is applicable to marine or terrestrial ecosystems. Research need going forward include evaluation of fiscal contributions of resources impacted, quantification of rates of recovery when lionfish are removed, and calculating the efficacy and costs of lionfish controls.

11d. Special Session on Economics: Summary of Recent UK Study and Thoughts on What it Would Take to Complete a Study on AIS Impacts – James Caudill, U.S. Fish and Wildlife Service

James Caudill discussed a study on the economic costs of invasive species in Great Britain and shared his thoughts on what it would take to do a similar study of the United States. The study was performed by the Centre for Agriculture and Biosciences International and cost approximately \$132,000 (2014 U.S. Dollars) to complete. It used multiple approaches including a literature search of the economic costs of 523 species, a survey Questionnaire sent to 730 individuals and organizations, phone or personal contact with over 250 scientific experts and policy makers, and 650 references in scientific and grey literature. The study reported that the 47 invasive species considered in the study cost the country approximately \$ 3.0 billion in total direct annual costs in the United Kingdom (2014 U.S. dollars). Agriculture and horticulture were the biggest sectors impacted, followed by forestry, aquaculture, tourism and recreation, construction and infrastructure, transport, utilities, biodiversity, and human health. Some issues to consider include if a U.S. study is conducted is the survey scope (national, Regional, State, or local), who is going to conduct the study (consulting firm, co-op extension research service, government agency, FWS division of economics), and what type of survey should be conducted (focused on loss/impact to a resource or the cost to control a species).

Peg Brady: How did the United Kingdom use the results from this study?

Response: The results provided traction to produce action. The study also shows what species cause the most damage, which may help develop priority lists.

Leah Elwell: Did the study consider pathogens?

Response: No, although they did look at impacts to human health.

Michelle Tremblay: Did they use estimates of willingness to pay?

Response: They talked about it but did not use in the study.

11e. Special Session on Economics: Summary of Economics Session from the recent Great Lakes Regional Panel Meeting – Erika Jensen, Great Lakes Commission

Erika Jensen provided a summary of the economics discussion at the recent Great Lakes Regional Panel meeting. Presentation topics at the meeting included Natural Resource and Environmental Economics (Frank Lupi, Michigan State University) and Regional Economic Assessment of Aquatic Plant Pests in the Great Lakes Basin (Jenny Apriesnig, Colorado State University). Following the presentations, breakout sessions were conducted to consider the benefits of economic studies and the role of the Panel in conducting such studies. The groups also reviewed types of impacts and economic analysis and considered what type of data is needed to conduct assessment. Highlights from the discussions included acknowledging this issue is large and complex. Information that needs to be identified includes justifying agency programs and federal investment, educating the public to facilitate behavior change, informing agency planning, and understanding who is doing what. It was determined that the Great Lakes Panel has a role to play in setting parameters and guiding how ANS economic studies are approached. In doing so, there are opportunities to guide some targeted work to get specific information to address a specific need. As an outcome, the Panel is considering a regional economic assessment of invasive aquatic plants. Next steps are to draft a proposal of the study and convene the Panel members to make a decision.

John Darling: There was a previous study in the Great Lakes by the Nature Conservancy (all aquatic), did the panel consider it or was it deemed inadequate?

Response: This Anderson Economic Group Study was an aggregation of other studies; it used older data and had many gaps.

John Darling: This seems to always be the response to economic studies. We should question what are the best kinds of studies and how to use them. Research that looks into the impacts of these studies (policy or management) can be used to inform future development of economic studies.

Erika Jensen: The Great Lakes Panel tried to identify what these studies would be used for as this would dictate the types of studies to be performed.

Mike Ielmini: A strong message is needed to ensure that we understand what we need before proceeding with additional studies.

Al Cofrancesco: Some studies are looking at the impact of control and management as there is a need is to help justify control and management programs. Administrators are asking what benefits a program is providing.

Meg Modley: Asked what the ANSTF's specific needs are from an economic study; a list of needs would be beneficial in order to help the ANSTF think more broadly.

Michele Tremblay: Often other priorities (e.g., ESA) are funded over invasive species. Economics studies may provide leverage to compete.

David Hoskins: Consider what is the purpose and who is the audience of an economic study. The ANSTF may consider a study that is national in scope and that could generate action or create a stronger focus on prevention vs. control.

John Wullschleger: AIS efforts are often understaffed and do not have sufficient resources. Studies are needed to provide leverage to address needs.

John Darling: Numbers may result in local efforts; but the message is different at the national level. There is no clear path of action.

Peg Brady: Suggest the ANSTF table the topic for now and resume discussion tomorrow to determine next steps of future action items.

Public Comment

Libby Yranski stated that the National marine Manufacturers Association will be submitting formal request to become an *ex-officio* member of the ANSTF.

Mrs. James Caudill requested clarification on the threats of invasive species. She also stated that she would like to start an economic analysis on the benefits of invasive species. She also questioned the value of removal of invasive species and questioned why such species cannot be used for consumption or other harvest programs.

Thursday – November 5, 2015

Welcome Back / Revisit Day 1 Topics

The co-chairs welcomed back the ANSTF members and audience back for day two of the ANSTF meeting and gave a quick summary of the previous day's events.

Continued discussion from the Previous Day - ANSTF Accomplishment Tracking

The ANSTF members and Regional Panels discussed moving forward with the development of a tracking system of ANSTF accomplishments. The previously used Activity Reporting Matrix and draft Activity Reporting Form were reviewed. Several Regional Panel representatives stated a desire for a standardized form that would cover all their performance and fiscal reporting requirements. It was also stated that the State ANS Management Plans would be more difficult to link to the ANSTF Strategic Plan because of the individual nature of each plan. It was determined that the ANSTF would like to move to a more refined system than the Matrix, but this will take some effort. The option to re-distribute the Matrix and continue using this format until a new form is developed was considered. It was stated that once the fiscal information was inserted into the draft Reporting Form, it became too complicated. There was strong consensus not to re-distribute the Matrix, as efforts would be better spent refining the Reporting Form. It was suggested to revise the form to only include the performance data, previously captured by the Matrix. The fiscal information could still be reported using the grant reporting forms. The ANSTF members and Regional Panels agreed that the best approach was to revise the draft

reporting form to cover only performance data. Fiscal reporting will remain unchanged for now and can be phased into the Reporting Form in the future.

12. Regional Panel Updates

Great Lakes Regional Panel (GLP)

The GLP held its fall meeting October 5-6, 2015 in Ann Arbor, Michigan. The meeting featured break-out sessions focused on three priority topics: grass carp, starry stonewort control, and economic impacts of AIS. The second day of the meeting included informational updates on U.S. and Canadian AIS related regulations; aquatic plant control efforts (starry stonewort and hydrilla); recent grass carp collections; live organisms in trade related efforts; and the Chicago area waterway system (CAWS) interbasin connection. A meeting agenda and presentations are available on the GLP website; a meeting summary and action items will be posted on the website when available. A significant outcome of this meeting is the decision to form a GLP Grass Carp Ad-hoc Committee.

Ongoing Work includes -

The Information/Education Committee continues to provide opportunities for members to share information about new outreach projects and share materials as appropriate. This helps expand the impact of individual projects and promotes consistent messaging throughout the region. The committee is working on a review and update of the *Great Lakes Aquatic Invasions* booklet and the I/E Priorities Document. The committee is also continuing to review the Outreach Inventory developed last year (available on the GLP website), and is working to make it a useable living document. The committee is also compiling survey questions used throughout the region with the intention of developing a standard suite of questions for future use.

The Policy Coordination Committee continues to serve as forum for exchanging information on regional policy activities, including efforts to address the Chicago area waterway system pathway for interbasin AIS transfer, as well as regional consistency in AIS related regulations. The committee is also considering needs associated with potential reauthorization of the National Invasive Species Act.

The Research Coordination Committee continues 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.

Grass Carp: Preventing the introduction and spread of Grass Carp in the Great Lakes region continues to be a high priority for the GLP. In April, the GLP approved its *Grass Carp Priorities for the Great Lakes* document, which was subsequently submitted to the ANSTF for its May 2015 meeting. At that time, the ANSTF requested additional information from the GLP on agencies that might be involved in helping to advance specific priorities. At the recent October 2015 GLP meeting, GLP members met to discuss the status of Grass Carp in the basin, as well as review the status of GLP priorities and identify agencies that could take (or are taking) action on specific priorities. The GLP Chair and Coordinator will be reporting to the ANSTF at its November 2015 meeting on outcomes of these discussions. In addition, the GLP decided to establish and an ad-hoc committee to continue to work on advancing progress on Grass Carp priorities for the Great Lakes region.

Western Regional Panel

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

Coastal Committee efforts –

Marine Invasive Species Regional Management Plan: 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 held two face-to-face work sessions in April 2015 and September 2015. The committee has compiled regulations and rules on authorities to manage marine invasive biofouling from Alaska, Washington, Oregon, California and Hawaii. Next steps include an in-person work session to create a detailed plan outline in December 2015.

European Green Crab: Alaska, British Columbia and Washington continue cross border work to address the spread of invasive European green crab along the Pacific coast. A key project for 2015 is a Washington State volunteer early detection and monitoring project. In spring 2015, detection and monitoring protocol was developed and volunteer training began. The project is due for completion in mid-2016 and will collaborate with state, federal, international, local and tribal governments, and industry stakeholders.

Commercial Port Monitoring: The Coastal Committee is participating in a water sampling effort of commercial ports under a global project led by Governors State University. The project goal is to predict spread of aquatic invasive species via ballast water and biofouling using modeling, shipping data and biological samples. Sampling has not yet begun and participants are awaiting protocols from Governors State University.

Inland Committee efforts –

Building Consensus in the West: Following the ABYC Summit in January, a variety of opportunities and partnerships have developed. Representatives from the AIS management community hosted and presented at the 2015 International Boatbuilders Exposition in September.

Model Regulations: The Building Consensus Legal team is currently addressing the model regulations. Throughout the summer, the National Sea Grant Law Center held regional phone sessions to characterize the regulation needs. In September 2015, a work session was held to further explore regulations. Additional work sessions are being planned.

Watercraft Inspection and Decontamination: 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 USA.

Watercraft Inspection and Decontamination Training Standards: A subcommittee of Building Consensus developed improved regional training standards and documents for inspectors and decontaminators. The committee also adopted Colorado's trainer's program and developed a

standard trainer's course for those teaching inspectors and decontaminators. Lastly, the group is currently working to update the Uniform Minimum Standards and Protocols and continue to update a new website for participants.

Workshop: Organization of a workshop in February 2016 to address action items from the Phoenix 2012 and Denver 2013/2014 Building Consensus workshops.

Gulf and South Atlantic Regional Panel

The Panel held its fall meeting on October 6-7th in Myrtle Beach, South Carolina.

Jackson Gross provided an overview of the numerous ANS research and management efforts that Smith-Root Inc. is currently undertaking. These efforts include work on lake trout, Asian carp, round goby, sea lamprey, dreissenid mussels, American bullfrog, African frogs, rusty crayfish, New Zealand mud snail, lionfish, etc. using a number of different technologies.

Katie Walters gave an overview of the University of Florida's Invasive Plant Education Initiative. The goal of this program is to provide Florida's students with an awareness and understanding of the economic and ecological problems caused by invasive plants on local freshwater and upland ecosystems, with the hope of bringing about acceptance of invasive plant management methods, and to foster environmental stewardship in Florida's youth. To achieve this goal, the program has developed lesson plans, worksheets, activity booklets, and educational games that are provided to educators for use in their classrooms. They also host an annual 5-day workshop called Plant Camp to provide educators with field and laboratory experiences.

Jianghong (John) Min provided a presentation on the potential use of CRISPR-Cas9 (clustered regularly interspaced short palindromic repeats) in the control and management of ANS. CRISPR-Cas9 is a bacteria-derived endonuclease system that can cut a target DNA sequence wherever it matches the introduced engineered 20-bp guide RNA. When this is paired with gene-drive technology, the CRISPR-Cas9-generated mutation can copy itself throughout the target genome sequence. This provides the ability to disperse engineered genes throughout the target population much more quickly than simple genetic inheritance, and has the potential to eliminate a target species across its entire range. There is currently work underway to use this technology to combat the malaria epidemic, wherein, researchers are genetically modifying the primary host (Anopheles mosquitos) to halt the development of malaria. If the wild-type mosquitos can be replaced with the genetically modified ones, theoretically, malaria could be eradicated.

Don Schmitz updated the Panel on the activities of the North American Invasive Species Network (NAISN). The overall goal of NAISN is to link existing invasive species regional efforts into an overall coordinated network in order to advance science-based understanding and enhance management on invasive species.

Peter Jenkins provided the group with an overview of the Lacey Act lawsuit concerning the large constrictor snakes that was brought by the United States Association of Reptile Keepers Inc., and discussed the possible ramifications that it may have on the USFWS's ability to regulate injurious species in the 49 continental states. He also updated the Panel on the threat to native salamanders posed by the possible introduction of Bsal (chytrid fungus affecting salamanders) and the steps that should be taken to mitigate that threat. Lastly, he discussed the results of his FOIA request for

USFWS risk assessments, stating that there were 714 risk assessments written up, 179 finalized, but only 18 posted on the FWS webpage.

Stas Burgiel provided an update on National Invasive Species Council activities including NISAW, the National Early Detection and Rapid Response Framework, and the Options Paper for the Movement of Aquatic Invasive Species onto and off of Federal Lands.

Anna Toline provided a presentation on a non-native seagrass (*Halophila stipulacea*) that is invading Virgin Islands National Park. *H. stipulacea* has a rapid growth rate of >6cm/day in lateral growth and can increase its biomass by 50% in seven days. It invades native seagrass beds, bare sand, and can even grow on reef habitat. Preliminary results show that it supports lower species abundance and diversity than native seagrass, and native fish and invertebrates preferentially grazed on native seagrasses.

Chef Philippe Parola gave a presentation on his proposed invasive species control program “Can't Beat 'Em, Eat 'Em” in which he proposed using Asian carp to produce a value-added fish product that can be sold for \$6.00/lb. in U.S. wholesale markets. The startup cost for his eco-friendly food processing plant and satellite raw fish processing plants would be \$10 million and would be able to harvest carp from the entire Mississippi River Basin. The Chef also prepared some of his Silverfin™ croquettes for the Panel to sample.

The Panel had several presentations highlighting the research/projects that were funded by the USFWS Region 4 ANS Small Grants Program. In 2014, the GSARP partnered with the regional office to review and rank all of the proposals that were submitted under this funding opportunity, and this partnership continued in 2015. In order to disseminate the findings from this funded work back to the entire region, the GSARP will invite some of the principal investigators to present at all of its subsequent meetings.

- Aaron Watson provided an overview of South Carolina DNR's work with a qPCR tool for detection of the invasive parasite of American eels that they have developed and will be running field tests with this year.
- Lad Akins updated the group on the results of Reef Environmental Education Foundation's (REEF) lionfish collecting and handling workshops in the southeast. In 2015, they were able to host 14 workshops that had a total attendance of 377 people.
- Susan Wilde provided an update on her ongoing work with avian vacuolar myelinopathy (AVM) where she is investigating the risk to other species groups (amphibians) and developing an integrated, adaptive Hydrilla management plan to reduce risk of AVM in J. Strom Thurmond Reservoir.
- Matthew Waters gave a presentation on the impacts and interactions of dominant invasive species (*Hydrilla verticillata*, *Corbicula fluminea*, *Pomacea maculate*, and *P. paludosa*) in Lake Seminole, Georgia.

Invasive Species Traveling Trunk: Since the trunks were made available in July of 2012, they have been utilized for a total of 720 days by over 30 different organizations that have presented the enclosed material to thousands of people across the U.S. The Education and Outreach Work Group

of the GSARP has plans to expand the content of the trunks, adding new species and educational tools, including lesson plans and educational games.

Pam Fuller provided an overview of new ANS introductions. In the past six months, there have been 84 new introductions, including 3 new introductions to the U.S., 8 new introductions to a state, 52 new introductions to a drainage, and 21 new introductions to a county.

The Panel elected Kristen Penney Sommers, from the Florida Fish and Wildlife Conservation Committee as Chairman and Lisa Gonzalez, from the Galveston Bay Foundation, as Vice Chairman. The next Panel meeting is tentatively scheduled for the week of April 4th in Alabama.

Northeast Regional Panel

The Panel convened its spring meeting in May at the Gulf of Maine Research Institute in Portland, Maine. The meeting included Panelists, as guests of the Institute, for its evening Science Café. Nonprofit employees, volunteers, and other local citizens met in an informal setting to learn about freshwater and marine invasive species and discuss technologies and their own experiences. NH LAKES, a recent "Outstanding Invasive Species Volunteer Award" winner, was present to talk about its Lake Host Program. Other meeting features included "Highlights from Maine," a roundtable of regional updates, discussion of climate change relative to invasive species, work group meetings, "Spotlight on Species: Green Crabs," Chinese mitten crab rapid response plan draft presentation, and a field tour of the local docks and wharves. The Institute generously and graciously hosted the Panel at no charge.

The Panel continues to update its website, NortheastANS.org. The Panel's fall meeting is slated for December 2-3, 2015 in Albany, New York, hosted by the NYS Department of Environmental Conservation.

Mississippi River Basin Regional Panel

Major Accomplishments:

- Jessica Howell, Kansas Department of Wildlife, Parks, and Tourism, was elected MRBP first-term co-chair (term began July 1, 2015).
- Completed security upgrades to MRBP website (www.MRBP.org).
- Made funding available to support the production of ANS outreach materials and to cover travel expenses for ANS representatives to staff an ANS outreach and education booth at the September 2015 International Boatbuilders' Exhibition and Conference.
- Provided travel support for a commercial fisherman to accompany state and federal agency representatives to China in October to investigate the unified harvest method of Asian carp and evaluate its potential use in US river systems.
- Participated in a teleconference interview and provided information for the Government Accountability Office audit AIS audit.
- Reviewed and provided comments on the ANS Task Force Report to Congress.

Ongoing Work:

- Planning and preparations for MRBP coordination meeting January 13-14, 2016, in Gulfport, MS.
- MRBP is in the process of purchasing Whac-A-Mussel from Recycled Fish for AIS outreach events.

- Outreach and Education committee seeking bids to redesign the MRBP website design.
- Outreach and Education committee is working with the Sea Grant Law Center to organize an Attorneys General workshop in conjunction with the Upper Midwest Aquatic Invasive Species Conference in October 2016. The planning group is considering baitfish regulations as the topic for the workshop.
- Providing travel support for MRBP At-large member to participate on a NISC committee working on fracking.
- The Research and Risk Assessment Committee is also trying to find speakers familiar with regulation of fracking and water garden industries to speak with panel members at the January 2016 coordination meeting.
- Panel members are finalizing revisions to the MRBP's 'Guidelines for Developing Commercial Harvest Policy for Aquatic Invasive Species.'
- Prevention and control committee is developing work plans for implementation of several recommendations in the MICRA grass carp report.

Mid-Atlantic Regional Panel

The spring meeting was held June 30, 2015 in Annapolis, MD. The meeting focused on ongoing and completed work accomplished by our small grants competition awardees. The panel reviewed completed work on environmental DNA monitoring of Didymo and the development of an invasive species management plan and an associated app for Bushkill Township, PA. Additionally, current grantees updated the panel on an education campaign led by Maryland Department of Natural Resources, the "Mid-Atlantic Field Guide to Aquatic Invasive Species", and a project with the National Sea Grant Law Center about AIS eradication on private lands. The panel also deliberated and made decisions on the spring 2015 Small Grants competition as well as the budget for 2015-2016.

The Panel has conducted an annual grants competition to fund on-the-ground activities addressing MAP's mission and regional priorities. Since 2007, the Panel has awarded \$318,684 in project funding, and has leveraged over half a million dollars in partner funds. Work continues on an invasive species toolkit for educators (finishing Dec. 2015), the Mid-Atlantic Guide on Aquatic Invasive Species, and a study to characterize populations of the invasive New Zealand mud snail in central Pennsylvania (summaries provided below). A final report was received from the National Sea Grant Law Center for the project "Engaging Lawyers to Facilitate Access to Private Land for Eradication and Control of Aquatic Nuisance Species" which will be discussed by Ray Fernald at the all-panel meeting. One new project was funded and started in October 2015 (Nutria Detection Dog Project).

13. Regional Panel Recommendations

Great Lakes Regional Panel

A Joint Great Lakes and Mississippi River Basin Panel Recommendation to the ANSTF: The Mississippi River Basin Panel (MRBP) and Great Lakes Panel (GLP) urge the appropriate federal agencies to implement recommendations #'s 6 – 8 contained in the MICRA report to the USFWS entitled "The use of grass carp in the United States: Production, triploid certification, shipping, regulation, and stocking recommendation for reducing spread throughout the United States". Specifically, those recommendations are as follows:

(6) Modify the scope and Standards of the USFWS National Triploid Grass Carp inspection and Certification Program (NTGCICP), including direct participation of states and Grass Carp distributors.

(7) The USFWS should work with states, triploid Grass Carp producers, and other partners to develop defensible ploidy testing procedures for quality control and law enforcement purposes in support of state random inspection programs.

(8) Develop and provide information about NTGCICP, Grass Carp regulations, and best management practices for natural resource managers, aquaculturists, and the general public.

Response: The ANSTF co-chairs support these recommendations to the USFWS to expand the National Triploid Grass Carp Inspection and Certification Program and FWS is already moving forward with implementation of all three of these recommendations. A meeting is tentatively planned for 2016 for triploid carp producers, state managers, and other partners.

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: The Regional Panels provide essential coordination and work production for the ANSTF. Following sequestration there was a significant deficit within the FWS AIS Program in FY13 and FWS continues to have to make difficult budget decisions through FY15. In FY16, the President's Budget includes an increase of \$42,000 for Regional Panel support, which would give each Panel \$47,000. However, under the current Continuing Resolution in FY16, Panel funding would continue at \$40,000.

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

Response: The ANSTF co-chairs support this recommendation. USFWS continues to support the implementation of QZAP through the funding of State and Interstate ANS Management Plans and grant support for projects to control the spread of invasive mussels in the West.

3. Marine AIS Biofouling Management Plan: Provide funding to support the writing of a Regional Biofouling Management Plan, an action item resulting from the Western Regional Panel's Tunicate Workshop (held August 2014).

Response: NOAA may be able to assist this effort, but will need to know specific actions that are needed. NOAA will follow up with the Panel following the December workshop to determine next steps.

4. 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 aquatic invasive species onto and off of federal lands and waters, Appendix II, pages 22-29.)

Response: FWS recently provided a summary of steps forward implementing these recommendations. NISC has received a copy of these recommendations and will be presenting later today. The Federal Lands Committee will be assessing these recommendations to determine next steps.

5. The Clean Drain Dry phrase was developed by the State of Utah in 2007 and was adopted by many western organizations as early as 2008. Many of the entities currently using the phrase in the West are uncomfortable with the trademark application of "Clean Drain Dry" submitted by Wildlife Forever and posted in the Trademark Official Gazette on October 27th. The WRP recommends that the ANSTF work in conjunction with Wildlife Forever and all six Regional Panels to: determine if the phrase needs to be protected through a trademark; determine the appropriate entity to own the trademark if needed; and determine whether trademark registration could include legally binding provisions to ensure the free and unregulated use by all governmental jurisdictions, non-governmental organizations and private industry in perpetuity for the purpose of aquatic invasive species efforts.

Response: The Panels should look within their region and discuss what options are available. More information is needed to determine how / if trademark would infringe on use by others and if it is possible to request an extension to further explore this issue.²

6. ANSTF Boat Industry Committee: Create an ANSTF committee specific to the Boat Industry.

Response: This issue was voted on yesterday and an action item was developed for this new ad-hoc committee.

7. Symposium and workshop on management and research of marine invasions in the Arctic: Support the development of a timely symposium and encourage ANSTF members to actively support and provide resources toward this symposium. The proposed symposium and workshop would bring together scientists and managers in an international forum to discuss current understanding of marine bioinvasions in arctic waters and to identify research priorities and management policies needed to protect Arctic ecosystems.

Response: The ANSTF co-chairs support this recommendation and encourage members to get involved in both the development and financial support of such an effort as resources allow. Later today, there will be a presentation on new developments on the Arctic Strategy and discussion on the potential for ANSTF greater involvement.

² In a press release on December 11, 2015, Wildlife Forever announced that they had "recently signed a Memorandum of Understanding with the Association of Fish and Wildlife Agencies (AFWA), donating the Clean Drain Dry® registration. The trademark protects an important element of invasive species education, an asset Wildlife Forever and partners across North America have used to help inform millions of anglers, boaters and hunters to help stop the spread of invasive species." AFWA responded with "AFWA, Washington DC, the professional association that serves as the collective voice of North America's state, provincial and territorial fish and wildlife agencies will facilitate free unrestricted use of the trademark. As Clean Drain Dry is the nationally approved Best Management Practices (BMP) for invasive species outreach, AFWA and Wildlife Forever will work jointly to expand use of the mark with all partners."

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: Response to Regional Panel funding already stated – see # 1 above under Western Regional Panel.

2. Encourage the Federal Lands Committee to explore options for federal agencies to: 1) clarify situational authorities; 2) support full implementation of agency authorities; and 3) harmonize policies across federal agencies for the movement of aquatic nuisance species onto and off of federal lands and waters.

Response: Response on Federal Lands Committee already stated – See #4 under WRP recommendations above.

3. Establish an ANSTF Ad-hoc committee specific to the Boat Industry.

Response: Response on Boating Industry ad-hoc committee already stated – see # 6 under WRP above.

4. Have a presentation on the potential use of CRISPR (clustered regularly interspaced short palindromic repeats) in the control and management of ANS at the next ANSTF meeting.

Response: CRISPR is a new technology; the Executive Secretary will explore options for a presentation at a future ANSTF meeting.

5. Encourage ANSTF member agencies to continue to explore new barrier technologies that will address the problem of bidirectional interbasin movement of ANS.

Response: The ANSTF co-chairs support this recommendation and encourage all ANSTF members to support the exploration of new “bi-directional” barrier technologies. The Great Lakes and Mississippi River Interbasin Study (GLMRIS) Study used to prevent the movement of Asian carp is currently not focused on two-way transfer of AIS, but has been effective at preventing one-way movement. GLMRIS study focuses on feasibility; it does not have authority to implement construction on a particular project. It focuses on particular areas where carp can expand their range.

Northeast Regional Panel

1. The Northeast Aquatic Nuisance Species Panel requests that the ANS Task Force take a leadership role in the reauthorization of the National Invasive Species Act.

Response: The ANSTF believes that updated authorizations of NISA are needed to better reflect and fund the vastly changed AIS landscape from NISA’s passage in 1996. In order for federal agencies to continue to meet the objectives of the Act, a wide variety of approaches are needed along with the appropriate level of resources. Federal members of the ANSTF cannot lobby for reauthorization, yet can provide any information when

requested. Regional Panel members, working through their own organizations, can play a significant role in reauthorization.

2. The Northeast Aquatic Nuisance Species Panel requests that the ANS Task Force restore at least \$10,000 to each of the regional panels to bring them to the original \$50,000 in annual support and work to identify and secure additional and dedicated sources of support.

Response: Response to Regional Panel funding already stated – see # 1 under Western Regional Panel.

Mississippi River Basin Regional Panel

1. The MRBP recommends that the USACE and other responsible federal agencies identify opportunities and locations for assessing the effectiveness of options and technologies for preventing bidirectional ANS transfer between the Great Lakes and Mississippi River Basins, and other basins nationwide. Research and evaluation of technologies to prevent bidirectional ANS transfer should be implemented concurrent with the Brandon Road Feasibility Study, the scope of which is limited to stopping the upstream transfer of some ANS, primarily Asian carps and other swimming organisms. Further, the MRBP recommends that the USACE consider testing some of the bidirectional technologies in areas outside of the Great Lakes Region. One example of where such technology would be beneficial and could prevent an impending interbasin transfer of silver carp is the Tennessee-Tombigbee Waterway that connects the Tennessee and Mobile river basins. The MRBP recommends that the USACE, and other federal agencies, consider this waterway and others outside of the Great Lakes area as potential locations for the development and testing of options and technologies for preventing the bidirectional spread of ANS.

Response: Response to barrier technology already stated – see # 5 above under Gulf and South Atlantic Panel.

Mid-Atlantic Regional Panel

1. The Mid-Atlantic Panel on Aquatic Invasive Species recommends that the ANSTF restore funding and support for the Chesapeake Bay Nutria Eradication Program, which has demonstrated marked successes on the Delmarva Peninsula.

Response: The ANSTF does not directly fund this effort. Funding for this project occurs through USDA-APHIS and the National Wildlife Refuge System and Ecological Services Program. These programs will be consulted with to determine the status of this effort.

14. ANSTF Member Updates

Chesapeake Bay Program:

- **Hydrilla Control** - The Maryland Department of Natural Resources (DNR) had a successful year two effort for the Hydrilla Management Plan in Deep Creek Lake (DCL). The plan consists of population monitoring, chemical control, education and outreach. DNR first observed Hydrilla in fall 2013 during routine SAV monitoring. Fluoridone treatments began after the first emergence of Hydrilla in May with contractors doing an application every three weeks until the end of August. A Fastest™ assay was collected by RAS field staff weekly between each Sonar™ treatment to ensure the proper dosage rate. All new infestation were treated with a contact

herbicide. Only one small infestation was found and no live Hydrilla was found within the sampled treatment areas. DNR will continue this level of treatment for 3 more years in hopes of exhausting the tuber bank and achieving positive control.

- **Zebra Mussels** - Zebra mussels have expanded much farther south than reported in 2014. Small zebra mussels attached to SAV were first found by DNR biologists conducting juvenile fish surveys in Middle River in August. Follow up snorkel surveys in Middle River documented zebra mussels attached to SAV and artificially armored shore lines at multiple locations along with dark false mussels. A commercial crabber reported to DNR of zebra mussels fouling gear set off Middle, Bush, and Gunpowder River sub-estuaries. Additional, unverifiable citizen reports from Elk River and Middle River were received in September. DNR will inspect buoy anchors from around the upper Chesapeake Bay for the fifth year in December.
- **Water Chestnut** - Maryland DNR worked with Sassafras Riverkeeper to remove water chestnut from Lloyds, Turners, Woodland, Island and Dyer creeks on the Sassafras. Biologists and volunteers also went out on the Bird River to remove it from Days Cove, and smaller coves near Railroad creek. Forty bushels were removed from the Sassafras and less than five from the Bird. In VA, a much larger infestation of a related species, *Trapa bispinosa*, 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.
- **Snakeheads** - The 2015 Actions taken by MD 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.

There were 63 subadults and 59 adults that were harvested from Pomonkey Creek between May and July by MD DNR and USFWS in an effort to determine the level of harvest needed to cause a reduction in population size. Currently these agencies are working with NPS and local politicians to host a fishing derby that targets snakeheads at Great Falls National Park where the species has been identified this year. 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.

- **Rusty Crayfish** - DNR is currently working on restricting/banning the import and use by anglers, as well as limiting the number anglers can possess.
- **Mute Swans** - During 2015, Mute Swan management activities by Maryland DNR (MDNR) and partners (US Fish and Wildlife Service, US Army) were limited due to a reduced (<60) Mute Swan population. An aerial survey of the tidewater areas of the upper Chesapeake Bay was conducted in mid April to locate swans and active swan nests for egg oiling and culling. Sixty-three swans and 11 nests were observed. A fall survey was also flown in mid September to locate swans for control. Forty-eight adult swans and two broods containing 10 cygnets were observed.

- **Blue/Flathead Catfish** - Blue/Flathead Catfish have continued to expand in MD and VA. 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.

Smithsonian Environmental Research Center:

SERC continues to focus significant work on the ballast water vector, both in collaboration with the US Coast Guard through the National Ballast Information Clearinghouse, but also on ballast water treatment technology testing, through collaboration with the Maritime Environmental Resources Center. SERC is central to surveys and taxonomic identification of possible ANS associated with marine debris generated from the 2011 Japan tsunami (this work has been funded by PICES and NSF). SERC continues hard substrate benthic surveys of 36+ bays and estuaries around the nation, and is advancing collaborations with Canadian colleagues. SERC is also heavily invested in studies of hull fouling as a vector for ANS.

U.S. Forest Service

A handbook is being developed for the USFS invasive species program. Once complete, a notice will be published in Federal Register. USFS continues actions to prevent quagga and zebra mussel, including boat decontamination. USFS providing information to GAO for the WRDDA (2014) assessment of federal spending on AIS. The agency is currently planning a science workshop to be held December, 2015.

In addition, the Forest Service is:

- Continuing to work closely with other agencies on addressing the movement of AIS on and off of Federal Lands, and the related authorities and responsibilities,
- Continuing to promote invasive species outreach and education efforts at local and regional levels, including additional support for the Play-Clean-Go, Stop Aquatic Hitchhikers, and Clean-Drain-Dry, and
- Supporting the North American Invasive Species Network (NAISN) to help coordinate with all aquatic and terrestrial invasive species organizations in the United States, Mexico, and Canada (including ANSTF, Regional Panels, etc) to develop a North American Invasive Species Strategic Framework. A North American Invasive Species Forum is being hosted by NAISN in 2017, probably in Florida.
- Planning to have John Rothlisberger, aquatic invasive species researcher from our Regional office in Milwaukee, WI move to our national headquarters Research and Development staff soon, and he may be able to support the ANSTF Research Committee as needed.

Association of Fish and Wildlife Agencies

AFWA held its Fall Meeting on September 14, 2015, during the AFWA Annual Meeting in Tucson, Arizona

MOU Working Group: An AFWA working group is reviewing ecological risk screening summaries (ERSS) for fish and crayfish proposed by USFWS for consideration for no-trade agreements. The first ERSS reviewed by the working group was for the African Longfin Eel. The ERSS and reviews of ERSS determined the overall invasive risk of the African Longfin Eel as uncertain. The next step (ongoing) is to run African Longfin Eel through a Bayesian Network to assess invasiveness based on expert opinion and quantitative and qualitative information. The prevalence of a swimbladder nematode

that may affect American Eels could lead to a determination of invasiveness. If invasiveness is determined, recommendations will be made for risk management actions that include no trade under the MOU.

ISAC Recommendations on Asian Longhorned Beetle: The AFWA Invasive Species Committee endorsed the ISAC recommendation that the U.S. Forest Service, the Animal and Plant Health Inspection Service, and other NISC agencies share information to perform risk-based early detection surveys for Asian Longhorned Beetle in high risk areas outside current quarantine zones to ensure successful eradication.

Ongoing Work:

Novel Wildlife Pathogens: An AFWA working group including members from the Invasive Species Committee, Fish and Wildlife Health Committee, and Amphibian and Reptile Sub-Committee is developing a draft wildlife pathogen management program to address states' needs for managing pathogens that affect wildlife species but not domestic agricultural production. Peter Jenkins, from the Center for Invasive Species Prevention, addressed the committees on the proposed America's Wildlife Health Protection Act. The purpose of the act is to protect the health of terrestrial and aquatic wildlife populations of the U.S. by improving the national system of preventing the importation and interstate spread of those pathogens and parasites that are likely to cause harmful disease outbreaks in U.S. wildlife and are not covered by other U.S. laws. AFWA is also working with the Partners in Amphibian and Reptile Conservation (PARC) to develop a Bsal Strategic Action Plan that will outline approaches to protect native species, ecological functions, and ecosystem services from Bsal.

Western Invasive Weed Summit: AFWA is a sponsor of the upcoming Western Invasive Weed Summit. The purpose of the summit is to convene federal and state agencies, local governments, tribes, and key non-government organizations to review existing invasive species mandates and programs, and to set a coordinated plan of action for invasive plant management in the West. The goal of the summit is to build on the recent Western Association of Fish and Wildlife Agencies (WAFWA) publication, *Invasive Plant Management and Greater Sage-grouse Conservation: A Review and Status Report with Strategic Recommendations for Improvement*. The final product of the Summit will be the development of an action plan to help guide state and federal agencies, local governments, and private entities in a coordinated and effective approach to addressing this important conservation issue.

Building Consensus in the West: AFWA continues to use the Model Legislative Provisions and Guidance to Promote Reciprocity among State Watercraft Inspection and Decontamination Programs to develop recommended improvements to current state programs.

Congressional Invasive Species Caucus: AFWA continues to develop ideas on ways to encourage more legislators to join the Congressional Invasive Species Caucus.

Blue Ribbon Panel on Sustaining America's Diverse Fish and Wildlife Resources: Federal funding for the conservation of imperiled fish and wildlife species has declined by one-third, whereas petitions for the listing of federal endangered species have skyrocketed by 1,000 percent. AFWA has convened the Blue Ribbon Panel on Sustaining America's Diverse Fish and Wildlife Resources (Blue Ribbon Panel) to identify a 21st century system of funding conservation that will generate a rich

conservation legacy and a vibrant economic future. Co-chairs of the Blue Ribbon Panel are David Freudenthal, former Governor of Wyoming, and John Morris, founder and CEO of Bass Pro Shops. Three proposed themes have been identified for analysis: excise tax on products related to wildlife and wildlife viewing, energy fees and royalties, corporate partnerships. An announcement of the findings and the beginning of implementation is expected in early 2016.

AFWA's Fall Meeting: The Fall meeting will be held during the North American Wildlife and Natural Resources Conference in Pittsburg, Pennsylvania, March 13-18, 2016

Great Lakes Commission

Asian Carp: The GLC continues to work in partnership with the Great Lakes and St. Lawrence Cities Initiative to investigate solutions to the threat of Asian carp and other aquatic invasive species (AIS) passing through the Chicago Area Waterways System (CAWS) while maintaining current uses of the system. Specifically, the GLC is supporting and serves on a 32-member advisory committee that is the primary regional stakeholder forum seeking solutions to the problem of AIS transfer through the CAWS.

Internet Trade: Work is wrapping up on 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 the initial stages of operation. A stakeholder workshop was held in March to share findings, provide participants an opportunity to use GLDIATR, and gather input on next steps. In July the GLC conducted outreach to 160 online retailers identified using the software in an effort to limit the availability of AIS for sale online. Staff are evaluating responses and behavior changes as a result of this outreach. Staff also continues to provide informational presentations on the project to interested stakeholder groups.

Legislation: The GLC continues to support federal efforts to prevent the importation of potentially harmful non-native species. The GLC supports U.S. Fish and Wildlife Service plans to list eleven new species as “injurious” under title 18 of the Lacey Act. The GLC is previously on record calling for more effective pre-import screening efforts and passed a new resolution at the Annual Meeting in September. The resolution supports the USFWS proposal and also calls on the Department of Fisheries and Oceans Canada and the Canadian Border Services Agency to take similar action. The GLC also issued a press release on Monday, Nov. 2, announcing support for the USFWS action and will be preparing formal public comments to submit in response to the FR notice. The press release and resolution are available on the GLC website.

Ballast Water: The GLC is working with a Ballast Water Task Force of the states and provinces to assess current ballast water standards and develop a common platform for the region from which to advance a future ballast water management regime.

Phragmites: 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*.

Zebra and Quagga Mussels: 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.

Sea Lamprey: The GLC, in collaboration with the GLFC, released a new mapping application that allows users to visualize the geographic impact of adding or removing sea lamprey barriers on rivers and streams in the Great Lakes region. The application is available at <http://data.glfc.org>. Enhancements are being added to further improve the search, inset map and user interface.

Data Integration: The GLC's GIS and data management teams are collaborating with the Michigan departments of Environmental Quality and Natural Resources under a U.S. EPA Exchange Network challenge grant to develop a data integration tool for citizen-scientist observations of invasive species. The project is a test case for a larger regional data integration tool that will allow data from multiple species identification and tracking programs to be consolidated into a central database.

Army Corps of Engineers

The Corps participated with other Federal Agencies in the GAO Aquatic Invasive Species audit requested under WRRDA 2014. We were disappointed in the initial draft document and extremely disappointed in the final version that never addressed the concerns we raised during the review. This report does not come close to addressing the four key questions that were identified in the letter to Secretary Hagel dated 28 October 2014.

The Corps of Engineers continues to spend approximately \$140M for the control and maintenance of aquatic species problems.

The Corps utilized approximately \$4.5M to fund research activities on invasive species. Only .5M was identified in the Presidential Budget in 2014. Four million was identified by congress to address aquatic plant control research studies.

The Corps received conflicting directions in the WRRDA 2014 document and we are attempting to determine the true direction congress wants us to take in aquatic invasive species research and management. Our HQ is developing implementation guidance to clarify the directions that need to be taken.

The Corps is pushing to manage the monoecious *hydrilla* infestation found in the Erie Canal. Herbicide applications have been effective and a monitoring program is being conducted to document impact and identify areas that might need additional treatments.

The Corps is conducting studies to examine the environmental goods and services that have been derived from the long term control and management of invasive aquatic plants. A 30 +year data set on the acreage of water hyacinth in Louisiana was utilized to showcase the significant long term good and services that have been derived.

In June 2014 the Corps of Engineers closed the St. Anthony Falls Lock and Dam to restrict the movement of invasive Asian carp species further up river.

Over the next three years Electric Barrier 1 on the Chicago Sanitary and Ship Canal is being upgraded to a permanent structure at a cost of \$40-60M.

The annual cost for the operations and maintenance of the barrier system on the Chicago Sanitary and Ship Canal is \$13-18M.

U.S. Fish and Wildlife Service

Fisheries and Aquatic Conservation Strategic Plan: The Fish and Aquatic Conservation Program recently released its 2016-2020 Strategic Plan. The document addresses a number of ecological threats that pose significant risks to our nation's aquatic resources. The new Strategic Plan identifies seven interdependent goals, each representing a fundamental theme that is critical to accomplishing the mission of the Fish and Aquatic Conservation Program. The 3rd goal - Manage Aquatic Invasive Species – includes 4 primary objectives:

- Preventing introduction of potentially invasive species into the U.S.
 - Working with tribes, states, and other partners to implement a national early detection and rapid response framework.
 - Preventing the spread of potentially invasive species already in the U.S. in collaboration with tribes, states and other partners,
 - Managing established populations of AIS through population suppression.
- The framework provided by the strategic plan will enable the FWS to work through the Task Force and other mechanisms, with states, tribes, other federal agencies and its partners to protect aquatic species and their habitats for generations to come.

Quagga Zebra Mussel Action Plan (QZAP): At the Spring meeting the ANSTF voted to extend the QZAP another 5 years without needing revisions. The Service continues to provide financial support to partners through grants for projects to control the spread of quagga and zebra mussels. For FY15, the Service had \$940K for QZAP projects, and 9 Projects were funded including the following examples:

- Providing support to the Utah Division of Wildlife Resources to continue an existing Lower Colorado River & Lake Powell quagga containment project (\$171,231).
- Continuing an existing project to provide free decontamination and inspection at Lake Mead National Recreation Area through the Nevada Department of Wildlife (\$191,104).
- Providing support to the American Boat and Yacht Council to develop and publish a Technical Information Report dealing with Boat Design & Construction in consideration of Aquatic Invasive Species (\$106,859). We heard more about this project yesterday.
- David Britton is here today if you would like to discuss in detail any of the projects funded under the Service's QZAP allocation.

NEPA Categorical Exclusion for Injurious Wildlife Listings Under the Lacey Act: The CatEx will allow the Service to list species more efficiently by allowing the Service to expedite the environmental review process for listing proposals that typically do not require more resource-intensive EAs or EISs. BAIS published the proposed CatEx in the Federal Register in July 2013, reviewed and addressed the more than 5,000 public comments, and composed a draft final notice. The Service, coordinating through the Department, has received approval from the Council on Environmental Quality for the new categorical exclusion under NEPA for future injurious wildlife listings. The final categorical exclusion was published in the Federal Register on October 29, 2015. From now on, unless there are extraordinary circumstances for the proposed species, the Service will not need to prepare an environmental assessment or environmental impact statement.

Multi-species Proposed Rule: BAIS has prepared a multi-species proposed rule to list 10 freshwater fish and 1 crayfish as injurious species. The proposed rule published in the Federal Register October

30, 2015, opening a 60-day period for public comment and peer review. FWS expected to publish a final rule for these species during 2016.

Large Constrictor Snake Final Rule Litigation: In March 2015, we published the final rule to list the reticulated python and the three anacondas, but withdrew the proposal to list the boa. This injurious wildlife listing followed the listing of Burmese python, southern and northern African pythons, and yellow anaconda in 2012. As soon as the second final rule published, the plaintiffs for the lawsuit against the first final rule, the United States Association of Reptile Keepers (USARK), filed an amendment to add the four newly listed species to their challenge. 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. DOJ's decision to appeal is pending. In the meantime, specific members of USARK may transport two species of large constrictors listed in 2015, the reticulated python and green anaconda, across state lines within the Continental U.S. except into Florida and Texas.

Bsal (salamander chytrid fungus): An emerging fungus with the potential to lethally affect native salamanders may enter the United States through ongoing importations of salamanders, according to a paper that published in Science in October 2014. Our country has the highest biodiversity of salamanders on the planet, and salamanders form a crucial link in native ecosystems. The Service is the federal agency best positioned to prevent its introduction into the United States, relying on its injurious wildlife authority under the Lacey Act. The Service is evaluating which salamander species should be listed as injurious wildlife to prevent the risk of Bsal's introduction into the United States, which has significantly impacted European salamander populations. The Service expects to complete and publish its evaluation this Fall. This injurious wildlife evaluation is considered a Director's priority.

National Oceanic and Atmospheric Administration

NOAA does not receive allocated funding for invasive species efforts, rather the Agency's work is reflective of impacts to NOAA's trust resources. For example, the Habitat Blueprint is NOAA's strategy to integrate habitat conservation throughout the agency, focus efforts in priority areas, and leverage internal and external collaborations to achieve measurable benefits within key habitats such as rivers, coral reefs, and wetlands. NOAA has identified state and federal invasive species experts and plans to consider invasive species prevention and management while developing Habitat Blueprint Focus Area Implementation Plans.

NOAA staff continues to offer Hazard Analysis & Critical Control Point (HACCP) Planning to Prevent the Spread of Invasive Species. A team from NOAA and USFWS has revised manual, forms and teaching materials to better align with natural resource management work. New HACCP website is under development and will be hosted by the USFWS National Conservation Training Center. Last training was offered in Santa Cruz, California and future workshop in Silver Spring, Maryland is under development.

NOAA also continues to serve in its leadership role as co-chair to ANSTF and NISC; correspondingly, the Agency has been involved in numerous projects including the ANSTF Report to Congress, EDRR Framework, Federal Policy Options Paper, and the NISC Management Plan. In addition, NOAA has responded to the GAO assessment of federal spending on aquatic invasive species.

NOAA had an internal Aquatic Invasive Species Workshop in Santa Cruz, California on March 31 to April 1, 2015. In addition to focusing on developing goals and objectives for the new NOAA Western AIS Team, a report from this Workshop was finalized this summer. Recommendations included in the report include:

- Promote the need for NOAA Regional AIS Teams.
- Compile lists for potential funding sources, staffing opportunities, AIS experts, and environmental economists and social scientists.
- Finalize the draft "NOAA" invasive species-conscious policy.
- Identify AIS training needs and capabilities within NOAA.
- Encourage integrating AIS prevention strategies into broader programs.
- Enhance communications about AIS throughout NOAA.

NOAA continues involvement in the Ballast Water Convention. Ballast Water Convention: IMO adopted in 2004 & will enter into force 12 months after ratification by 30 States (current 44), representing 35 per cent of world merchant shipping tonnage (current 32.6%)

NOAA is also involved in the Arctic Council's Arctic Climate Resilience Agenda that is proposing development of improved practices and policies to prevent the introduction of invasive species in marine, coastal, freshwater, and terrestrial ecosystems, and strengthen management of on-going invasions using risk based assessment and management. U.S. chairmanship led an initiative to improve practices and policies to prevent the introduction of invasive species in marine, coastal, freshwater, and terrestrial ecosystems, using methods such as HACCP.

Numerous activities are occurring at the regional level, example include:

Northeast and Mid-Atlantic

- Coordinates the Chesapeake Bay Invasive Catfish Taskforce
- Detected *Didemnum vexillum* and *Botrylloides violaceus* (colonial tunicate) in coastal waters off Delmarva

West

- Removal of invasive algae from Catalina Island; Preliminary results indicate that recolonization of the removal sites using a super sucker device is 28% lower than with hand removals.
- Data collection on non-native fouling communities throughout Southern California highlights the need to consider the effects of non-native species on overwater structures during the permitting process.
- Continue to administer a *Caulerpa* surveyor certification exam to ensure biological consultants are capable of identifying *Caulerpa* in the field during pre-construction surveys.
- Investigation of introduced recreational game fishes in Pacific NW ecosystems; includes 1) analysis of impacts to juvenile salmon and 2) review of fish stocking patterns to determine if and how states are shifting stocking practices.

Gulf and South Atlantic

- More than 30 studies have been published to better understand and control the lionfish (e.g., thermal tolerance, reproduction, distribution, risk of ciguatera).
- Ongoing research to better understand the impacts from Asian tiger shrimp.

Great Lakes Environmental Research Lab (GLERL)

- Investigating links between quagga/zebra mussels and harmful algal blooms.
- Member of the Invasive Mussel Collaborative.
- Continued work on the GLANSIS database and fact sheets

Hawaii and Pacific islands

- AIS Monitoring and vessel inspection on Papahānaumokuākea Marine National Monument
- Invasive algae removal on Hawaiian reefs.
- Baseline monitoring Saipan, Tinian, and Rota to prepare for increased ship traffic resulting from military buildup in Guam.

Alaska

- Representation to the Coastal Committee of the Western Regional Panel, supporting a Regional Biofouling Management Plan, identifying management and research needs to prevent marine invasions in the arctic.

Environmental Protection Agency

In October 2015 the US Second Circuit Court of Appeals overturned the US EPA's Vessel General Permit (VGP), arguing that the permit failed to establish limits meeting the requirements of the Clean Water Act. The court found that EPA's decision to adopt the International Maritime Organization (IMO) standards for ballast water discharge was "arbitrary and capricious" and failed to consider available technology capable of meeting higher standards. That finding was based largely on material associated with an earlier report from the EPA's Scientific Advisory Board on the availability of treatment technologies. Given that EPA will soon be initiating revision of the VGP for 2018, the Agency has chosen not to challenge the ruling (though this does not rule out other challenges from outside EPA). Given that scientific data strongly supporting a new numerical standard is unlikely to be forthcoming in the next 2 years, EPA will likely challenge the court's claim that technologies are available that reliably improve on the current IMO standards. EPA will also have to address the court's concerns that onshore treatment was not more seriously considered as an option in the current VGP. EPA's efforts at revision will likely begin in the early 2016.

Mississippi Interstate Cooperative Resource Association

- Submitted comments to USACE in support of several recommendations in the Lower Mississippi River Resource Assessment Final Report to Congress, including Habitat Restoration and Management Program Recommendation #4 that addresses invasive species management and control needs in the Lower Mississippi River.
- Led coordination efforts in the Upper Mississippi River and Ohio Rivers to identify priority Asian carp project needs and submit funding requests to USFWS for 2015 Asian carp project funding.
- Executed a grant agreement with USFWS to fund Asian carp projects in Indiana and West Virginia.
- Facilitated discussions between the Mississippi Department of Wildlife, Fisheries and Parks, Tennessee Wildlife Resources Agency, and Federal partners regarding AIS transfer concerns between the Tennessee and Mobile river basins via the Tennessee-Tombigbee Waterway.
- Participated in a Congressional Briefing in June regarding the 2015 Asian Carp Framework for the Great Lakes and the collaborative interagency efforts begun in 2015 to address priority Asian carp prevention and control needs in the Upper Mississippi and Ohio rivers.

- Hosted a meeting of Mississippi River basin states that permit the stocking of diploid grass carp to discuss recommendations in the MICRA Grass Carp Report, specifically the recommendation “All states prohibit the production, sale, live shipment, stocking, import, and export of diploid Grass Carp except for permitted diploid brood stock at appropriately licensed production facilities.”
- Participated in the Asian Carp Regional Coordinating Committee meeting in October 2015 to facilitate communication between the Great Lakes and Mississippi River Basin Asian carp management and control programs.
- Provided coordination support to the Mississippi River Basin Panel on ANS
- Ongoing Work:
 - Finalizing the 2015 Monitoring and Response Plan for the Ohio and Upper Mississippi River Basins.
 - Assisting the Tennessee River, Lower Mississippi River, and Missouri River basin groups to develop Asian Carp Control Strategy Frameworks to identify collaborative priorities and develop work plans for each basin.
 - Participating as a member of the Chicago Area Waterways System Advisory Panel.
 - Working on implementation of recommendations in the MICRA Grass Carp Report.
 - Hosting Mississippi River Basin Panel on ANS

Bureau of Land Management

BLM has created new draft policy in our Aquatic Resources Manual specifically addressing AIS. Currently under initial internal review, the policy addresses AIS prevention, organizational capacity, reducing the spread, ecosystem restoration and organizational awareness, effectiveness and collaboration.

Tahoe Regional Planning Agency (TRPA)

The Lake Tahoe Aquatic Invasive Species Program is comprised of over 40 partners, both public and private, led by the Tahoe Regional Planning Agency (TRPA). TRPA has recently been approved to become ex-officio members of the ANSTF. TRPA is truly excited about this new partnership and looks forward to working with the members to further our efforts.

A major focus of the Lake Tahoe Program is to bolster funding for control efforts. Most recently, the Prevention program was faced with diminishing funds, threatening the existence of the program and thereby adding risk to the Lake. However, efforts to obtain long term, stable funding was successful as the states of California and Nevada have provided the needed support to complement the fees boaters pay for their inspection. TRPA now seeks to piggyback on that success to remove invasives already existing in Lake Tahoe.

Recently, a new plan was developed to aid in those control efforts, known as the “Implementation Plan for the Control of Aquatic Invasive Species within Lake Tahoe”. The Implementation Plan allows Program partners to use a science based approach to deal with existing populations. This strategic guide gives credibility and accountability to the Program, especially where funding is concerned, as dollars are more and more difficult to come by. Ultimately, the Lake Tahoe Program intends to include this as an Appendix to the Lake Tahoe AIS Management Plan. A copy is available upon request.

The Tahoe Program partners with multiple research entities in order to ensure policy decisions can be based on science. Recently, TRPA worked with Drs. Sudeep Chandra and Chris Jerde on a quagga

survivability and reproductive potential study in Lake Tahoe waters due to its relatively low calcium levels. Their research showed that they can survive and reproduce in various levels of calcium, of which can be found in multiple places in Tahoe; specifically, in enclosed marinas, near concrete boat ramps and above Asian clam populations. The findings regarding the Asian clam beds have led to conversations with resource managers and researchers associated with Lake George in New York and look to research the idea of Asian clams being a precursor to a dreissenid mussel infestation.

The Lake Tahoe Program is investigating a new technology to combat Asian clam (*corbicula*) populations in Lake Tahoe. Aqua Treasures USA LLC has developed an innovative piece of equipment that is designed to remove clams from the system, without removing the substrate they live in. This pilot project is slated for November 2015.

In order to enhance the credibility of the Prevention Program, TRPA employed a "Secret Shopper" project as a quality control measure of the program. TRPA partnered with the Invasive Species Action Network to conduct this evaluation. The results were positive in that the established procedures and protocols are being followed and are effective. There were also areas for improvement that will be implemented next season.

TRPA recently hosted the annual meeting of the Western Regional Panel in South Lake Tahoe, CA. The agency was humbled by the turn out and grateful for the overwhelming participation and positive feedback we received.

The Lake Tahoe Program is investigating the use of an "app" developed by the State of Colorado's AIS program to suit its needs and potentially modify it to enhance data sharing across multiple programs throughout California and the West. The objective is to remove the mystery of the recreational boats history of whether or not it has been used in high risk waters. Having a tool such as this could then reduce the risk to waterbodies at a regional level.

TRPA has been an active participant in the effort to foster partnerships with the boat industry. Most recently, TRPA staff along with those from US Fish & Wildlife Service, (Service), National Park Service, the State of Minnesota and the Pacific States Marine Fisheries Commission, attended the International Boat Exposition in Louisville, KY. The group stationed a booth with the purpose of delivering messages regarding AIS and to make contacts with the boat industry. In addition, NPS staff was able to give a presentation to the boat industry regarding why they should be interested in the issue. This opportunity was a follow-up from an initial meeting set up by the American Boat and Yacht Council (ABYC) and the USFWS, referred to as the AIS Summit. TRPA staff also participated in this meeting where AIS managers and boat industry staff met and discussed AIS and delved into technical issues. TRPA is eager to continue this effort.

TRPA has also been informed of a non-profit organization in Minnesota known as Wildlife Forever who is attempting to trademark the term "Clean, Drain, Dry". TRPA is extremely concerned by this as the Tahoe AIS Program has used the term since 2008 and has invested tens of thousands of dollars utilizing it in education and outreach efforts. The term is an important tool as it simply tells the public what they can do to help prevent the spread of invasive species, and is widely used throughout the west and the nation; having a consistent message is invaluable. TRPA is considering their options as the Agency does not see the need for an individual, private entity to trademark this term, and is concerned what it would mean for its ability to use it in the future. TRPA is working with the Western Regional Panel on this issue and respectfully asks the ANSTF to weigh in on this

matter. To date, conversations with a representative from Wildlife Forever has not eased the agency's concerns as they could not answer how they could guarantee the use of the phrase, nor confirm their intent to maintain its free use into the future.

U.S. Coast Guard

The Coast Guard focuses on preventing the introduction and spread of invasive species by vessels in ballast water discharges and hull fouling. It also leads the U.S. government's inter-agency delegation to the International Maritime Organization (IMO). The delegation's work has included developing the guidelines that will implement the IMO's Ballast Water Management (BWM) Convention once it receives enough ratifications to enter into force.

The Coast Guard and EPA continue to coordinate on implementing both the Coast Guard's 2012 BWM regulations and the EPA's 2013 Vessel General Permit (VGP) program. Coast Guard marine inspectors and Port State Control officers screen vessels operating in waters of the U.S. and are trained to inspect them for both Coast Guard and EPA VGP requirements. The Coast Guard does not enforce the VGP, but forwards any violations for EPA action. It is also working on rapid sampling and analysis; specifically, fluorescence-based methods with a focus on organisms in the 10-50 micron size class.

The Coast Guard also partners with the Smithsonian Environmental Research Center (SERC) to run the National Ballast Information Clearinghouse (NBIC). Almost 10,000 unique ship visits report ballast discharges to NBIC each year, whose database and analysis services provide a "big picture" of ballasting operations and trends in and around the U.S. Exclusive Economic Zone (EEZ).

The Coast Guard has received 33 Letters of Intent from BWM system manufacturers that intend to apply for type-approval, and accepted five test consortia as Independent Labs (IL) to manage testing and applications. Three BWM system manufacturers have submitted applications to date; however, they requested an alternate test method for ultraviolet treatment that is under review by an inter-agency technical panel. A decision on whether to accept the statistical method of Most Probable Number (MPN) will be announced soon.

The Coast Guard has also reviewed and accepted 55 foreign type-approved BWM systems as Alternate Management Systems (AMS), 11 of which are accepted for use in fresh water. These AMS may be used in lieu of ballast water exchange, but only if a vessel installs it before reaching its original compliance date under the 2012 BWM regulations. After 5 years, the vessel's AMS manufacturer must have completed Coast Guard type-approval or the unit must be replaced.

Vessel owners and operators are applying for extended compliance dates, to continue conducting ballast water exchange until type-approved BWM system are available for their vessels. The Coast Guard has received over 4,000 applications, and granted about 2,100 extension letters, most for vessels with 2016 compliance dates. It has worked with EPA to revise the terms of extensions and streamline its process, in anticipation of about 2,500 applications per year until type-approved BWMS are available for enough types of vessels and in sufficient quantities to be widely used as an approved BWM method in waters of the U.S.

Lastly, the 2012 BWM regulations require the Coast Guard to conduct a practicability review to determine whether BWM systems could meet a more stringent ballast water discharge standard.

Because the Coast Guard has not yet type-approved any BWMS, there is not enough quality data to base a decision at this time, but it will provide a status update around the January 1, 2016 deadline.

National Association of State Aquaculture Coordinators

- Ron Johnston is retiring, will be selecting a new representative before the next ANSTF meeting.
- NASAC is working with other national aquaculture groups like US Trout Farmers and the National Aquaculture Association on ANS issues.
- The NASAC has an ANS Committee to evaluate concerns and help direct the aquaculture industry, Ron Johnson is a member of that committee.

National Park Service

2016 will be the third year in which the National Park Service (NPS) has provided \$2 million in funding for quagga / zebra mussel prevention and containment in 8 western parks. The participating parks are Amistad National Recreation Area (TX/MX), Bighorn Canyon National Recreation Area (MT/WY), Curecanti National Recreation Area (CO), Glacier National Park (MT), Glen Canyon National Recreation Area (AZ/UT), Grand Teton National Park(WY), Lake Mead National Recreation Area (AZ/NV), and Lake Roosevelt National Recreation Area (WA). In addition, Yellowstone National Park (ID/MT/WY) is increasing its capacity to address AIS on trailered boats using Recreational Fee funds.

The NPS continued efforts to eradicate non-native / invasive fish from selected waterbodies in Glacier National Park (MT), North Cascades National Park (WA), Sequoia-Kings Canyon National Parks (CA), and Yellowstone National Park (ID/MT/WY). Sequoia-Kings Canyon National Parks is in the process of developing an aquatic ecosystem restoration plan that emphasizes removal of non-native fish to restore native species, including two federally listed species of mountain yellow-legged frog, and aquatic ecosystem functions.

The National Park Service Directorate of Natural Resource Stewardship and Science participated in the development of the interdepartmental report "Safeguarding America's Lands and Waters from Invasive Species: A National Framework for Early Detection and Rapid Response", the ANSTF / NISC report "Federal Policy Options: Addressing the Movement of Aquatic Invasive Species Onto and Off of Federal Lands and Waters" and participated in the DOI Departmental Policy Work Group.

In an on-the-ground example of EDRR, National Park Service staff from Glen Canyon National Recreation Area and Grand Canyon National Park, in cooperation with staff from North Cascades National Park, the the Arizona Department of Game and Fish, Bureau of Reclamation, U.S. Fish and Wildlife Service and U.S. Geological Survey, were able to detect and eradicate a population of non-native green sunfish in a backwater of the Colorado River downstream of Glen Canyon Dam. Green sunfish, which are not native to the Colorado River have been implicated in the decline or extirpation of a number of native southwestern fishes.

San Francisco Estuary Partnership

Key activities happening in California: The California State Lands Commission is the lead agency in California for Ballast Water Management and Biofouling on large commercial vessels. Biofouling regulations for large commercial vessels will be considered at the December 2015 Commission meeting. Post meeting note, the commission voted to implement the regulations, and staff are currently working on few small procedural steps to take before the proposed regulations become official.

Funds have been established to conduct a feasibility study of shore-based ballast water reception and treatment facilities in California. This information might be useful to the federal agencies working on ballast water, especially due to the recent legal rulings against the EPA. Delta Science Program is overseeing the feasibility study. The study has an independent science review team will have approximately 3 public meetings to review the different phases of the report. The first meeting was held on October 6, 2015 and focused on the literature review and proposed case study, and was available via web cast. Materials from the first meeting are available at the following web site: <http://deltacouncil.ca.gov/feasibility-study-shore-based-ballast-water-reception-and-treatment-facilities-california-0>

Lake Champlain Basin Program

LCBP completed its ninth year of managing a boat launch steward program on Lake Champlain. A mandatory boat inspection and decontamination program modelled after Lake Tahoe is being conducted on Lake George by the Lake George Park Commission. New York Sea Grant has made available online sessions that demonstrate how boat operators may inspect and decontaminate boats. LCBP is working with partners including NYS Canal Corporation, US Army Corps of Engineers and many others to conduct a feasibility study for a hydrological barrier on the Champlain Canal. Water chestnut management continues on Lake Champlain and mechanical and hand harvesting efforts continue to push the infestation further and further south in the Lake. Securing funding for the program continues to be a challenge - \$500k is spent annually on management and significant part of that funding comes from the USACE. Spiny waterflea recently became established in Lake Champlain and was first discovered in the summer of 2014. Changes in zooplankton densities have already been documented. Starry stonewort is becoming a concern for many Northeast States and recently infested Lake Memphremagog. Lake Champlain Basin Program recently participated in the USGS-FAU Technical Meeting: Improving the EDRR Decision Framework for the Greater Everglades hosted by Florida Atlantic University's Center for Environmental Studies and in partnership with the USGS Greater Everglades Priority Ecosystems Science and DOI Everglades Restoration Initiatives to share the Lake Champlain Basin Program's AIS Rapid Response Plan and to help develop a risk assessment pertinent to the Everglades.

15. Next Steps for the AIS Federal Options Paper – Stas Burgiel, National Invasive Species Council

Stas Burgiel provided an update from the Federal Policy Options: Addressing the Movement of Aquatic Invasive Species Onto and Off Federal Lands and Waters document. The paper was requested as part of the Phoenix Workshop Action Plan, specifically it charged the ANSTF with examining federal laws, policies and regulations governing the movement of invasive species (including but not limited to AIS) onto and off of federal lands and waters and to explore federal policy options on how to improve federal coordination and capacity to address this issue.

A Federal Working Group was formed that consisted of 9 federal agencies. A document was drafted that included an overview of authorities, policy options, and series of appendices. The report also included tables to summarize and show specific actions that can / cannot prevent AIS. WRRDA mandated the ACOE to review federal authorities of AIS, which is similar to this effort. As a result the working group has had discussions with the ACOE to make sure the information is consistent. There are several recommendations and policy options within the document, including longer term areas that can be explored (e.g., funding mechanisms, joint rule making). Federal efforts that are

already ongoing and support the policy options were compiled to give a baseline of activities and collaboration opportunities. Next steps include a focus on trailered boats and other pathways as well as authorities, technical guidance, resources, enforcement. Proposed actions to implement the recommendations from the document include development of BMPs and joint rulemaking. Regulatory and land management agencies as well as AIS coordinators, NISC, and ANSTF should be involved in next steps to ensure communication and flow of information.

Dennis Riecke: Is the information on existing projects and next steps within the document?

Response: Document outlines authorities, but does not include information on next steps. The current focus is on implementation and options to address the movement of AIS on /off federal lands.

Dennis Zabaglo: Encourages consideration of recreation boat pathway, as this has been an issue in the west.

Leah Elwell: Restated the original intent of the charge was to reinforce the importance of addressing the boat pathway.

Dennis Riecke: What is the timeframe for next steps?

Response: No deadlines have been set, the working group has fulfilled commitment from the original request. These are additional steps that were identified and being considered.

Mike Ielmini: The Forest Service reviewed the document. From a law enforcement perspective, agencies are authorized to stop boats, but that does not mean it is actually occurring. The Forest Service has established policy, but it is not clear if this document will try to change or create different authorities.

Response: These are the next steps to look at gaps or agencies that do not have policies in order to identify what changes are needed.

John Wullschleger: This effort parallels the Building Consensus efforts as both are trying to identify areas to improve authority.

Response: There are an array of options, but we must focus efforts with an end goal in mind. One or more of the policy options should have a strategy to meet the goals identified.

Joanne Grady: There were two actions items that came out of the Phoenix Action Plan. This met the first. The second goal was to address rules regarding the movement of boats and attempt to make them consistent across agencies. This information should be included in consideration of next steps.

Special Session on Economics - Follow-up Discussion

[Continuation of the discussion from topic 11e on the previous day]

Dennis Riecke: The question is why do we need this information? To answer that question, input is needed from all parties (e.g., justify agency programs, facilitate behavior change). It comes down to behavior change: how much is it costing us and what are the impacts to specific user groups and industries. If this information is important, how would it be used?

Peg Brady: Suggest to poll members and ask for highest needs for economic studies also members and Panels must consider the granularity of information as this will also need to be addressed.

Dennis Riecke: This issue can get complicated with how and what to measure. It will come down to knowing cost and impact of AIS (at any scale),

Peg Brady: Agree, but need will of the group to decide how to proceed.

Michelle Tremblay: Perhaps a small group is needed to capture the questions that need to be answered and submit survey to ANSTF.

John Darling: Erika Jensen mentioned yesterday that a PhD candidate that was looking for a project; this individual may not want to do another cost estimate, but may want to evaluate how cost estimates are used to influence policy. This is a unique question and may be of use to the group. It may be possible to look at how cost estimates are used. This would be informative as we decided how next to move forward.

David Hoskins: ANSTF needs to determine what basic information is needed (e.g., need, purpose, scale). One option is engage the ANSTF research committee to gather this information. Afterward, the next step is to draft a proposal for an economic study.

ANSTF members and panels agreed that engaging the ANSTF research committee was a logical first step; volunteers were asked to contribute to this effort.

16. Arctic Strategy Update: Recent Activities and Opportunities for ANSTF Involvement – Phil Andreozzi, National Invasive Species Council

Phil Andreozzi provided an update on activities within the Arctic region. The National Strategy for the Arctic Region Implementation Plan continues to be led by the Department of the Interior with support from the National Invasive Species Council and the ANSTF. Invasive species actions within the plan include the Identification and assessment of pathways, risks, and impacts, establishment of baseline data, development of an EDRR Plan, development of a comprehensive prevention, control and management plan, and implementation of plans through extensive consultation with stakeholders. Deadlines for these activities are between 2017 and 2019.

The Arctic Council, which is chaired by the U.S. is composed of two committees that work on invasive species issues; the Conservation of Arctic Fauna and Flora Working Group (CAFF), chaired currently by Norway (previously chaired by U.S.), and Preservation of the Arctic Marine Environment

(PAME). Resiliency is a primary theme of U.S. Chairmanship, which includes the prevention, eradication, and management of invasive species. CAFF accepted a proposal, submitted jointly by the U.S. and Norway, to “Reduce the threat of invasive alien/non-native species to the Arctic by developing and implementing common measures for early detection and reporting, identifying and blocking pathways of introduction, and sharing best practices and techniques of monitoring, eradication and control.” The proposal will focus on identification and mitigation of pathways and development of common EDRR protocols (2017 – 2019 deadlines). Next steps include combination of U.S. Implementation Plan and CAFF Proposal activities as well as link CAFF and PAME initiatives in order to form one USG Arctic Team. There is also a need to identify appropriate U.S. experts (marine, freshwater, and terrestrial) and enable their leadership and participation. Active engagement is needed at all levels in region for these process, strong leaders from the region are needed to move this initiative forward.

Peg Brady: Can you talk a bit about the interagency committees? Is there any agency involvement that is missing?

Response: The Department of Interior is very well represented. Other agencies are welcome to engage. Involvement does not necessarily need to be based in Arctic Alaska; representatives from entire state of Alaska are welcome to engage, or others that understand Arctic issues; however, the product must be owned by region in order to make sure it can be implemented.

Peg Brady: What is next step?

Phil: Next week DOI is organizing a call for Arctic working groups. This call is intended to begin conversations to discuss development of the products.

17. Two Opportunities for ANSTF Engagement: The National Invasive Species Awareness Week and the World Conservation Congress – Phil Andreozzi, National Invasive Species Council

National Invasive Species Awareness Week (NISAW)

The first NISAW in 2011 (previously known as National Invasive Weed Awareness Week (NIWAW) was a fantastic outreach opportunity with participants from around country in-person (here in DC) and in-tandem (State-specific events). NISC has been actively engaged in organizing and sponsorship; however sequestration and government shut downs have limited its participation in recent years. The 2015 event included the NISAW Awards Ceremony, the NISAW Fair, Kid’s Day at the National History Museum, and a congressional Reception. There were also several concurrent events in States and robust on-line events including over 20 webinars. The next NISAW will be held February 21-27, 2016. The week will likely be scaled back in DC as staff and facilities that participated in past years are not available. As before, possible events include kids’ day, awards ceremony, reception on the hill, as well concurrent state and on-line events. The NISAW steering committee will meet next week to discuss what is feasible for 2016 and start thinking about 2017.

Leah Elwell: Is there a strategy for involving states in NISAW?

Response: States are encouraged to hold their own events . Any events can be publicized on the NISAW website. The website also includes ideas on what type of events can be held).

World Conservation Congress

The International Union for Conservation of Nature Congress is held every 4 years and is the largest conservation event in the world. Its functions include opportunities to provide a public forum for exchange of ideas on how best to conserve nature and to ensure an equitable and ecologically sustainable use of natural resource, meet and interact with fellow conservationists from across the globe, and present and discuss issues among those who are on the cutting edge of conservation. The next conference will be held in Honolulu, HI on September 2 – 10, 2016 with the theme “Planet at the Crossroads.” The event is expected to include over 600 events, 135 workshops, 200 knowledge cafe’s 200 posters, 100 exhibition booths, and 7 thematic pavilions. Each event is intended to be interactive and highlight results and innovation. The request for proposals for the Forum closed on October 15. There are ongoing efforts to partner with those that have submitted proposals to participate in Forum events or parallel events such as the Conservation Campus. A Finalized program schedule is expected to be available in January and registration should begin in May 2016. Several federal agencies will be participating in events. Opportunities for ANSTF include participation in forum events as well as non-forum events (e.g., tours, field trips). There will be a heavy emphasis on AIS throughout the Congress, providing the opportunity to reach a unique audience.

18. Status of a proposed National Early Detection and Rapid Response Framework – Hilary Smith, Department of the Interior

Hilary Smith (DOI) provided an update on efforts to develop a framework for a national early detection and rapid response (EDRR) program and to develop a plan for creating an emergency response fund. The October 2014 White House Priority Agenda on Climate Resilience and Natural Resources calls upon DOI and NISC agencies (NOAA, EPA, USDA and others) to work with states and tribes to develop these efforts. A federal planning and writing work group was formed to oversee the processes of obtaining wider reviews and vetting of drafts by a full range of federal invasive species and climate program experts. The document is organized by 4 themes: Preparedness, planning in advance to be successful (risk assessment, species watch lists); Education (training and monitoring programs; reporting and identification and assessment); Rapid Assessment (what response is needed, what is warranted, what is feasible); and Rapid Responses (treatment design and implementation as well as evaluation, who leads efforts). Throughout the document, coordination and communication, authorities, identify and close gaps, tools and technologies, and funding are highlighted. This document is a framework that provides high-level guidance, many specific details will need to be worked out before efforts are implemented. The deadline to finalize the report was September 30, 2015; however, the document is currently being reviewed by OMB. The document has undergone a thorough interagency review and the working group is working to address comments from this review. Once all stages of review are complete, the work group will develop a communications plan and determine next steps. The Department of Interior submitted a request to Congress for \$1.5 million to implement the Plan, yet this request did not make it through Congress. Current work is underway to identify alternative resources that may assist with implementation. The work group will continue to work with the ANSTF as progress on the Framework continues.

Public Comment

No Public Comment

19. Meeting Summary

A list of final action items and decision items was discussed (see first page of these meeting minutes). The next meeting of the ANS Task Force will tentatively occur on first week of May, 2016 and will be hosted by the Great Lakes Panel. It will tentatively occur in Traverse City, Michigan.

The Fall 2015 ANSTF Meeting was adjourned.
