AQUATIC NUISANCE SPECIES TASK FORCE: MINUTES OF THE 2011 FALL MEETING NOVEMBER 2–3, 2011

On November 2–3, 2011, the Aquatic Nuisance Species Task Force (ANSTF) met at the Department of Commerce Building in Washington, DC. Decisions and action items are listed below, followed by a summary of the two-day meeting.

Decisions

The ANSTF made the following decisions:

- Approved meeting agenda for the fall 2011 ANSTF meeting
- Approved minutes for the spring 2011 ANSTF meeting
- Approved ANSTF / National Invasive Species Council (NISC) pilot award program
- Agreed to move forward on developing a national prevention and control plan for invasive lionfishes in U.S. waters
- Agreed to support subcommittees to address the spread of aquatic invasive species through water gardens and by teachers/students/educators/researchers
- Agreed to write a letter documenting the importance of the Non-indigenous Aquatic Species Database and the potential impacts with the pending budget decision and the effect it would have to the Panels and ANSTF
- Conditionally approved the Texas aquatic nuisance species management plan
- Approved the Arizona aquatic nuisance species management plan
- Agreed to form an ad hoc committee to develop an Interagency Strategy to address research gaps identified in the National Research Council report on propagule pressure and invasion risk associated with ballast water. Members include Susan Pasko, John Darling, and Ryan Albert. The Western Regional Panel, Great Lakes Panel, and National Park Service will find additional committee members.
- Agreed that during future meetings, an annual report will be provided on the progress being made to strengthen the federal screening and listing processes for plants and animals in trade
- Agreed to establish a snakehead ad hoc committee to develop a management and control plan. The Mississippi River Basin Panel, Great Lakes Panel, Northeast Aquatic Nuisance Species Panel, and Gulf and South Atlantic Regional Panel will provide committee members.
- Agreed to convene a joint ANSTF/NISC ad hoc working group to synthesize the relationship between climate change and invasive/aquatic nuisance species by
    - Identifying and providing a platform for disseminating existing management strategies, tools, and resources
    - Identifying knowledge gaps and provide recommendations for future research needs

  Phil Moy, John Darling, Joe Divittorio, Adrianna Muir, and Britta Bierwagen agreed to serve as committee members. Stas Burgiel and Maria Boroja will serve as committee co-chairs.
- Agreed the Research Committee explore the feasibility of establishing a Canadian Aquatic Invasive Species Network program in the United States

New Action Items

The ANSTF assigned the following action items:

- (Executive Secretary) Email draft Strategic Plan and timeline to the ANSTF and Panels for review
- (Award Ad Hoc Committee) Implement award pilot during National Invasive Species Awareness Week
- (Laura Norcutt) Distribute draft Recreational Guidelines to the ANSTF and Panels for review
- (Panels) Provide input to Mangin on their use and experience with the Non-indigenous Aquatic Species Database
- (John Darling) Distribute the National Research Council report to the ANSTF
- (Snakehead Ad Hoc Committee) Develop a national snakehead management and control plan
- (Executive Secretary) Post outreach items on the ANSTF website
- (Karen McDowell and Sarah Whitney) Provide Mangin with information relative to fiscal management services for the Panels
- (Executive Secretary) Draft a letter to NISC recommending that NISC work within its membership to address the movements of infested boats and the responsibilities of federal agencies to prevent the spread, with the goal of decreasing the number of infested boats moving around the nation with emphasis on the western United States.

1. Welcome and Preliminary Business

Peg Brady, National Oceanic and Atmospheric Administration (NOAA) Liaison to the National Invasive Species Council (NISC) and ANSTF, was acting on behalf of NOAA Co-Chair Dr. Larry Robertson, Assistant Secretary of Conservation and Management and NOAA Deputy Administrator, who could not attend. Dr. Robertson announced he will retire on November 18. Dr. Robertson has been an instrumental member of the ANSTF and NISC. Craig Martin, Branch Chief of the Branch of Aquatic Invasive Species, U.S. Fish and Wildlife Service (FWS), extended apologies for Co-Chair Bryan Arroyo, Assistant Director for Fisheries and Habitat Conservation, who could not attend as well. Brady welcomed ANSTF members and observers to the meeting, and Martin thanked Susan Mangin, FWS, for organizing the meeting and Brady for hosting the meeting at the Department of Commerce building.

Mangin discussed meeting logistics and asked members to verify their information on the member roster. Mangin also reminded participants to use the ANSTF Meeting Briefing Book.

Self Introductions

ANSTF members and audience members introduced themselves.

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

Following introductions, the ANSTF approved the agenda for this meeting and the meeting summary for the spring 2011 meeting in Little Rock, Arkansas.

Mangin reviewed action items from the spring meeting:

- *Establish an ad-hoc committee to update the ANSTF Strategic Plan*—This item will be discussed during Item #4.
- *Establish an ad-hoc committee to develop, implement, and evaluate a pilot annual awards program*—This item will be discussed during Item #5.
- *Provide comments on water garden BMPs*—This item will be discussed during Item #17.
- *Establish a lionfish ad-hoc committee*—This item will be discussed during Item #6.
- *Post ICS training information on the ANSTF website*—Forest Service, Environmental Protection Agency (EPA), and FWS ICS training information is available on the ANSTF website.

3. Decisional: Climate Change and Invasive Species

3.1. Invasive Species, Climate Change and Ecosystem-Based Adaptation: Addressing the Multiple Drivers of Global Change

Adrianna Muir, Department of State, and Stas Burgiel, NISC, summarized their paper, *Invasive Species, Climate Change and Ecosystem-Based Adaptation: Addressing Multiple Drivers of Global Change*, which was published in September 2010 by the Global Invasive Species Programme. Climate change will directly impact the introduction, establishment, and/or spread of invasive species and impact key sectors and services through range shifts, facilitated movement caused by severe weather events, the weakening of natural controls on some native species, the degradation of the ability of ecosystems to sequester carbon, and the release of greenhouse gasses. Second order impacts from climate change include ecosystems that are more vulnerable to biological invasion because of severe weather disturbance events, changes in species composition and ecosystem function that may provide advantages or new niches for invasive species, and mitigation and adaptation measures created by humans that could increase the risk of invasive species.

Muir and Burgiel reviewed international and domestic research efforts and concluded with several planning, prevention, early detection and rapid response, control and management, restoration, education and outreach, and research recommendations.

3.2. Effects of Climate Change on Aquatic Invasive Species: Implications for Management and Research

Britta Bierwagen, EPA, summarized the paper, *Effects of Climate Change on Aquatic Invasive Species and Implications for Management and Research* published in February 2008 by the EPA. Bierwagen reviewed the five hypotheses associated with consequences of climate change, research that has been funded by the STAR Grant program, and some of the research results.

Aquatic invasive species (AIS) management is complex and involves people, policies, research, and available technologies. In 2006–2007, AIS management plans did not include climate change discussions and no mandate exists requiring that plans examine climate change. However, these plans did consider resilience, adaptive capacity, and responsiveness, all principles that could be considered in the context of climate change. Bierwagen concluded by presenting public health as an example of an adaptive management infrastructure that could be emulated for AIS management.

Following the two presentations, the ANSTF discussed the issues below:

- An infrastructure for sharing information between the management community and the research community
- The revision of State aquatic nuisance species (ANS) management plans to include climate change
- The Council on Environmental Quality (CEQ) Climate Change Task Force is now accepting agency comments on the draft *National Fish, Wildlife, and Plant Climate Adaptation Strategy*, and the Pew Research Center released a report about federal agency efforts related to climate change. The CEQ and Pew documents might have useful information for ANS managers.
- Future work should look to States on the leading edge of developing climate change plans

The ANSTF agreed to convene a joint ANSTF/NISC ad hoc working group to synthesize the relationship between climate change and invasive/aquatic nuisance species by

1. Identifying and providing a platform for disseminating existing management strategies, tools and resources

2. Identifying knowledge gaps and providing recommendations for future research needs

4. Informational: ANSTF Strategic Plan Update

An ad hoc committee, led by Susan Pasko, NOAA, was created at the ANSTF spring 2011 meeting to revise the *ANS Task Force Strategic Plan* (Strategic Plan), which expires in 2012. Pasko reminded the ANSTF that a draft copy of the revised Strategic Plan is included in the Briefing Book for their review. The plan was revised using the current Strategic Plan, comments from the ANSTF and Panels, State ANS management plans, and progress reports submitted for the current Strategic Plan. Significant changes include a more comprehensive introduction to the plan and ANSTF structure, three new strategic goals, and the addition of an *ANS Task Force Operational Plan* (Operational Plan). The Operational Plan will allow the goals and objectives of the Strategic Plan to be measurable and accountable through short-term efforts that can be amended and reported on. Pasko reviewed the eight goals of the Strategic Plan. Climate change was considered within the goals and objectives of the Strategic Plan and specific action items related to climate change will be included in the Operational Plan.

Mangin will email copies to the ANSTF and Panel members. Comments on the draft Strategic Plan are due to Pasko via email by December 15, 2011. The committee will reconvene to review the comments and revise the draft Strategic Plan accordingly. The goal is to submit the Strategic Plan at the ANSTF spring 2012 meeting and the Operational Plan at the fall 2012 meeting for approval. The timeline presented will be modified to include Agency review.

5. Decisional: ANSTF Award Program

Mangin provided a report for the ANSTF/NISC Pilot Award Program ad hoc committee, the development of which was supported at the ANSTF spring 2011 meeting. The committee proposed three awards, each with a terrestrial and an aquatic component:

- Outstanding Leadership Award for individuals or organizations whose collaborative and coalition-building efforts have significantly impacted the fight against invasive species regionally or nationally
- Outstanding Volunteer of the Year Award for an individual or organization whose volunteer efforts have significantly reduced the impact of invasive species at a local, state, regional, or national level
- Outstanding Achievement in Invasive Species Outreach and Education Award for an individual or organization who has significantly advanced awareness and understanding regarding invasive species on a state, regional, or national level

The awards will be presented during National Invasive Species Awareness Week (NISAW). If approved, the committee would ask for nominations and has already developed a simple nomination form. The ANSTF approved the ANSTF/NISC pilot award program.

6. Decisional: Lionfish Ad-hoc Committee Update

James Ballard, Gulf States Marine Fisheries Commission (GSMFC), provided an update for the Invasive Lionfish Control Ad-hoc Committee (ILCAC). Ballard acknowledged ILCAC members and reviewed its purpose. Ballard also reviewed the biology and life history of the lionfish (*Pterois volitans* and *Pterois miles*). Finally, Ballard described early sightings of lionfish and displayed maps of their recent range expansion and potential range. Increased lionfish densities may cause a variety of ecological and socioeconomic impacts. Management and control efforts include NOAA's "Eat Lionfish" campaign, agency reporting efforts, and the international development of regional approaches and knowledge sharing. A wide breadth of research efforts have been conducted but have not been well coordinated and future research needs exist.

The ILCAC submitted the report, *Review and Recommendations to the Aquatic Nuisance Species Task Force for a National Invasive Lionfish Control Plan.* According to the report, a national lionfish control plan would provide many benefits, including strengthening future responses to invasive marine species.

ANSTF members recommended the control plan address ballast water moving through the Panama Canal, include education and outreach components, and act as a framework for other invasive marine species for incorporating into State ANS management plans. The NOAA has a lionfish control plan that is agency specific and dovetails with international plans and any plan from the ANSTF. The ANSTF agreed to move forward on the development of a national prevention and control plan for invasive lionfishes in U.S. waters.

7. Decisional: ANSTF Recreational Guidelines Update

Laura Norcutt, FWS, provided an update for the *Recreational Guidelines* subcommittees. Six subcommittees have met and developed subsections of the *Recreational Guidelines*. After review, the committee decided to develop a standard template. The goal is a final document containing the basic message of clean, drain, and dry with separate options for each. The document will also include diagrams and a notation about what to do if an invasive species is found. Finally, the committee is developing a table that lists invasive species and their common and consistent treatments. Norcutt will email a copy of the draft *Recreational Guidelines* for review; she would like comments returned within one month.

The Recreational Guidelines Ad-hoc Committee recommended that water gardening and education and research subcommittees be added to the process but remain separate from the *Recreational Guidelines*. The ANSTF agreed to support subcommittees to address the spread of AIS through water gardens and by teachers/students/educators/researchers.

8. Informational: Lake Texoma—Doing the Right Thing

Dave Britton, FWS, reported on the zebra mussel (*Dreissena polymorpha*) situation in Lake Texoma, located on the border of Texas and Oklahoma. In April 2009, zebra mussels were found in Lake Texoma, so the North Texas Municipal Water District (NTMWD) stopped pumping water through the interbasin pipeline, which opens into Sister Grove Creek. Zebra mussels were detected in Sister Grove Creek in August 2009. The Texas Parks and Wildlife quickly treated Sister Grove Creek with potassium chloride to prevent further spread. Although treatments were unsuccessful, zebra mussels have not been found downstream. Managers are concerned because the Trinity River supplies water for the Dallas–Fort Worth and Huston metropolitan areas, and if mussels enter the Trinity River basin, they will be pumped throughout Texas.

Although the NTMWD voluntarily closed the pipeline, the U.S. Army Corps of Engineers (ACOE) suspended the permit to transfer water from Lake Texoma into the Trinity River basin after considering Executive Order 13112 and the Lacey Act. The NTMWD submitted a proposal to resume pumping water when larvae are least likely to be present and after cleaning the pipeline. The ACOE is accepting comments on the proposal until November 5, 2011. The NTMWD is also exploring a long-term, nonchemical solution, such as moving the pipeline so that it runs through the water treatment plant before entering the Trinity River basin.

9. Informational: Marine Recreational Boat Pathway

Karen McDowell, San Francisco Estuary Partnership, reported on efforts to control the spread of invasive species via boats travelling along the coastline during the upcoming America's Cup in San Francisco Bay. The America's Cup will include a series of races worldwide and in the San Francisco Bay. McDowell displayed the race schedule, graphics of the boats that will be raced, a map of the proposed course, photos of the area, and spectator estimates. A variety of vessels with varying risk levels are expected to enter the San Francisco Bay. An Invasive Species Task Force associated with the America's Cup has developed Best Management Practices (BMPs) and guidelines and a Boating Clean and Green pennant that will be issued to boats following the guidelines.

10. Informational: Asian Carp Management Plan Update

Sam Finney, FWS, reported on progress of the Asian Carp Working Group. Products of the working group include ranking six of the seven *Asian Carp Implementation Plan's* goals as follows: prevention, containment, extirpation, minimizing effects, developing and distributing information, and researching and developing effective barriers. The working group has also reviewed the resources

necessary to accomplish the goals and discussed refining the plan's budget and adding new technologies, such as environmental DNA (eDNA). The working group will also decide what activities should be implemented and assign activities to management agencies.

11. Informational: National Triploid Grass Carp Inspection and Certification Program

Vince Mudrak, FWS, provided an update on the Triploid Grass Carp Inspection and Certification Program. Mudrak displayed a map of grass carp (*Ctenopharyngodon idella*) State regulations and cooperating producers in the 1990s. In response to concerns from States and producers regarding illegal activities, the FWS created the National Triploid Grass Carp Inspection and Certification Program (NTGCICP) and held a workshop between FWS inspectors, producers, and the States to discuss quality assurance and regulation and review the NTGCICP. The FWS and producers developed a Memorandum of Agreement that agreed the FWS would inspect and certify producers only if producers followed the prescribed quality assurance/quality control (QA/QC) guidelines to ensure all diploids are removed from triploid populations. Mudrak detailed the QA/QC guidelines, FWS inspection process, and noncompliance penalties. Unfortunately, grass carp regulations vary by state and regulations will likely change in the future.

12. Status of the Non-indigenous Aquatic Species Database

Cindy Kolar, U.S. Geological Survey (USGS), announced that the National Biological Information Infrastructure (NBII) will soon cease to exist because of 2011 budget cuts. Although the Non-indigenous Aquatic Species (NAS) Database will not be terminated, it will be impacted by a $130,000 budget shortfall. The NAS database is used to report AIS sightings, obtain species information, and create maps. It is a highly used database and many management plans approved by the ANSTF recommend using the NAS database. Cuts become effective January 15 and will result in losing two technicians who support the database through data entry and error diagnosis. Computer programming services have already been cut back and will cease in January. These cutbacks will result in longer response times and slower database entry.

Although Kolar did not know exactly how many hits the database receives each month, she did know it was over 100,000. ANSTF and Panel members expressed concern over impacts to the database since they all use it frequently and many agencies have either not developed similar databases or have purposely developed systems that integrate with the NAS database. The ANSTF requested members provide input to Mangin on their use and experience with the NAS database, and a letter will be drafted for USGS documenting the importance of the NAS database and the potential impacts with the pending budget decision and the effect it would have to the Panel and the ANSTF.

13. Informational: Asian Clam Eradication Efforts in Lake George

Meg Modley, Lake Champlain Basin Program, displayed a map of Lake George in New York. Asian clam (*Corbicula fluminea*) was discovered in Lake George in August 2010. After obtaining input from Lake Tahoe experts with extensive Asian clam experience, a network of professionals and volunteers formally organized as the Lake George Asian Clam Rapid Response Task Force. Modley reviewed the biology, life cycle, invasion history, and impacts of the Asian clam. Modley then detailed the Lake George Asian clam infestation, results of a pilot benthic barrier mat study, and containment efforts that began in April 2011. Treatment efforts in Lake George resulted in over 99% mortality under the polyvinyl chloride (PVC) benthic barrier mats weighted with rebar and sandbags at the Lake George Village infestation site. In July 2011, a 5-acre infestation was discovered in Boon Bay, which led to a lake-wide survey and the discovery of two additional infestation sites. Future benthic barrier mat and suction harvest treatments are planned as is a second treatment of sites at the Lake George Village site that could not be treated the first time.

Modley summarized the overall program costs to date; several take home points; and other outcomes from this project, including the passage of an aquatic plant transport law in Warren County, New York. Although samples from the four populations have been sent for genetic analysis, researchers do not know the introduction pathway, whether these were four separate introductions, or how the populations are surviving the cold winter temperatures.

14. Informational: *Didemnum vexillum* Project in Alaska

Kim Holzer, FWS, shared some photos and lessons learned from collaborative work on the establishment of *Didemnum vexillum* in Whiting Harbor, Alaska. Holzer reviewed the biology, life cycle, and history of *D. vexillum* invasions. During her trip to Alaska, Holzer and colleagues spent several weeks collecting descriptive and experimental data near the Whiting Harbor Aquafarm. Experiments were conducted to explore treatment options to kill this nuisance species; all treatments were effective if given enough time. Holzer and colleagues also studied community composition in the presence and absence of *D. vexillum* as well as predator-prey interactions. Some native species may consume *D. vexillum* but with limited ability to control the abundance of the new invader. Results from these small-scale studies were promising, but eradication methods need to be field tested over larger areas and on different substrates. Cement dust may be a viable option for treating vertical surfaces. Additional studies are needed to ensure treatment levels can be maintained in the field as is outreach for local aquaculture farmers and fishermen to increase awareness about preventing secondary spread of harmful nonnative bio-foulers like *D. vexillum*.

15. Mitten Crab Efforts

Ron Smith, FWS, reported on progress made since the first National Chinese Mitten Crab Workshop held one year ago. A workgroup has been established and is meeting regularly to review and prioritize the workshop action items. A subworkgroup has identified five areas of the *Mitten Crab National Control Plan* that need to be modified or updated, including the need for a new website, updating the ecology section of the plan, and incorporating the East Coast. Other suggested changes include adding a section for early detection and updating the implementation table. Other action items from the workshop that are in progress include developing strategies for continued collaboration and communication, developing protocols for new introductions or resurgences, revising the management plan template to align it with other management plans, and developing a detailed database of sightings that could be confirmed.

The West Coast infestation has not followed the pattern of other mitten crab (*Eriocheir sinensis*) infestations. It began as a rapid infestation but has tapered off; causing some researchers to suspect the initial infestation was done purposely to develop a commercial market.

16. Decisional: State Plan Overviews/Approval

16.1. Texas

Don MacLean, FWS, reported on the Texas ANS management plan, which was submitted for preliminary review several years ago. Authors of the plan incorporated comments provided by the ANSTF and have submitted a plan for final approval. However, a transmittal letter from the Governor has not been received. Per MacLean's recommendation, the ANSTF agreed to conditionally approve the Texas ANS management plan pending receipt of Governor Perry's submittal letter.

16.2. Arizona

Tom McMahon, Arizona Game and Fish, summarized the final Arizona ANS management plan, most of which was developed by the Arizona Game and Fish and University of Arizona. McMahon highlighted the six categories of the plan and the poster of Arizona's 10 most unwanted invasive species that was developed as part of the outreach program as outlined in the plan. MacLean reported that the authors did a good job of incorporating comments received during review and recommended the ANSTF approve the plan. The ANSTF approved the Arizona ANS management plan.

17. Informational: ANSTF Charter Renewal and National Invasive Species Awareness Week

Mangin reviewed recent changes to the ANSTF Charter, which is renewed every 2 years. According to the changes, all Panel agendas must be approved by the Executive Secretary. The Executive Secretary or his or her alternative must attend all Panel meetings.

Mangin also reported on NISAW, which will be held February 26–March 3, 2012. Mangin asked ANSTF and Panel members to submit suggestions for activities during NISAW. Suggestions during the meeting included serving Asian carp at one of the evening receptions to highlight Asian carp commercialization and pushing national media coverage of the event.

Finally, Mangin reported on the Panel meetings held yesterday where they worked on developing a Panel Coordinator position description and discussed research needs and projects the Panels have a common interest in, including a rapid response workshop and a "Lessons Learned" Incident Command System workshop.

Public Comment

Maria Boroja, Animal and Plant Health Inspection Service (APHIS), announced that the CEQ will be releasing the *National Fish, Wildlife, and Plants Climate Adaptation Strategy* for review this week.

Adjourn

The meeting adjourned at 5:00 PM.

DAY 2

18. Informational: Ballast Water and Vessel General Permits Update

18.1. Ballast Water Discharge Standard

Commander Ryan Allain, U.S. Coast Guard (USCG), provided an update on the Ballast Water Discharge Standard (BWDS) proposed rulemaking, which would set a discharge standard for concentrations of living organisms in ballast water. The Notice of Proposed Rulemaking (NPRM) was published in August 2009, and the public comment period ended in December 2009. Commenters expressed concern about the applicability and the availability of technology and requested a unified federal standard. The BWDS NPRM proposed a two-phase approach: the phase-one standard is based on the International Maritime Organization's (IMO's) "Regulation D-2" standard of the Ballast Water Management Convention, and the phase-two standard is based on quantitative limits that would be 1,000 times more stringent than the IMO standard.

The USCG is working with the Naval Research Laboratory, the EPA, and academia to develop Environmental Technology Verification (ETV) protocols. The ETV protocols have been finalized for land-based testing, and efforts to develop ship-board test methods are ongoing. Initial systems that gain USCG Guard type approval certification will likely be those that have achieved type approval from a foreign administration. The Coast Guard NPRM proposed having a type approval process that would accept test data compiled at a foreign lab, as long as an equivalency could be established to USCG type approval standards. Finding independent laboratories capable of conducting testing for USCG equipment type approval will be a challenge as will getting vessels to simultaneously comply with the EPA's Vessel General Permit (VGP) program, which is why the USGC and EPA are working to harmonize vessel compliance under both regimes.

18.2. Vessel General Permit Program

Ryan Albert, EPA, provided an update on the VGP. In addition to USCG regulation, ballast water discharges are regulated by the Clean Water Act (CWA), implemented under the VGP by the EPA. The CWA provides for National Pollutant Discharge Elimination System (NPDES) Permits and technology-based and water quality–based effluent limits. Until 20003, ballast water discharge had been excluded from NPDES permitting. In 2006, a court decision required the EPA to regulate ballast water, so the EPA issued the first VGP in December 2008, which expires in 2013. This VGP covers non-recreational, non-military vessels longer than 79 feet, except for commercial fishing vessels. A new VGP was released on November 30, 2011. This VGP contains key settlement agreement obligations, including providing 6 months for states to complete 401 Certification. The EPA hopes to facilitate state-level communication by sponsoring regional calls and/or a national co-regulator meeting.

The EPA has sponsored two ballast water studies. The first is the EPA's Science Advisory Board (SAB) Panel, which has determined that the IMO standard is achievable, but existing shipboard technology is unlikely to meet a standard that is 1,000 times more stringent than the IMO. The second is the National Academy of Science National Research Council (NRC), which has concluded that the EPA's ability to adequately quantify risk suffers from a profound lack of data and the IMO standard represents a significant reduction in concentrations beyond ballast water exchange. The EPA used these studies to inform its limits in the recently released VGP.

19. Decisional: Research Gaps Identified in National Academy of Sciences' Report

John Darling, EPA, discussed the reports *Assessing the Relationship between Propagule Pressure and Invasion Risk in Ballast Water*[1] and *Density Matters*: *A Review of Approaches to Setting Organism-based Discharge Standards*[2]. The EPA has been using these documents to investigate the possibility of setting numerically based discharge limits that are appropriate for the VGP. The report authored by the NRC concludes that the available methods for determining a numerically based discharge limit are limited by a profound lack of data and information; therefore, determining the risk of ANS establishment under current discharge limits is not possible. The report details the exiting gaps; Darling proposed the ANSTF assess these gaps and explore possible funding to move this research forward. After some discussion, the ANSTF agreed to form an ad hoc committee to develop an Interagency Strategy to address research gaps identified in the NRC report on propagule pressure and invasion risk associated with ballast water. Pasko, Darling, and Albert agreed to be committee members. The Western Regional Panel (WRP), Great Lakes Panel (GLP), and National Park Service (NPS) will find additional members.

20. Informational: Commercial Harvesting of Invasives

Ron Brooks, Kentucky Fish and Wildlife Resources, reported on the latest efforts to commercialize Asian carp. Several states have acquired new processors and Kentucky has a distribution center. Kentucky also passed the Asian Carp Program to promote commercial fishermen as a management tool. The industry is growing slowly with new processors entering the export market and additional interest in the domestic market. However, government participation is lacking even though enhancing commercial harvest, possibly through financial incentives, was included in Goal 3 in the *Management and Control Plan for Bighead, Black, Grass, and Silver Carps in the United States*. Brooks listed the pros and cons of developing a commercial industry and noted that cons were based on "potential" concerns that could be prepared for; he also offered solutions to the potential cons.

Brooks recently presented to the Association of Fish and Wildlife Agencies who asked him to develop an Action Statement. The Action Statement is still under development since other States and Agencies may want to join. He is also researching the amount of money needed to promote the industry, develop processing facilities, and support necessary research. Unfortunately, Brooks has not had much success finding funding support. Next steps include rallying anglers, commercial fishermen, and recreational boaters to contact State and federal legislators to lobby for funding to perpetuate the industry.

ANSTF members expressed concern about intentional introductions to other river systems if Asian carp are successfully commercialized. Greg Conover, MICRA, replied that MICRA has a draft position addressing this issue and business plans should be written knowing this is not a long-term, sustainable fishing industry. Furthermore, intentional movement needs to be discussed regardless of the fate of commercial fishing.

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[1] National Research Council, Committee on Assessing Numeric Limits for Living Organisms in Ballast Water. 2011. Assessing the relationship between propagule pressure and invasion risk in ballast water. Washington DC: The National Academies Press.

[2] Lee II, H., Reusser, D. A., Frazier, M., and Ruiz, G. 2010. Density matters: review of approaches to setting organism-based ballast water discharge standards. U.S. EPA, Office of Research and Development, National Health and Environmental Effects Research Laboratory, Western Ecology Division. EPA/600/R-10/031.

21. Informational: Water Garden BMPs

Marshall Meyers, Pet Industry Joint Advisory Council (PIJAC), reported on the status of recently developed water garden BMPs. These BMPs, designed for retailers and hobbyists not resource managers, were released for review and comment. The final versions will include guidance for disposing of plant species, remove references to mosquito fish (*Gambusia affinis*), add scientific and common names for all species, and include photos and sample pond designs. Once the BMPs have been updated, they will be recirculated to certain reviewers. The final versions will be released through PIJAC and the American Network of Landscape Association and trade and consumer magazines. ANSTF members can contact Meyers if they want to review the final BMPs.

22. Informational: Canadian Aquatic Species Network

Dr. Hugh MacIsaac, University of Windsor and Canadian Aquatic Invasive Species Network (CAISN) Scientific Director, introduced the CAISN approach to studying invasive species. CAISN combines academia, government, and industry to study vectors and pathways, factors affecting establishment success, and risk assessment in three Canadian regions. With 34 professors in 8 provinces, they can study a wide array of organisms simultaneously across the country. MacIsaac summarized CAISN's key findings and knowledge gaps for ballast water and provided barcoding, 454 pyrosequencing, and microarray molecular methods to detect AIS as examples of ongoing CAISN research programs.

A network similar to CAISN is advantageous because it provides a coordinated and efficient assembly of expertise through a large contingent of highly qualified, trained personnel; questions are addressed at a national level by multiple disciplines; a large range of biota can be studied simultaneously; and studies that would be too large or expensive for one lab can be conducted. Finally, MacIsaac explained how the large CAISN network was built.

Brady reported that the Natural Sciences and Engineering Research Council of Canada representative is prepared to meet with staff officials to discuss coordinating efforts. The ANSTF agreed the Research Committee explore the feasibility of establishing a CAISN program in the United States.

23. Informational: Panel Updates

Great Lakes Panel (GLP)

Phil Moy, Wisconsin Sea Grant Institute, reported on GLP subcommittee activity: the Information and Education Subcommittee is exploring the use of social media to advance priorities, the Research Coordination Committee is reviewing grass carp diploid contamination, and the GLP Executive Committee and Policy Coordination Committee developed a recommendation to the ANSTF regarding the Lacey Act. Because the Lacey Act is slow and cumbersome compared to the number of existing and new species and because internet sales are not regulated, the GLP recommended the Lacey Act be improved. Martin expressed his support of the GLP's recommendation and noted the Department of Interior and FWS have been working together on the Lacey Act Tiger Team. The ANSTF agreed that during future meetings, an annual report will be provided on the progress being made to strengthen the federal screening and listing processes for plants and animals in trade.

Mississippi River Basin Panel (MRBP)

Eileen Ryce, Montana Fish, Wildlife and Parks, highlighted several MRBP accomplishments. The MRBP has launched a new website (www.mrbp.org) and hosted the ANSTF spring meeting in Little Rock, Arkansas. The next panel meeting will be held in December in Oklahoma City, Oklahoma, where they will again discuss Asian carp. Ryce repeated comments made earlier by Brooks, particularly the lack of funding for implementing the *Asian Carp Management and Control Plan*. The MRBP recommended the ANSTF move forward on developing a national snakehead

management plan, and participants recommended using the northern snakehead management plan as a starting point. The ANSTF agreed to establish a snakehead ad hoc committee. The MRBP, GLP, Northeast Aquatic Nuisance Species Panel (NEANS), and Gulf and South Atlantic Regional Panel (GSARP) will provide committee members.

Mid-Atlantic Regional Panel (MARP)

Sarah Whitney, Pennsylvania Sea Grant, reported the MARP held their fall meeting in Shepherdstown, West Virginia, where they discussed nonnative cray fish and Asian carp management. The MARP funded 13 projects between 2007 and 2010, all of which have been completed. In response to MARP's recommendation that the ANSTF gather information on efforts being made to change behavior regarding AIS, Joe Starinchak, FWS, suggested MARP contact Community-Based Social Marketing and distributed guidance Starinchak developed for the *Stop Aquatic Hitchhikers!* and *Habitattitude* campaigns. Mangin agreed to post Starinchak's guidance document on the ANSTF website. Burgiel also suggested attending the social marketing session that will be presented during NISAW. MARP also recommended the ANSTF provide fiscal management services to all Regional Panels. Mangin reported the FWS is restructuring how funding will be distributed to the Panels, and this issue will be discussed during a January conference call. McDowell and Whitney will provide information to Mangin relative to fiscal management services for the Panels. A representative from NEANS also offered to help the Panels set up their nonprofit status. For their third recommendation, MARP asked the ANSTF to encourage the ACOE to work with State fisheries management agencies on Asian carp prevention during decisions regarding waterway management, and to do so across the Mississippi River watershed. In response to this recommendation, Al Cofrancesco, ACOE, displayed a memorandum written by the ACOE on June 2, 2009, describing their invasive species policy, which emphasizes prevention, early detection and rapid response, and control and management of invasive species. Cofrancesco suggested Whitney show this memo to the district offices, and offered to raise the issue to the leadership team. The final MARP recommendation of creating an ad hoc committee to develop recommendations leading to vector intercept and management strategies is already being addressed by the ANSTF/NISC Prevention Committee.

Western Regional Panel (WRP)

McDowell reported the WRP is updating their invasive species brochure and held their annual meeting in Oakland, California, on October 12–14 where they had a session on marine issues and another on quagga (*Dreissena rostriformis*) and zebra mussel issues. The second day included a business meeting with the Panel Coordinator who will no longer be funded by the FWS after June 2012. The WRP is trying to develop a funding solution for a new coordinator. Because States have not coordinated boat bands that indicate a mussel inspection, the WRP will be developing a table describing what the different colors and codes mean. Finally, McDowell described an incident where an inspected boat was later discovered to be infested with mussels to support the WRP's recommendation that the ANSTF identify funding needed to improve existing inspection and decontamination programs. Following much discussion, the ANSTF agreed that a letter should be drafted to NISC recommending that NISC work within its membership to address the movements of infested boats and the responsibilities of federal agencies to prevent the spread of invasives, with the goal of decreasing the number of infested boats moving around the nation with an emphasis on the western United States.

Northeast Aquatic Nuisance Species Panel (NEANS)

Nancy Balcom, Connecticut Sea Grant Extension Program, announced NEANS is 10 years old this month and will be holding its next meeting in Providence, Rhode Island, where they will conduct a second Hazard Analysis and Critical Control Points (HACCP) training with the FWS. The NEANS online guide and website revisions are finished; both will go live by the end of the year. NEANS partnered with the Rhode Island Coastal Resources Management Council to work on a regional early

detection and rapid response framework for the Chinese mitten crab. Additional activities include distributing posters for Chinese mitten and Dungeness (*Cancer magister*) crabs, supporting the Marine Invaders tracking database, researching the feasibility of a rapid response program that provides partial financial assistance to their members, organizing a joint spring 2012 meeting in New York with the Great Lakes Panel, and co-hosting the second Didymo (*Didymosphenia geminata*) conference, to be held on the East Coast in fall 2012.

Gulf and South Atlantic Regional Panel (GSARP)

Ballard reported on three projects being funded by the GSARP. The manual and PowerPoint presentation covering 5 plant and 6 animal species have been completed for the Invasive Species Travelling Trunk project. The Trojan Y Chromosome Eradication of Invasive Fish project has been expanded to include African jewelfish (*Hemichromis bimaculatus*); however, random amplification of polymorphic DNA (RAPD) polymerase chain reactions (PCRs) have not produced specific markers for the Nile tilapia (*Oreochromis niloticus*) or African jewelfish. Finally, the Reproductive Sterility as a Tool for Prevention and Control of Invasive Aquatics project has obtained 300 adult spiketop apple snails (*Pomacea bridgesii*), irradiated them with research grade and commercial grade irradiators, and placed them in aquariums for monitoring. Additional chemical treatments were applied to island apple snails (*Pomacea insularum*) to produce polyploidy snails. Sterile snails are desired for use in the aquarium trade and for controlling wild populations.

24. Informational: ANSTF Member Updates

American Water Works Association—John DeKam reflected on how much he has learned in the past 17 years and asked ANSTF members to send any information they think might be important for water treatment facilities to him or to their local facility. DeKam also asked the Panels to invite water and wastewater treatment facility representatives to be Panel members.

Animal and Plant Health Inspection Service (APHIS)—Maria Boroja reported that APHIS is developing a public service announcement for aquatic disease pathogens and an education and outreach program.

Bureau of Land Management (BLM)—Stephanie Carman noted BLM's focus has been on distributing money to State BLM offices so they can implement their ANS plans or fund ANS activities. Most states receive about $20,000 per year, which goes to funding inspection and decontamination staff, outreach and education materials, and removal projects. The BLM is working on national stipulations for boat launching and continues to develop a policy for cleaning BLM gear as field personnel move between sites. Finally, Carman has been working with Wildlife Forever to place ANS ads into magazines and State hunting and fishing regulations.

Bureau of Reclamation (BOR)—Joe Divittorio reported the BOR recently conducted a workshop about protective coatings that are designed to inhibit or prevent the attachment of quagga and zebra mussels and a workshop for irrigation districts about quagga and zebra mussel control and management. The BOR continues to monitor for new mussel infestations and recently completed vulnerability assessments for many BOR hydropower facilities. The Lower Colorado Region prepared an environmental assessment on the use of Zequanox™ in the Colorado River while the Hoover Dam is experimenting with UV light treatment. The BOR has updated its inspection and cleaning manual to include photos, a boat motor map, and descriptions of how mussels might be transported via vegetation.

Environmental Protection Agency (EPA)—John Darling reported the EPA is not only working on the VGP but also on the Clean Boating Act to develop similar regulations for recreational vehicles. The EPA released nearly $5 million for Great Lakes Restoration Initiative projects related specifically to invasive species. Funds may be available in 2012 to extend work on standardized early detection

protocols, particularly molecular methods. The Office of Research and Development realigned the research programs to create a Safe and Sustainable Water Program that officially incorporates research activities related to invasives, including testing ballast water technologies and incorporating invasive species impacts into national research programs.

Great Lakes Commission (GLC)—Kathe Glassner-Shwayder reported the GLC has been working on physical barriers to separate the Mississippi River and Great Lakes basins to stop the exchange of AIS and provide beneficial water uses in the Chicago system, such as commercial, recreational, navigation, flood control, and wastewater treatment. Glassner-Shwayder will send the GLC's report on three possible separation options to the ANSTF when it is complete. The GLC is also working on *Phragmites* outreach with the State of Michigan and held a successful symposium last spring. Finally, the GLC wrote a letter supporting reform of the Lacey Act; the letter was well received by the Great Lakes delegation.

Gulf States Marine Fisheries Commission (GSMFC)—James Ballard reported the GSMFC is developing a server database to house completed risk assessments. Texas will submit about 250 risk assessments for invasive plants. States will be able to search by species for a completed risk assessment that could be used as a model. The GSMFC is also organizing data collected for a rapid assessment clearinghouse.

Lake Champlain Basin Program (LCBP)—Meg Modley thanked the FWS and NOAA Sea Grant for supporting Kim Holzer who helped with field work in controlling the Asian clam population in Lake George, New York. Modley reported that Tropical Storm Irene unexpectedly moved Didymo into outdoor ponds at a FWS hatchery with salmonids that were about to be stocked. The LCBP is concerned about a lack of ACOE funding for the aquatic plant program since that money partially funds the water chestnut (*Trapa natans*) control program in Lake Champlain. Modley reported on the following regional accomplishments: the Adirondack Park Invasive Plant Program has obtained funding for a team to immediately respond to terrestrial invasive plant infestations and the hope is that another program for aquatics will be funded next year, the boat launch program has been expanded into the western Adirondack region, and separation on the Champlain Canal continues to be explored.

National Oceanic and Atmospheric Administration (NOAA)—Peg Brady directed participants to the ANSTF website for her NOAA update. Brady reminded participants to submit agenda items for the upcoming NISAW. In August, Brady attended the Conference on Marine Bioinvasions and will attend their next meeting in Vancouver, Canada. Brady will also attend the fall 2012 International Conference on Aquatic Invasive Species (ICAIS) meeting in Baltimore, Maryland. Planners for that conference scheduled the meeting in hopes the new IMO Ballast Water Management Convention will be passed by then.

National Park Service (NPS)—Allen Ellsworth introduced himself to the ANSTF. Ellsworth is originally from the northeast region but recently transferred to Washington, DC for a position with the NPS's Water Resources Division. Ellsworth is aware of many AIS issues and will be involved with exploring new ballast water treatment equipment.

San Francisco Estuary Partnership—Karen McDowell reminded participants the California Lands Commission runs the ballast water program and is moving forward with their treatment standard and biofouling regulations, which should be finalized by January 2013. McDowell thanked the FWS and NOAA for this meeting and for the work done by the federal agencies between meetings.

U.S. Army Corps of Engineers (ACOE)—Al Cofrancesco reported that invasive aquatic and plant programs were not funded for the 2012 fiscal year. Funding has been restored at the subcommittee level, but the end result is not known. Congressman Flemming requested a researcher testify before his subcommittee; unfortunately, the researcher was not asked about funding or managing invasive species. The ACOE has been asked to participate in an initiative for Lake Cayuga in New York, which

has hydrilla (*Hydrilla verticillata*). Sediments in this lake are being dredged and relocated upstream, which is a concern since hydrilla tubers can survive for up to 4 years in dry sediments. Because the ACOE is legally required to restore ecosystems, most of which have an invasive species as the main component, the tact has been to rephrase the work as ecosystem restoration to obtain funding.

U.S. Department of State—Adrianna Muir announced the State Department is finalizing an interagency agreement with NOAA for $200,000 to be dedicated to lionfish. Most of the funding will be used to advance the Regional Lionfish Committee, an ad-hoc committee of the International Coral Reef Initiative. The Regional Lionfish Committee will be coordinating a regional strategy and working on a commercial market strategy and a web portal to coordinate the Caribbean.

U.S. Fish and Wildlife Service (FWS)—Craig Martin welcomed Joanne Grady and recognized Kim Holzer. This was Holzer's last meeting and that position will not be funded next year. The FWS is experiencing increased budget pressures and will be initiating a comprehensive management planning process with stakeholders to prioritize projects. Ecological risk screening reports have been published as a product of the Prevention Committee's Nonnative Wildlife Screening Workgroup.

U.S. Forest Service (USFS)—Mike Ielmini presented a letter to the public from the District Ranger on the Salmon–Challis National Forest explaining the zebra mussel threat and describing what the Forest Service will be doing to inspect and decontaminate boats. The USFS will be issuing an invasive policy that could serve as a model for other federal agencies. In addition, the USFS is updating its handbook to include invasives. The handbook update mentions training, cooperation, movement, detection, and the need for science-based guidance.

U.S. Geological Survey (USGS)—Cindy Kolar reported on recent Asian carp projects, including researching spawning and development of early larvae, exploring food requirements, and completing a draft binational risk assessment for the Great Lakes. A significant effort has been spent exploring hydro canons and pheromones as control methods. Bioactive nanoparticles that are designed to target specific taxa are the newest control method being explored. To be successful, researchers must find unique Asian carp digestive enzymes to dissolve the nanoparticle and a substance that would only kill Asian carp. Similar work is being done with zebra and quagga mussels.

Public Comment

No public comments were submitted.

Meeting Summary

Landscape Conservation Cooperatives/invasive issues and incorporating Panel recommendations will be included on the agenda for the spring 2012 meeting.

The Mid-Atlantic Panel will be hosting the spring meeting; the meeting is tentatively scheduled for Annapolis, Maryland, on May 2–3, 2012.

Adjourn.

The meeting adjourned at 3:30 pm.