

AQUATIC NUISANCE SPECIES TASK FORCE: MINUTES OF THE 2009 FALL MEETING NOVEMBER 4–5, 2009

On November 4 and 5, 2009, the Aquatic Nuisance Species Task Force (ANSTF or Task Force) met at the National Oceanic and Atmospheric Administration (NOAA) offices in Silver Spring, MD. 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 and minutes for the spring 2009 ANSTF meeting.
- Approved release of the *Federal Aquatic Nuisance Species (ANS) Research Risk Analysis Protocol* for publication in the Federal Register for public comment.
- Conditionally approved the *Quagga-Zebra Mussel Action Plan for Western U.S. Waters (QZAP)*, pending suggested changes.
- Approved the *Lake Tahoe Region Aquatic Invasive Species Management Plan*.
- Conditionally approved the *Georgia Aquatic Nuisance Species Management Plan*, pending a signed transmittal letter from Governor Perdue.
- Approved *A Minnesota State Management Plan for Invasive Species*, with the aquatic implementation table.
- Approved the *South Carolina Aquatic Invasive Species Management Plan*.

New Action Items

The ANSTF assigned the following action items:

- (U.S. Fish and Wildlife Service [USFWS] and U.S. Geological Survey [USGS]) Follow up on results of the strategic planning exercise.
- (Executive Secretary) Look into ANSTF national guidelines for recreation and provide to the Great Lakes Panel, if available.
- (Executive Secretary) Coordinate with Bogenschutz and Brady on an ANSTF presence at National Invasive Species Awareness Week in January 2010.
- (Western Regional Panel) Incorporate five changes to the QZAP.
- (Federal agencies) Hold a call to develop a cover letter for the QZAP.
- (ANSTF) Form a subgroup to focus on quagga/zebra mussel coordination. More details coming.

Topics for Upcoming ANSTF Meetings

- Roles of the Task Force and regional panels
- Measured effectiveness of outreach campaigns
- Success of citizen science efforts
- Re-energizing of ANSTF committees

1. Welcome and Preliminary Business

Acting NOAA Co-Chair Mary Glackin, Deputy Undersecretary for Oceans and Atmosphere, and USFWS Co-Chair Brian Arroyo, Assistant Director for Fisheries and Habitat Conservation, sent Pat Montanio, Director of Habitat Conservation for NOAA, and Jeff Underwood, Deputy Assistant Director of Fisheries and Habitat Conservation for the USFWS, to serve in their stead. Both welcomed ANSTF members and observers to Silver Spring. Peg Brady, NOAA liaison to the National Invasive Species Council (NISC) and ANSTF, covered meeting logistics. Following introductions, the Task Force approved the agenda for this meeting and summary of the spring 2009 meeting in Bozeman, MT.

2. Review of Spring Action Items

ANSTF Executive Secretary Susan Mangin, USFWS, reviewed action items from the spring meeting.

- *ANSTF Strategic Plan*—The plan is the focus of this meeting and scheduled for session 3.
- *Utah ANS Plan*—At the spring meeting, this plan was conditionally approved, pending revisions. Larry Dalton, Utah Division of Wildlife Resources, incorporated comments from the ANSTF.
- *Quagga-Zebra Mussel Action Plan for Western U.S. Waters*—A transmittal letter and draft QZAP were sent to ANSTF members. Comments have been incorporated, and this item is scheduled for discussion in session 12.
- *Regional Panel Funding*—Regional panel funding has been a major issue. Each panel has submitted its funding needs, scheduled for session 5.
- *ANSTF Meeting Schedules*—Fall meetings are the first week in November, typically in the Washington, DC, area. Spring meetings are the first week in May and hosted by regional panels. The 2010 meeting will be hosted by the Northeast Regional Panel (NEANS) in Portland, ME; the 2011 meeting, by the Mid-Atlantic Regional Panel (MARP); and 2012, by the Mississippi River Basin Panel (MRBP).
- *Experts Database*—Federal agencies were encouraged to include a link to the experts database on their websites. This tool is incredibly useful and easy to use. Most have done so.
- *Research Protocol*—Research Committee chair David Reid, NOAA's Great Lakes Environmental Research Laboratory, reported on the status of the recently updated research protocol and forwarded the committee recommendation that the new protocol replace the existing one. He also summarized the revision process since May. Revisions were editorial and not substantive.
- *Asian Carps Actions*—The MRBP had recommended that the USFWS explore establishing an implementation committee and funding plan for the Asian carps national management plan and funding an independent scientific review and evaluation of the Triploid Grass Carp Inspection and Certification Program. These recommendations are scheduled for session 14.
- *Rapid Response Plans*—The Control Committee was charged with assessing panels' rapid response plans and templates as part of a possible effort to develop a model. Chair Jonathan McKnight reported that this task is in progress.
- *Ballast Water Protocol for Emergency Groundings*—The U.S. Coast Guard (USCG) and National Park Service (NPS) were asked to look into this issue. Per CDR Gary Croot, USCG, this task is also in progress. An ad hoc group reviewed the risk assessment submitted by Michael Hoff, USFWS, to identify high-risk vessels requiring action and the appropriate actions to use. Croot has also talked with the multiagency National Response Team. This team and its regional counterparts have protocols for responding to accidental releases of toxins and pollution and natural disasters. This issue will be on the agenda for the National Response Team's next meeting this winter.

- *Tugs and Barges as Vectors*—The USCG also acted on the MRBP recommendation regarding this potential pathway, which is much bigger than originally thought. Through public hearings held on the draft rulemaking for the ballast water discharge standard, they have learned that many barges and tugs use drop pumps and ad hoc systems to ballast down to get under bridges. These discharges are often unreported. These vessels will have to comply with some kind of discharge standard, but it will be difficult to comply with the standard as it is now written since they have no traditional ballast water pumping and piping systems. Although they do not discharge the same amount of water as ocean-going vessels, they do so more often. Given the importance of the Chicago Sanitary and Shipping Canal and the expansive inland river system, CDR Croot believes the first priority should be identifying the size and scope of the issue. He mentioned two people who will be important in doing so: Phil Moy, University of Wisconsin Sea Grant, who is chairing an upcoming symposium in San Francisco on the inland river system, and James Garvey, Southern Illinois University, who is the lead researcher on coordinating data collection and analysis.
- *ANS Species of Greatest Concern*—The MARP has a list of 47 species of greatest concern and how this list was developed. This information has been shared with other regional panels.

3. Priorities for ANSTF Objectives

Joe Piehuta, USFWS, explained the process of having members place dots to prioritize objectives from the *ANSTF Strategic Plan* for fiscal years 2010, 2011, and 2012. Table 1 shows the results.

Table 1 Top three priorities for each fiscal year

No	Objective	FY
1.1	Facilitate the development and use of science based risk assessments and other decision tools to determine the risks associated with the movements of potentially invasive aquatic species and the methods to prevent or mitigate those risks.	FY10 FY11 FY12
2.1	Facilitate survey and monitoring efforts to detect and control ANS.	FY10 FY11 FY12
2.2	Facilitate the development of capacities to respond rapidly to invasions.	FY11
4.1	Ensure the people of the United States understand the problems and impacts associated with ANS.	FY10 FY12

Members and observers broke into groups to develop plans for each priority. Upon returning to the full group, Brady clarified the context of the exercise. The ANSTF is midstream on its current strategic plan (2007–2012). As the Task Force looks to the future, it’s helpful to review objectives, identify priorities, coordinate around those priorities, leverage opportunities to address them, and identify gaps. This brainstorming session could also inform the budgeting processes of the federal agencies.

Representatives from each breakout group reported on their plans, according to parameters shown in Table 2. Jason Goeckler reported for FY10, Brady for FY11, and Jonathan McKnight for FY12.

Table 2 Input from breakout sessions on strategic plan priorities, by fiscal year

Parameter	FY10	FY11	FY12
1.1 Facilitate the development and use of science based risk assessments and other decision tools to determine the risks associated with the movements of potentially invasive aquatic species and the methods to prevent or mitigate those risks.			
Title	Risk assessment	Updated generic aquatic risk assessment process that is more defensible and regionally and species specific (develop a screening process)	Implementation phase of the strategic plan

Parameter	FY10	FY11	FY12
Responsible Agency	USFWS (with data from all agencies)	ANSTF–NISC joint working group as place for coordination	USFWS and USGS jointly responsible on implementation
Resources Necessary	Time	Funding to develop process for specific species	\$1.5 million
Strategies	<ul style="list-style-type: none"> • Compile list of risk assessments that have been completed and identified as useful • Compile list of 2010 risk assessment projects • Determine whether the ANSTF's generic risk assessment is sufficient 	<ul style="list-style-type: none"> • Determine transport condition of species relative to certain vectors, species capacity to establish in certain ecosystems, and effect of climate change on species establishment • Assess risk and develop biosecurity plan to reduce risk of invasions • Restrict water withdrawals for invasive species spread • Coordinate national tools (databases) and train panels to use/tailor them 	<ul style="list-style-type: none"> • Implement the model • Involve states, regional panels, agencies, and ANSTF • Coordinate via joint Prevention Committee • Award funds to universities and consultants for implementation projects
Barriers	<ul style="list-style-type: none"> • Differing techniques for risk assessment 	<ul style="list-style-type: none"> • Authority gaps that address who does what • Lack of funding for enhancing decision making and forecast tools 	<ul style="list-style-type: none"> • Have to create a broad net of involvement at all levels and for a broad range of taxa
Follow-up	Discussion at next ANSTF meeting about risk assessments (w/ experts)		
2.1 Facilitate survey and monitoring efforts to detect and control ANS.			
Title	Survey and monitoring		Survey and monitoring
Responsible Agency	USFWS (with data from regional panels)		USFWS and USGS (with involvement from everyone)
Resources Necessary	Time		\$500,000 for facilitation and coordination
Strategies (some already being implemented)	<ul style="list-style-type: none"> • Compile list of current monitoring efforts (where and how) • Focus on existing infestations to prevent spread • Look at known vectors and species 	<ul style="list-style-type: none"> • Develop molecular tools for mass screening • Coordinate databases • Develop and coordinate citizen science efforts for detection and monitoring 	<ul style="list-style-type: none"> • Use competitive grant program to implement on the ground • Strive for consistency among agencies • Promote inclusiveness and use broad range of scientific expertise • Select where to monitor and survey
Barriers		Lack of funding to implement and sustain monitoring programs and databases	
Follow-up	Report at May meeting		
2.2 Facilitate the development of capacities to respond rapidly to invasions.			
Title		Capacity for responding rapidly to invasions	
Responsible Agency			
Resources Necessary		Funding for initial assessment and tools to decide where to dedicate efforts and funding (trust fund for rapid response)	

Parameter	FY10	FY11	FY12
Strategies		<ul style="list-style-type: none"> Develop new and novel control technologies (e.g., nanotech biocide delivery) Create species-specific decision tree on feasibility of eradication Train and nurture volunteers to help with rapid response efforts 	
Barriers		Lack of tools for rapid response	
4.1 Ensure the people of the United States understand the problems and impacts associated with ANS.			
Title	Public awareness		
Responsible Agency	USFWS (CEO Committee of ANSTF)		USFWS and NOAA's Sea Grant Program
Resources Necessary	Time		\$1.5 million for national ad campaigns
Strategies	<ul style="list-style-type: none"> Compile list of effective tools (what audiences?) Modify objective statement Conduct GAP analysis of the Stop Aquatic Hitchhikers! campaign 		<ul style="list-style-type: none"> Expand Habitattitude and Stop Aquatic Hitchhikers! Build on investments in FY10 and FY11
Barriers	Lack of funding		Lack of funding and consistent messaging/branding

After plans for each objective were presented, ANSTF members had an opportunity to discuss them.

- Objective 1.1**—The group discussed risk assessment activities already underway by working groups under the joint ANSTF-NISC Prevention Committee. A library of risk assessments has been compiled, and a risk assessment protocol may be ready by early 2011. Given that FY10 activities are going on now, that group focused primarily on compiling existing information throughout the objectives.
- Objective 2.1**—Funding levels for all the FY12 group’s plan are minimum levels—the least amount needed to take action. The funding level provided for this objective doesn’t include actual monitoring but coordination of monitoring efforts at the state and regional levels. Volunteer citizen groups could be trained and mentored to extend funding.
- Objective 2.2**—Facilitating the permitting process is necessary for rapid response. Varying state regulations are also a challenge, so rapid response funding should be provided to states to deal with gaps in legislation and federal permitting.
- Objective 4.1**—Participants discussed the FY12 funding figure of \$1.5 million for advertising. An agency in Florida quoted that figure as a minimum for a national campaign, although any campaign will likely be tailored to the regions. Red Line Films expressed interest in a TV program about invasives modeled on *Dirty Jobs*. That and other opportunities could complement a national campaign. The group also talked about assessing the effectiveness of outreach campaigns. A couple of studies have been done on a smaller scale, but people would like more information about behavior change as a result of outreach. This issue was identified as a topic for a future meeting, as were examples of successful citizen science efforts.

4. Ballast Water Discussion

As a visual reminder of the importance of addressing ballast water, David Reid, NOAA, shared a photograph taken inside an empty ballast tank on a new ship in the Pacific. Strange objects hung from the ceiling and were determined to be dead tunicates (*Ciona intestinalis*). They had apparently fully attached during the five- or six-week sea trials. When the tanks were drained, the tunicates dried, and gravity pulled them into stringy objects. This example introduced three talks on ballast water issues.

4.1. U.S. Environmental Protection Agency

Marcus Zobrist, EPA, presented on recent changes to permitting requirements for discharges incidental to normal vessel operations. Since 1973, EPA regulations had excluded such discharges from National Pollutant Discharge Elimination System (NPDES) permitting, but the exclusion was legally challenged and found to be unauthorized. The EPA has had two years to address the court's decision and permit vessel discharges.

After the court decision, EPA's responsibilities were narrowed somewhat. The Clean Boating Act of 2008 excluded incidental discharges for recreational vessels from NPDES permitting and instead required the EPA to develop management practices to control these discharges. A public law also resulted in a temporary moratorium, except on ballast water, on NPDES permitting for incidental discharges from commercial fishing vessels and for nonrecreational vessels less than 79 feet. This moratorium expires July 31, 2010, during which time the EPA is to study discharges and report to Congress. This deadline may be extended for another three years under a USCG request to Congress.

The EPA issued a nationwide vessel general permit (VGP) effective February 6, 2009, immediately covering 69,000 vessels. But vessels meeting certain criteria must submit notices of intent to maintain their certification. Since September, over 50,000 vessels have submitted their notices.

Zobrist talked about requirements under the VGP. While national in scope, the VGP doesn't guarantee uniformity because the Clean Water Act requires compliance with state water quality standards and other more stringent state requirements. Seven challenges to the VGP have been brought by environmental groups, industry, and Michigan. The claims have been consolidated and are pending.

4.2. U.S. Coast Guard

CDR Gary Croot, USCG, illustrated how ballasting operations work. These operations are complex and can go awry. According to Croot, the general perception is that ballast water tanks are just big tanks. But they are highly subdivided and can be widely located and configured. Even ships termed "no ballast on board," or NOBOBs, can have several tons of ballast water that cannot be drained.

Croot also addressed the confusion about authority: The Clean Water Act underlies the EPA's regulations for VGPs, while the USCG's authority for developing a ballast water regime that is "practicable and feasible" is from the Nonindigenous Aquatic Nuisance Prevention and Control Act of 1990, reauthorized in 1996 as the National Invasive Species Act.

Ballast water exchange has been used for years to reduce the introduction and spread of aquatic invasive species (AIS). But such exchange can be unsafe or impossible if ships do not go far enough out to conduct an exchange. So a discharge standard has been developed via a phased approach. Starting in 2012, ships will use the discharge standard developed by the International Maritime Organization (IMO), a significant improvement over ballast water exchange. The technologies exist to implement and verify this standard for large seagoing vessels.

Phase two will be considerably harder to implement by 2016 because the standard is to be 1,000 times more stringent than the IMO standard. A practicability review will be conducted in 2013 to determine whether this standard can be attained and verified and, if not, identify an acceptable intermediary standard. Croot discussed the inherent challenges.

The deadline for public comment on the rulemaking is December 4, after which the USCG will finalize the rule and look at type approval testing and independent lab certification. Evaluating technologies and their ability to verify that the standard is met is very important, and Croot talked more about verification resources. After sharing some issues that were raised at public meetings, Croot invited participants to submit their comments at www.regulations.gov (docket USCG-2001-10486).

4.3. Treatment Technologies

Mario Tamburri, University of Maryland Center for Environmental Science, talked about ballast water treatment systems and testing. Since the IMO standard came out in 2004, testers have been working toward that standard. Possible treatments can be mechanical, physical, chemical, or a combination.

Several entities have conducted recent reviews of treatment systems: USCG, American Bureau of Shipping, Lloyd's Register, and California State Land Commission. So far, six systems have been certified (by countries, not the IMO itself) as meeting the IMO and phase one standard. Because the United States has no certification process, the two American companies—Hyde Marine and NEI Treatment Systems—are certified by the United Kingdom and Liberia/Marshall Islands, respectively.

Tamburri concurred that no technology exists for the phase two standard. The California State Land Commission has identified seven systems that may someday meet the California standard, but the report cautions that the analysis was based solely on information from vendors and didn't necessarily include methods used or detection limits. Nor did the results consider initial challenge conditions.

Next, he showed a map of four testing facilities that are open and nine that are preparing to test treatment technologies. Those already open are located in Norway; the Netherlands; Superior, WI (Great Ships Initiative), and Baltimore, MD (Maritime Environmental Resource Center). The U.S. facilities don't charge for their services so the process is open and transparent. In Europe, vendors pay for testing and the facilities report directly to the vendors.

According to Tamburri, although environmental technology verification is effective at assessing compliance with the IMO and phase one standard, there are also challenges: categorizing organisms by size, determining whether miniscule organisms are alive or dead, identifying whether companies are ready for certification (or just research and development testing), manipulating water to meet challenge conditions without affecting the outcomes, and evaluating the longevity and reliability of treatment systems. Standards also have to be enforced, which raises the issues of cost versus confidence in monitoring for compliance. The best approach for monitoring compliance onboard is likely indirect measures of system performance using sensors to measure changes to ballast water.

5. Panel Funding Needs

At the spring 2009 meeting, panels were asked to submit costs for continued functioning. Panel heads were invited to explain these numbers to help agencies understand the needs and develop budgets.

5.1. Western Regional Panel

Eileen Ryce, Montana Department of Fish, Wildlife and Parks and WRP chair, said that the panel's funding priorities lie in three main areas: operational support (such as a full-time coordinator and participation at the annual meeting), project support (such as the educational materials database and watercraft decontamination effectiveness study), and development and support of state ANS management plans. Of the 19 states represented by the panel, 7 do not have state plans. For unified response and management, all states should have plans. She encouraged members to continue pressing for funding. She added that the QZAP (see section 12) includes additional funding needs.

5.2. Great Lakes Panel

Jim Grazio, Pennsylvania Department of Environmental Protection and GLP chair, commented that the panels had interpreted the request differently. For example, the GLP included only funding needs beyond the base funding already provided. Also, administration and operation of the panels differ. For the GLP, the three most important areas of funding needs are travel support (for quorum), a small grant competition, and workshops of regional interest.

5.3. Gulf and South Atlantic Regional Panel

Per James Ballard, Gulf States Marine Fisheries Commission and GSARP coordinator, the panel's main concerns are funds for research and demonstration projects. At this time, most of the base funding is used for travel, but additional funds are necessary for travel, administration, and outreach.

5.4. Northeast Regional Panel

Jan Smith, Massachusetts Office of Coastal Zone Management and NEANS co-chair, reported that the panel's request was relatively modest because the steering committee had not met before the request was due. The panel seeks funding to support implementation projects, long-term planning and evaluation, workshops in conjunction with panel meetings, and travel support for panel members and expert presenters for the Spotlight on Species sessions. At the upcoming panel meeting, the NEANS membership can better address the ANSTF's request.

5.5. Mississippi River Basin Panel

Jason Goeckler, Kansas Department of Wildlife and Parks and MRBP co-chair, commented that the MRBP's need focuses on early detection and rapid response, since many of the member states are dealing with rapid response situations. For example, Illinois is busy with the Asian carp threat in the Chicago Sanitary and Ship Canal. The panel also prioritized research projects if funding is limited.

5.6. Mid-Atlantic Regional Panel

Jonathan McKnight, Maryland Department of Natural Resources and MARP chair, explained that the panel is essentially a volunteer organization, with most of the administration covered by the Maryland DNR and time covered by the USFWS. Some of the funding provided by the ANSTF is used for travel, and the remainder is used for a small grant program. If the ANSTF wants the regional panel to serve as an implementation arm, he can bring the issue to the membership. But it is a very different group from the others, and the difference is apparent in the numbers presented. The MARP's needs are less and categorized as administration/coordination and travel. ANSTF members and panel chairs identified clarifying the role of the regional panels as a topic for future discussion. At Underwood's request, panel chairs also talked about funding they seek outside the ANSTF disbursement.

6. Panel Updates

Panel chairs were also asked to update the ANSTF and bring forward any recommendations.

6.1. Mid-Atlantic Regional Panel

McKnight reported that recommendations from the MARP remain essentially the same: encourage increased consistent communication with regional panels, including sharing concerns about AIS issues, and encourage consistent guidance for development of state ANS management plans. The MARP is supporting invasive fish research, a field guide for Pennsylvania, Virginia tidewater *Phragmites* work, the Smithsonian Environmental Research Center's mitten crab (*Eriocheir sinensis*) watch, and Nature Conservancy's nutria (*Myocaster coypus*) removal in coastal North Carolina. McKnight invited people to attend an upcoming workshop on vectors and vector intercepts in Baltimore to be held the day before the panel's next meeting.

6.2. Northeast Regional Panel

Smith summarized the last two NEANS meetings, with a focus on *Corbicula* last November and on northern snakehead (*Channa argus*) eradication in New York last May. The next meeting will be next week in Salem, MA. The original focus was on a risk assessment in Canada, but now it will be on a monitoring effort in Maine targeted to school groups. Volunteer groups are important because of the lack of funding. Other efforts include a most-wanted poster for Chinese mitten crabs and Dungeness crabs (*Cancer magister*, a second one was caught in Massachusetts this summer). The panel is supporting development of an online guide to allow entities to develop their own field guides and continues revising the bylaws. The NEANS would like to see the ANSTF work with members of Congress to appropriate the full authorization for state ANS management plans and secure other sources of funding to support the panel's initiatives and expenses, including meetings and workshops.

6.3. Mississippi River Basin Panel

According to Goeckler, it has been a busy year for the MRBP. The panel hosted two coordination meetings in 2009, one in February and one in September. At the spring ANSTF meeting, members also raised the issues of river barges, wild-caught bait, and pay lakes as vectors. A contractor has been hired to do a risk assessment on pay lakes. Other activities focus on grass carp (*Ctenopharyngodon idella*), boater surveys, proceedings for an Asian carp symposium held in 2006, a rapid response model for the basin (with NOAA), experts database updates, risk assessment work with Hoff, and watch cards on various species. Members can review the submitted report for a more complete update.

6.4. Gulf and South Atlantic Regional Panel

Ballard reported on the status of member states' ANS management plans, with several well into the process and North Carolina starting to develop its plan. Other activities included distributing outreach brochures, exploring funding sources, revising the regional rapid response plan, reviewing the draft strategic plan for 2010–2014, and revising the panel's website. Eradication and monitoring efforts in the region are aimed at tilapia (*Oreochromis* sp.) in Louisiana, zebra mussels (*Dreissena polymorpha*) and giant salvinia (*Salvinia molesta*) in Texas, lionfish (*Pterois volitans*), and the rat lung worm parasite (*Angiostrongylus cantonensis*). The panel recommended that the ANSTF continue seeking more funding for state plans and panel activities.

6.5. Great Lakes Panel

Grazio listed several GLP and committee activities, including a meeting in Grand Island, NY, policy statements on ballast water regulations and screening regulations that the ANSTF should see soon, a priorities document, a protocol for timely reporting of ANS detection, a wiki for reporting panel activities, and an expanded booklet of ANS. The Great Lakes Restoration Initiative includes \$60 million for invasive species efforts. So the GLP is developing potential projects to submit for some of this funding. Grazio said that the panel has no recommendations at this time. He requested the national guidelines for recreational users that were developed at one time. ANSTF members thought that those guidelines were part of the prework for Stop Aquatic Hitchhikers! Executive Secretary Mangin will look into their status. If they are not endorsed by the ANSTF, the GLP will adapt them for the region.

6.6. Western Regional Panel

Ryce reported that the WRP has been very focused on QZAP (see section 12). The annual meeting was held in Seattle in September. There, the panel adopted boat inspection and decontamination standards and funded a risk assessment project on boater movements within Arizona. The decontamination standards will be further revised by current research on the effectiveness of car washes in killing zebra and quagga mussels (*Dreissena polymorpha* and *D. rostriformis bugensis*, respectively) and veligers. The WRP also hosted the ANSTF's spring meeting in Bozeman.

7. National Center for Biological Invasions

Don Schmitz, Florida Fish and Wildlife Conservation Commission, described the architecture of existing response systems, regional response efforts, and benefits of an invasive species network in North America. Nine federal initiatives and 176 federal agencies have authority in matters pertaining to invasive and nonnative species, and 476 state agencies and organizations have invasive species interests. A number of regional centers and institutes have also been established. Yet response efforts haven't changed much in the last 15 years: Invasive species information is badly fragmented and a networking infrastructure is needed. A workshop to discuss this need is scheduled in Florida in March.

Schmitz shared five key components to improving invasive species management in North America, using experiences in Florida as examples:

1. **Define the problem**—It has not been defined at the national level or in terms of economic impact.
2. **Form cooperative partnerships**—Florida has 14 cooperative invasive species management areas that bring agencies and organizations together.
3. **Establish and expand regional information hubs and connect databases.**
4. **Coordinate rapid response efforts**—Rapid response efforts should include an emergency insurance fund for newly established invasive species that can be contained and/or eradicated.
5. **Track and coordinate research.**

The effects of climate shift on invasive species are unknown, but they make a network even more imperative. Schmitz requested that the ANSTF send representation to the March workshop and endorse this networking effort. Participants discussed the applicability of a framework to aquatic versus terrestrial species and the potential for increased budgets, prevention, and awareness.

8. State ANS Plans

Peg Brady, NOAA, shared preliminary results on an analysis of state and interstate ANS management plans undertaken by Susan Pasko so that NOAA, along with the ANSTF, could identify how the agency and Task Force could support the plans. Other agencies may be able to use results to do the same. She showed a map of states and interstate areas with approved plans (32), draft plans (8), and no plans. Currently, 14 states are without plans or drafts. She also discussed funding needs and funding sources identified in 15 plans, as well as the states with invasive species councils.

Brady then listed the highest priority actions among 29 ANS plans that had been analyzed (in order of importance): outreach and education, coordination, early detection, prevention, and legislation. Not surprisingly, these priorities were similar to those identified by the ANSTF during the morning exercise (see section 3). Top species of concern were (in order of importance) the zebra mussel, Eurasian watermilfoil (*Myriophyllum spicatum*), hydrilla (*Hydrilla verticillata*), purple loosestrife (*Lythrum salicaria*), Asian clam (*Corbicula fluminea*), grass carp, giant salvinia, water hyacinth (*Eichhornia crassipes*), black carp (*Mylopharyngodon piceus*), and Brazilian elodea (*Egria densa*). Again, Brady reminded people that the analysis is incomplete; final results will be available soon.

9. National Invasive Species Awareness Week

Kim Bogenschutz, Iowa Department of Natural Resources, presented a handout on behalf of the Association of Fish and Wildlife Agencies. The National Weeds Awareness Week is now the National Invasive Species Awareness Week, scheduled January 10–14 in Washington, DC. Bogenschutz previewed conference events, with one afternoon dedicated to visiting congressional staff and discussing invasive species issues. She encouraged participants to register online at www.nisaw.org. ANSTF members talked about the fine line between raising awareness and lobbying. Executive Secretary Mangin will coordinate with Bogenschutz and Brady on an ANSTF presence at NISAW.

10. ANSTF Support

The ANSTF co-chairs recognized several people and presented them with tokens of appreciation:

- David Reid, senior physical scientist at NOAA's Great Lakes Environmental Research Laboratory and retiring chair of the ANSTF Research Committee, for his work on the research protocols.
- Bob Pitman, ANS coordinator for the USFWS Region 2, for his involvement over the years on ANS issues, especially the 100th Meridian, hazard analysis and critical control point (HACCP) planning, and giant salvinia control.
- Joe DiVittorio, Bureau of Reclamation; Jason Goeckler, Kansas Department of Wildlife and Parks; Stephen Phillips, Pacific States Marine Fisheries Commission; Eileen Ryce, Montana Department of Fish, Wildlife, and Parks; and Bob Pitman, USFWS, for their diligent work on the QZAP.

11. Public Comment

No one stepped forward to make public comment. So members returned to the Research Committee's recommendation that the ANSTF release the *Federal Aquatic Nuisance Species (ANS) Research Risk Analysis Protocol* for publication in the Federal Register. Reid commented that one point of revising the previous protocol was to simplify it so that agencies could incorporate it into their proposal process. The ANSTF approved the recommendation.

12. Quagga-Zebra Mussel Action Plan for Western U.S. Waters

12.1. Presentation

The second day of the meeting began with a presentation on the *Quagga-Zebra Mussel Action Plan for Western U.S. Waters* by Eileen Ryce, WRP chair. This plan was prompted by a letter to the Department of the Interior from Sen. Dianne Feinstein (D-CA) and then assigned to the WRP at last fall's ANSTF meeting. Ryce presented the panel's progress at the spring meeting in Bozeman, after which comments were submitted and incorporated.

The WRP has a large and diverse membership, so people don't agree on all aspects of the plan. But the plan does represent the highest priorities of all 19 states. These priorities were developed at an early meeting and haven't changed, although the plan does not yet include which agencies should take the lead on some actions. The plan is now at the end of the 30-day ANSTF review. After comments were submitted this summer, the plan was revised to follow the format of the state ANS management plans. The appendices were also expanded to include more about state activities.

The 13 highest priorities were also listed early in the document for accessibility. Coordination of funding and implementation of state ANS management plans nationwide was unanimously chosen as the highest priority. A majority of states have ANS management plans, but full funding is not available for all states. Other categories of priority actions include prevention, early-detection monitoring, rapid response, containment and control of existing populations, and outreach and education. The panel's figure of \$2.5 million for early-detection monitoring covered only high-priority waters. But this priority aligns with objectives prioritized by the ANSTF the previous day.

Ryce requested that the ANSTF adopt the plan, discuss implementation and coordination, and identify agency involvement. The panel hoped that the plan would be a "living document" and that there would be some sort of update on accomplishments at each ANSTF meeting.

12.2. Discussion and Adoption

ANSTF members praised the WRP on the plan and discussed its adoption. The following points were raised during the discussion:

- Adoption of the plan and what “adoption” actually means.
- Importance of the plan being a living document, with priorities adjusting as more is learned.
- Addition of caveat language about appropriated funding to the Appendix D table.
- Context of this issue being an “emergency” that requires a strong foundation in state and interstate ANS management plans but also activities above and beyond those plans.
- Basis for the \$31 million requested for state ANS management plan funding in priority action A.1. The WRP believes that states must have effective ANS management in place before any species-specific actions can be effective. This plan is also the only one of its kind and therefore an opportunity to seek necessary baseline funding for ANS management. If all 50 states develop plans and the \$31 million is split among them, each state receives less than a million for state ANS management plan implementation. Others cautioned that it may be difficult to convince decision makers that funding for these management plans belongs under the umbrella of a single species plan. It was suggested that the category heading “Coordination” be changed to “Foundation” or something that more accurately describes the implementation aspects of priority action A.1.
- Possible formation of a coordination subgroup, much like the Zebra Mussel Coordination Committee that existed in the early days of the ANSTF.

Following the discussion, the ANSTF approved the QZAP, pending five changes:

- Add language about the emergency situation (and define “emergency”).
- Change the language in priority action A.1 to reflect that state and interstate ANS management plans are foundational and clarify the requested dollar amount to represent value per state.
- Add language regarding authority and appropriations.
- Supplement the economic and ecological portion of the document
- Clarify that the plan is not a budget request or justification of funds

Ryce will resubmit the plan to the ANSTF for review by mid-December 2009. Task Force members also want to craft a strong cover letter that emphasizes discussion points. They will set up a call among the federal agencies to identify audience, purpose, and important points. Guidelines will be set up in advance to facilitate that call. Members also mentioned the importance of briefing congressional delegates and staff on Capitol Hill and having citizens reinforce that message and press for additional funding with their delegation.

The WRP requested that the ANSTF further discuss implementation and tracking: When species-specific national management plans or state ANS management plans are adopted, the USFWS funds the plans to some extent. This product is different and the first of its kind, so they are concerned about future activity. The USFWS agreed to take the lead on forming a subgroup focused on quagga and zebra mussels.

Underwood and Mangin shared that the USFWS is to receive \$2 million for quagga and zebra mussel activities. Of this, \$800,000 will fund inspection and decontamination stations at seven access points to Lake Tahoe, while the remaining \$1.2 million is yet to be disbursed. One possibility is that half the amount can be dedicated to state and interstate ANS management plans and the other half to QZAP state plans. Details are still being worked out.

13. State/Interstate ANS Management Plans

13.1. Lake Tahoe

Ted Thayer, Tahoe Regional Planning Agency, presented the *Lake Tahoe Region Aquatic Invasive Species Management Plan* and provided background on the region and plan. Although the Forest Service manages 75% of the land area, the lake and surrounding watershed is split between the states of California and Nevada, five counties and an incorporated city. All of these jurisdictions are involved in the effort to prevent and control AIS in some way. The TRPA is a bistate compact agency that was ratified by Congress with authority across state lines. It is designated as lead agency for plan oversight and fiscal agent for the plan. In August, the governors of California and Nevada signed letters of intent to approve the plan. The Lake Tahoe AIS Coordination Committee, composed of state and federal agencies, oversees the plan, while the Lake Tahoe AIS Working Group implements its activities. The coordination committee has successfully obtained funding from multiple sources, including private, state and federal funds. The largest single funding source has been the Southern Nevada Public Lands Management Act. These funds come to Tahoe through the Bureau of Land Management and USFWS. Although not yet approved, the plan has already been useful in framing the multiagency organizational structure and in the congressional spotlight with the reauthorization of the Lake Tahoe Restoration Act.

Efforts in Lake Tahoe include an aggressive prevention program focused on education/outreach, inspection/decontamination, and regulation. Control and eradication efforts are focused on Eurasian watermilfoil, curly pondweed (*Potamogeton crispus*), warmwater fishes, and the rapidly increasing Asian clam population. Early detection and rapid response efforts include monitoring plankton and the substrate. Implementers in the region hope to move decontamination efforts off the ramps next year because of space issues. Thayer added that regional regulations have made the use of herbicides and pesticides difficult in the basin; however, the coordination committee is working with regulators to make their use possible. Following his presentation, the ANSTF unanimously approved the plan.

13.2. Georgia

Keith Weaver, Georgia Department of Natural Resources, discussed the process for developing and the components of the *Georgia Aquatic Nuisance Species Management Plan*. Except for Governor Sonny Perdue's signature, the plan is complete and ready for approval. He listed the many state, federal, and other partners and contributors to the Invasive Species Strategy. The advisory committee comprises experts from partners and other groups, while the task force, formally established in February 2009, serves as the primary interagency entity for detecting and controlling invasive species. The task force also coordinates education and outreach programs related to invasive species. Both the Georgia Invasive Species Strategy and draft ANS management plan have been completed and posted on the DNR's website. The next step is forming a council to lead state ANS efforts and finding funding for an ANS coordinator. The ANSTF conditionally approved the Georgia ANS plan, pending a letter from the governor.

13.3. Minnesota

Michael Hoff, USFWS, presented A *Minnesota State Management Plan for Invasive Species* on behalf of Jay Rendall, Minnesota Department of Natural Resources. Minnesota's invasive species program is more than 20 years old, first developed in 1987 to address purple loosestrife. Minnesota's comprehensive invasive species strategy involves various organizations. An advisory committee began developing the plan in January 2005 and held a workshop in October of the same year. A survey of the 70 invited attendees indicated that 78% were more than likely to implement parts of the plan. In September 2009, the plan was released for public comment and sent to the ANSTF for preliminary

review. The Minnesota DNR also met with interested tribes. Since then, comments have been incorporated, and Governor Tim Pawlenty has signed the cover letter.

The comprehensive plan includes sections on prevention; early detection, rapid response, and containment; management of invasive species; and leadership coordination. It also reflects ongoing activities in this already mature program and provides new strategies and actions. The implementation table identifies expanded efforts for aquatic actions in 2010 totaling \$1 million. Following the presentation, the ANSTF unanimously approved the aquatic components of the Minnesota plan.

13.4. South Carolina

Executive Secretary Mangin had received an inquiry from South Carolina about the status of the state ANS management plan. Apparently, it had been submitted to and commented on by the ANSTF in 2007. South Carolina then sent an electronic copy with a transmittal letter signed by Governor Mark Sanford, but neither the USFWS nor NOAA have record of receiving the plan. Mangin has worked with folks from South Carolina and verified that the ANSTF comments were incorporated. The ANSTF unanimously approved the *South Carolina Aquatic Invasive Species Management Plan*.

14. Asian Carp Recommendations

Mike Weimer, USFWS, reported on results of two MRBP recommendations from the spring 2009 ANSTF meeting: 1) establishing an implementation committee and funding plan for the Asian carps national management plan and 2) funding an independent scientific review and evaluation of the Triploid Grass Carp Inspection and Certification Program.

14.1. Implementation Plan

The Asian carps national management plan, finalized in 2007, was developed for a suite of species, with Region 3 designated as the lead. The plan has 133 recommendations planned over a 20-year period, and there has been considerable concern that the plan be implemented and funded. Weimer displayed the proposed working group committee structure and next steps, which include codifying committees, prioritizing recommendations, identifying available resources for high priorities, developing long-term funding, implementing selected actions, and ensuring ongoing evaluation and results reporting. These next steps include stopping the interbasin transfer of Asian carps and other species between the Great Lakes and Mississippi River basins.

In Illinois, Asian carps have moved upstream and were found 60 miles away from Lake Michigan in 2002. In 2009, silver carp (*Hypophthalmichthys molitrix*) were found at the electric barrier in the Chicago Sanitary and Ship Canal, which provides a direct connection between the Mississippi River system and Lake Michigan. The rapid response team is finalizing the response plan and has determined that the safest, most effective eradication method is a rotenone treatment in a portion of the canal below the electric barrier. Weimer explained details of this treatment, which will happen in late November and early December. The team is also developing a communication plan for communities along the canals and other interested parties, including Congress. Asian carps must be kept out of the Great Lakes because the species could damage ecosystems, reduce native fish populations, impact sport and commercial fisheries, injure boaters, damage vessels, and reduce property values.

14.2. Grass Carp Certification

An independent scientific review was recommended to assure resource managers that existing state regulations are being consistently followed, that shipments are being consistently inspected and certified, and that triploid grass carp (*Ctenopharyngodon idella*) are being used effectively to reduce the risk of introducing diploid grass carp through commerce. The review would also assess triploid grass carp production, the national certification process, carp shipping methods, regulations and related enforcement, and potential mechanisms/vectors through which diploid grass carp could enter

the supply chain. Finally, the review would result in recommended actions to reduce the risk of diploid introduction and ensure that responsible entities are taking effective and integrated actions to prevent diploid or triploid grass carp introductions.

According to Weimer, the steering committee is developing a scope of work for the independent science review. Consultants, universities, and others will do the work, which will be funded by the MRBP, USFWS, and potentially others. Discussion on both recommendations focused on the following:

- The MRBP encouraged updating the timeline since the first meeting was supposed to be in February 2008.
- The emergency situation at the Chicago Sanitary and Ship Canal has helped garner commitment for the approved plan and highlighted the need for rapid response plans for other species as well.
- Coordination is needed to ensure that current efforts are not discrete actions.
- Two barriers are in place in the Chicago Sanitary and Ship Canal, so rotenone treatments will likely occur every two years.

15. Rapid Response

15.1. Lake Champlain Basin Program

Meg Modley, Lake Champlain Basin Program, updated the ANSTF on the binational rapid response plan that began about three years ago for all taxa. The congressionally delegated program addresses invasive species threats to Lake Champlain, which is connected to the Great Lakes system by a number of canals. The AIS rapid response planning model uses a partnership approach and identifies lead agencies in each jurisdiction to work with an interjurisdictional task force. The plan appendices include all applicable permits.

Modley identified five rapid response steps in the plan: species conformation; delineation, isolation, and preliminary evaluation; treatment selection and design; treatment plan implementation; and monitoring and evaluation. Feasibility determination in step 2 is very difficult, so the Lake Champlain Basin Program has sought feedback and suggestions from others.

Modley identified some of the applicable permitting agencies. The program has learned that some controls require more than one permit and the process is lengthy, so they are acting on opportunities for legislative improvements. Some agencies allow for general permitting for certain invasive species. Overall, New York needs more certified applicators, rapid response roving teams, general permits, and clearer authority regarding plants (similar to authority that exists for fish). However, the partnership planning process has identified gaps in interstate and interjurisdictional policies and opportunities for corrective legislative action.

In May, the Lake Champlain Steering Committee approved the AIS rapid response plan, and a task force is now being formed. Although no funding has been identified, the plan will be tested with the imminent spiny water flea (*Bythotrephes cederstroemi*) infestation.

15.2. Asian Carp Rapid Response

Bill Bolen, EPA, noted that the Chicago Sanitary and Ship Canal treatment mentioned earlier by Mike Weimer, USFWS, is one of the most significant rotenone situations in the nation, with an expected removal of 200,000 pounds of fish. Since boat traffic must cease during the project, the commercial impacts are huge and industry is expecting compensation. Also, coal-fired power plant intakes have to be protected from the carcasses.

The rapid response plan was developed in six weeks and is based on incident command system procedures, with a unified command. Rotenone will be applied directly above the electric barrier and at six booster stations. The project involves several operational periods: setting up, applying the treatment, detoxifying that night, and removing carcasses. The Chicago Sanitary and Ship Canal has several leakage points and is at a higher elevation than the Des Plaines River. The EPA has identified these leakage points and installed sluice gates to mitigate the fish kill in the river. Fish kills will occur in the Illinois and Michigan Canal as well.

The project has received large donations from state and federal agencies but involves significant manpower and equipment commitments. Federal agencies and Canadian provinces have also committed resources. Right now, unfunded project costs are \$775,000. The EPA hopes to start the project November 30, but December 7 is more realistic for pulling together the full funding. Winter rotenone treatments are more difficult to detoxify, so project implementers cannot start later than December 7. The following points were raised during ANSTF discussion:

- A permanent rotenone system might be worth analyzing for future catastrophic events or barrier failures.
- The EPA is going to rewrite rotenone labeling next year to ease challenges associated with permitting.
- The public will likely see carcasses, which will float downstream, build up against the dam, and be gathered and shipped to a landfill. With new rotenone requirements, the fish can't be ground up for fertilizer.
- Barrier 1 will be maintained, but it only operates at 1 volt (not enough to keep juveniles and adults out). Barrier 2 will be down for maintenance.
- Some beneficial species will be removed and relocated before treatment.
- The number of carp present will not be assessed since industry demands require reopening the canal as soon as possible.
- The Illinois Department of Natural Resources is the lead agency, but the EPA led the environmental assessment. Compliance with the Endangered Species Act was addressed through informal consultation between the state agency and USFWS. Bolen was only aware of one federally endangered species that might be affected, the Hines emerald dragonfly (*Somatochlora hineana*).
- Members requested that Bolen present lessons learned after the treatment.

16. AIS Introductions through School Activities

Dorn Carlson, NOAA, spoke about research priorities that regional panels forwarded to the Sea Grant program for the grant competition in 2007. Although Sea Grant wanted to fund one project per region, the program received less money than anticipated. Two projects were initially funded, and then a third was added, with more funds from NOAA. Together, these three projects covered all the regions:

Project	Region
Ecosystem-scale evaluation of the effectiveness of sound-bubble barriers to prevent spread of bighead (<i>Hypophthalmichthys nobilis</i>) and silver carp (<i>H. molitrix</i>)	Mississippi River basin
Biobullets for the control of fouling sea squirts	Northeast
Reducing the risks and association of schools, science curricula and biological supply houses as potential pathways for aquatic invasive species	Great Lakes West South Atlantic/Gulf Mid-Atlantic

Sam Chan, Oregon State University and the principal investigator for the third project, spoke about the latest research findings regarding the relatively new AIS pathway involving schools, science curricula, and biological supply houses and sought ANSTF guidance on possible solutions to the problem.

Chan first presented background information on the scope of the problem, materials used in classrooms, and the nature of biological supply houses. He then talked about the three phases of the project: 1) surveying teachers and biological supply houses, 2) holding focus groups with educators and developing appropriate stakeholder-based solutions, and 3) exploring stakeholders' solutions to the use of live plants and animals in the classroom.

During phase one, which will be completed at the end of November, teachers answer questions about use of living organisms in their classrooms, types of organisms used, and source and disposal of these organisms. As expected, teachers are often reluctant to kill live creatures and may give them to students, let them die naturally in the classroom or release them to the wild. Few teachers euthanize them or return them to the supplier. Researchers also met with biological supply house representatives to understand their business and operational processes. They also found that pet stores were a large source of classroom organisms.

Phase two is underway now. Chan detailed the three-level codes used to categorize comments made in the focus groups. Researchers have been better able to understand issues raised in the initial surveys. For example, teachers rate their current knowledge of invasive species, but the researchers can ask questions testing that knowledge.

As Chan and his colleagues have conducted their research, they have gained a considerable number of partners. And as they gain understanding, teachers are implementing outreach and educational solutions in their classrooms. But phase three will involve more design and testing of solutions with schools, biological science suppliers, and curriculum developers. Chan affirmed that they have learned a lot that they didn't originally know or suspect. Above all, they've learned that solutions have to be acceptable to all the stakeholders or they won't be implemented. Because of the reach that schools have, he also suggested not just addressing this issue but also using the forum as a means for invasive species outreach and education.

17. Managing the Potential Spread of AIS from Crane Testing

The ANSTF recently learned of a potential pathway for introducing and spreading ANS: water bags used for load testing cranes. Essentially, bags are filled with water, and the weight tests equipment capabilities. Research informed not only the scope of the problem but also the potential to work with industry to address the pathway.

17.1. Water Bags Used to Test Crane Loads

Joe DiVittorio, U.S. Bureau of Reclamation, gave some background on the issue of water bags and the USBR's concerns about their use as a potential pathway. He first became aware of the problem about a year ago from a construction engineer. DiVittorio then began research into the use of water bags to load test cranes used at construction sites and dams. They are extensively used worldwide, raising concerns about ANS spread, inspection, and decontamination, especially for quagga and zebra mussels. Although adult mussels are unlikely to attach to the bag material, residue water could easily harbor veligers. He believes industry cooperation is key for addressing this potential pathway.

A variety of decontamination methods are possible if potable water is not used to fill the bags: chemical, heat, desiccation, and freezing. Wastewater and quantity disposal issues are involved in chemical methods, so desiccation is the most common method used at this time. The bags are hung, drained, and dried, often with fan-circulated air. This method is time consuming, so freezing is proving to be a promising additional method. On-site microfiltration of the water used to fill the bags

may also be an appropriate method to decontaminate bag water. DiVittorio directed people to the *Inspection and Cleaning Manual for Equipment and Vehicles to Prevent the Spread of Invasive* (Technical Memo. No. 86-68220-07-05; accessible from www.usbr.gov/pps/).

17.2. Water Weights

Angelo Cimini, Imes, Inc., then talked about Water Weights, the company's trademarked product, and measures that Imes takes to avoid introducing quagga and zebra mussels and other invasives. Water Weights are used for suspended or deck loads up to 1,000 tons. The highly certified system allows safe, practical, and economical use of water as a weight for testing loads for various equipment. Using water rather than conventional weights reduces the number of trailers and personnel needed.

The industry has a stringent certification process to ensure safety, but Imes first began managing for ANS during a project for the Tennessee Valley Authority. The initial program evolved into a further commitment to protect the environment. Imes avoids contamination of water during discharge and return, ensures that local sediment is not affected by testing operations, and conducts additional ANS mitigations if necessary. Cimini summarized internal procedures designed to prevent ANS spread. These procedures included cleaning, drying, inspecting, freezing, and labeling the bags.

Cimini welcomes the opportunity to work with ANSTF organizations to improve control methods for target species, publicize the issue, and stress the importance of ANS mitigation in the industry. He added that Imes supports development of a third-party ANS certification program for water bag decontamination.

17.3. It's in the Bag...or Is It?

Paul Heimowitz, USFWS, provided summary thoughts on water bags as a potential pathway and invited discussion from the ANSTF. He commented that this pathway only recently surfaced, yet some within the industry were already seeking solutions. He thanked Imes for its collaboration and contributions.

According to Heimowitz, the industry is more substantial than originally thought, with an association that coordinates crane certification and use of water bags for over 100 companies and consultants in the United States. Unfortunately, not all companies in the industry are as knowledgeable about ANS issues as Imes. This gap offers ANSTF members an opportunity to provide leadership, whether piloting projects or incorporating this pathway and management strategies into ANSTF documents.

He also wondered what other unique industry pathways exist and how the ANSTF can better engage new industry partners using this case as an example. As known pathways are addressed, agencies can start looking at lesser known pathways. Discussion included the effects, if any, of chlorination and multiple cleanings on water bag materials and the Forest Service's use of bags for fighting fires.

18. Coordinated Interagency Giant Salvinia Control

Bob Pitman, USFWS, discussed control efforts for giant salvinia (*Salvinia molesta*). As an example, he told of an aquatic education pond in Houston that was invaded when giant salvinia was accidentally introduced into the pond along with desired aquatic plants. The salvinia could not be eradicated and the pond had to be filled in. Since then giant salvinia has been found in other Texas ponds and 11 Texas reservoirs. Lake Bistineau has an estimated 7,000 acres covered in giant salvinia. In October after heavy rains in the area, news coverage from Shreveport, LA, focused more on the giant salvinia invasion than on the flooding as the rains pushed salvinia into homes and businesses.

An interagency control team has been established to develop eradication strategies and identify high priority actions for giant salvinia. Pitman discussed the team's goals and objectives. Biocontrol has been used in many parts of world and will be part of a successful solution here, but weevils have not

yet been effective in Lake Bistineau and Caddo Lake. Giant salvinia and weevils are at the edge of their thermal tolerance at Caddo Lake, and it seems likely that salvinia recovers from winter temperatures more quickly than the weevils. This allows salvinia to become dispersed without the control weevils, allowing rapid and widespread salvinia expansion. The USFWS and partners are trying to grow weevils in temperature-modified conditions so that they can be dispersed as early as possible and expand along with the rapidly growing giant salvinia.

The Plant Protection and Quarantine (a program within the USDA Animal and Plant Health Inspection Service) and Army Corps of Engineers are heavily involved in biocontrols around the country. They have scientific expertise in the use of herbicides and weevils for giant salvinia control. Louisiana State University is also heavily engaged in rearing and distributing biocontrol weevils. An estimated 2 million weevils were distributed last year. Caddo Lake, split between USFWS Regions 2 and 4, is the site of a pilot study in which concrete traffic barriers are used to create temporary ponds. Both regions have contributed money to set up the barriers, and the USFWS hopes to release weevils in early spring 2010. The USFWS is also excited about high-tech tools being developed by James Everitt and the University of Texas–PanAm. These tools include aerial photography and satellite images to show giant salvinia distribution and condition. Expected products also include aerial and satellite maps that are linked to GIS data coming from an assessment that tracked feeding damage. Information from the pilot study will improve weevil control of giant salvinia. The website (www.salvinia.org) developed by David Britton, USFWS, will facilitate communication among partners.

19. Committee Updates

Underwood invited committee representatives to update the ANSTF on their activities. David Reid, NOAA, had done so the previous day with the research protocols (see section 2.7). No one volunteered, but the topic of reenergizing the committees was noted for a future meeting.

20. Member Updates

- **Association of Fish and Wildlife Agencies**—Kim Bogenschutz reported that AFWA represents all 50 states and has policy function. Members have provided testimony on H.R. 669 (Nonnative Wildlife Invasion Prevention Act), assembled a team to look at alternative solutions regarding screening processes, drafted a response to the EPA about the Clean Boating Act, and developed a white paper on biofuels such as algae that may affect natural resources. They are also reviewing draft voluntary standards for biofuels sustainability certification and hoping to develop a memorandum of understanding or some means of facilitating cooperation among state and federal agencies on ANS actions.
- **Bureau of Reclamation**—Joe DiVittorio highlighted USBR efforts related to quagga and zebra mussels in the West. For example, the USBR served on the QZAP steering committee and completed an equipment inspection and cleaning manual. With funding provided under the American Recovery and Reinvestment Act of 2009, the USBR and state partners will sample over 200 reservoirs. The USBR has also procured signage to post at its boat launch sites and will sponsor the International Conference on AIS in San Diego next summer. DiVittorio also listed specific regional actions for mussels and other invasives, such as giant salvinia surveys in the Lower Colorado Region and hydrilla in the Mid Pacific Region.
- **Bureau of Land Management**—Tom Mendenhall commented that the ANS program is new for the BLM. For FY10, budget directives are included for each state office, and a portion of their base funding is to be used for coordinating ANS activities with the state fish and game agencies. He will assess which states are using this money and base next year's funding on the results. Mendenhall highlighted efforts already underway in Utah on ANS monitoring and interdiction.

- **U.S. Coast Guard**—Per CDR Gary Croot, the USCG has been very busy on the ballast water discharge standard. He encouraged people to comment on the docket. The USCG will also be publishing another notice of proposed rulemaking on NOBOBs soon.
- **National Oceanic and Atmospheric Administration**—Pat Montanio highlighted two projects that will receive funding under the American Recovery and Reinvestment Act: Maunalua Bay Reef Restoration and San Francisco South Salt Pond Restoration. Peg Brady added that Daniel Hasselman was selected by the Aquatic Invasive Species Program’s Advisory/Selection Panel to receive its AISP postdoctoral grant award. Hasselman will work on American shad along the west coast of North America under the mentorship of Phil Roni and Blake Feist at the Northwest Fisheries Science Center and Tom Quinn at the University of Washington.
- **U.S. Fish and Wildlife Service**—Susan Mangin is working with states on their ANS management plans and completing a comprehensive list of budget needs, which includes both Task Force activities and state plan funding. The USFWS has initiated a cross program team on invasive species and hired staff for the injurious wildlife position.
- **San Francisco Estuary Partnership**—According to Karen McDowell, the San Francisco Estuary comprises a large area of the state so is represented on California’s Invasive Species Council, formed within the last year. The SFEP has a seat on the advisory committee, which held its first meeting, is compiling a species list, and is drafting a letter of support for the QZAP. She also updated people on the Ocean Protection Council that is funding some projects for which the original bond funding was frozen. The SFEP continues to work on *Spartina* and other invasives. *Undaria pinnatifida*, an invasive kelp native to Japan, was recently discovered at two marinas in San Francisco Bay and another marina in Half Moon Bay). Many partners are working together with minimal funding to remove the current populations and determine the full scope of the invasion, which appears to be fairly limited. She added that a change in the U.S. Maritime Administration has led to some progress on the “mothball fleet” in San Francisco Bay. Two of the ships will be cleaned on shore and then taken to Texas to be dismantled. This process had previously been put on hold due to environmental issues.
- **National Park Service**—Per Sharon Kliwinski, the NPS is addressing ANS nationwide, with considerable efforts and funding directed at the Lake Mead National Recreation Area. This past year, the agency participated in the WRP and QZAP development. She also commented on the first trial involving Glen Canyon National Recreation Area’s mussel prevention regulations. A federal judge ordered a boater to pay a \$25,000 fine for not having his vessel inspected before launching into Lake Powell, which is still mussel-free. Regulations require mandatory inspections for “at risk” boats entering there. Also, the NPS has a newly funded ocean and coastal program and received \$1.25 million in initial funding to implement actions under its ocean action plan.
- **National Association of State Aquaculture Coordinators**—Paul Zajicek reported that the NASAC is participating in the national triploid grass carp program review and implementation of the Asian carps national management plan.
- **Animal and Plant Health Inspection Service**—Maria Boroja, standing in for Ken Seeley, reported that APHIS will continue supporting ANS programs and researching impacts of potential biocontrols for various invasives.
- **Lake Champlain Basin Program**—Meg Modley talked briefly about the Champlain Canal as a vector for ANS and continued work with the Army Corps of Engineers on a related feasibility study.
- **Army Corps of Engineers**—Al Cofrancesco said that Army Corps of Engineers’ invasive species leadership meets twice a year and is now looking at implementation documents. Stimulus money will be used for a number of activities, including removing aquatic growth, funding state ANS projects, restoring ecosystems in various areas, and conducting research studies.

- **U.S. Geological Survey**—According to Sharon Gross, the USGS continues to increase its focus on control methodologies, with two labs working on nanotech biocides. The agency converted hydrologic unit code data to latitudinal/longitudinal data in the NAS database, which expands its use for modeling. The USGS also received \$350,000 for quagga and zebra mussel detection and monitoring in the Northwest. Work continues on viral hemorrhagic septicemia and a strategy for addressing the pathogen.
- **Great Lakes Commission**—Kathe Glassner-Shwayder reported on the latest developments of the Great Lakes Regional Initiative (GLRI), established on a multi-stakeholder basis in the region to protect and restore the Great Lakes. The GLC has played a significant role in advocating for federal funding of the GLRI. At the end of October, Congress approved \$475 million to fund the GLRI, \$60 million of which is to be spent on invasive species problems. The GLC is now developing regionally based projects that could be funded under the GLRI.

Also highlighted was GLC work in promoting rapid response efforts to prevent Asian carps from migrating into Lake Michigan and the other Great Lakes through the Illinois River system. Specifically, the GLC supports use of rotenone in the Chicago Sanitary and Ship Canal to stop passage of the carps past the barrier when it is shut down for maintenance in December and emergency action by the Army Corps of Engineers to expedite other prevention efforts including completion of the electric dispersal barrier system and a study of options to permanently separate the two basins.

The GLC is preparing comments on the USCG-proposed rules on a ballast water discharge standard for submission. Staff also continue to advocate for preimport screening legislation to prevent the introduction and spread of AIS through the organisms-in-trade vector. Preparations are underway for Great Lakes Day in Washington, DC, enabling the GLC to advocate for funding to implement state ANS management plans and operate the GLP at a greater level.

- **Gulf States Marine Fisheries Commission**—James Ballard reported that the GSMFC supports the GSARP and continues working with member states to develop their ANS management plans.
- **U.S. Forest Service**—Mike Ielmini provided highlights on the Forest Service's many ANS efforts. The Forest Service is releasing its new *National Invasive Species Policy*, which encompasses terrestrial and aquatic taxa, with the aquatic component covering marine and freshwater species. This document will include responsibilities regarding ANS. There will be a national meeting for invasive species coordinators in Albuquerque, and the Forest Service is helping develop proposals for the GLRI. Ielmini noted that an ongoing audit of the invasive species program will be completed by the Office of the Inspector General by the end of the year. Recordkeeping systems have been updated with all AIS information collected by the Forest Service. The agency will continue collecting data and draw on its research capabilities (located in San Dimas, CA, and Missoula, MT).

21. Public Comment

No public comments were made.

22. Meeting Summary

The ANSTF reviewed the decisions and action items. Mangin then thanked NOAA for its hospitality and technical support, Acting Co-Chairs Underwood and Montanio for running a productive meeting, the members and participants for their involvement, especially in the prioritizing exercise, and Natalie Chavez for documenting her final meeting. Underwood then awarded plaques to two people instrumental in the QZAP who were not here the previous day: Erin Williams and Paul Heimowitz, both of the USFWS. The meeting was adjourned at 4:15.