

AQUATIC NUISANCE SPECIES TASK FORCE: MINUTES OF THE 2006 SPRING MEETING

On May 24–26, 2006, the ANSTF met at the Cape Codder Resort in Hyannis, MA. This document includes the following sections:

- Summary of the three-day ANSTF meeting and field trip
- A list of acronyms used
- A list of the common and scientific names of species mentioned

ANSTF SPRING MEETING MAY 24–26, 2006

Decisions

The ANSTF made the following decisions:

- Accepted the October 2005 meeting minutes.
- Approved submittal of a letter from the ANSTF co-chairs in support of a proposed national invasive species merit badge for the Boy Scouts of America.
- Created an ad hoc working group to review the ANS Program document and ANSTF strategic plan.
- Recommended that USFWS funds available for state/interstate ANS management plans be allocated on an equal share basis (such as an equal amount for each plan).
- Approved the Louisiana ANS management plan.
- Supported development of a nutria NMP under the leadership of Steve Kendrot (APHIS).
- If no major problems are identified by ANSTF members during their review, approved forwarding the New Zealand mudsnail NMP to the Federal Register for publication for public comment once ANSTF member comments are considered.
- Approved forwarding the Asian carp NMP to the Federal Register for publication for public comment once ANSTF member comments are considered.
- Approved forwarding the *Invasive Species Guide to Pathway Definition and Risk Prioritization* (including pathway prioritization tools and methodologies) to NISC for action.
- Agreed to incorporate a theme into future ANSTF meetings and devote at least one day to focused discussions on that topic. (Rapid response was selected as the theme for the fall 2006 meeting.)

Action Items

- Executive Secretary Scott Newsham (USFWS) will collaborate with Paul Zajicek (NASAC) and Larry Riley (AFWA) to revise the letter to the Boy Scouts of America in support of an invasive species merit badge.
- The Executive Secretary will coordinate the effort to revise the ANS Program document and ANSTF strategic plan. This task will include examining how to best incorporate the regional panels in pursuing the overall program and clarifying the ANSTF's relationship with NISC and the ISAC.
- Jonathan McKnight (committee chair) will analyze the five invasive species NMPs; confer with management plan chairs; and make recommendations on the role, functions, and membership of

For easy reference, acronym and species lists are included at the end of this document

the Control and Management Committee at the next ANSTF meeting. The ANSTF will discuss the future of this committee at that time.

- Steve Kendrot (APHIS) will continue with development of a nutria NMP.
- Comments on the New Zealand mudsnail NMP are due to Tina Proctor (USFWS) by June 15.
- Comments on the Asian carp NMP are due to Greg Conover (USFWS) by June 30.
- The Executive Secretary will e-mail the primary priorities of the *Caulerpa* NMP that are still in need of support. ANSTF members are to contact Jeff Herod (USFWS) regarding any activities within their agencies that address NMP actions or proposals that would meet these actions.
- The Executive Secretary will revise the process for the annual report per issues discussed and e-mail for review.
- The Executive Secretary will request input on the development of a daylong session on rapid response for the next meeting and coordinate with Dean Wilkinson (NOAA), Marilyn Katz (USEPA), and others to implement it.
- A letter will be sent from the ANSTF co-chairs to agencies/organizations participating in ANSTF activities. The intent of this letter is to thank recipients for their past support; outline ANSTF accomplishments, current activities, and goals; and ask for their continued support and suggestions for how the ANSTF could be more relevant to them.

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Day One Welcome and Preliminary Business

Co-chair Mamie Parker, Assistant Director for Fisheries and Habitat Conservation (USFWS), welcomed participants, had them introduce themselves, thanked the NEANS Panel for hosting the ANSTF meeting in Hyannis, and thanked Executive Secretary Scott Newsham (USFWS) for compiling the meeting documents and posting them on the ANSTF website. Newsham reviewed meeting management and reminded people to sign in since this was a public meeting under FACA. He explained that the posting of meeting-related documents on the ANSTF website will replace the traditional briefing book. This will save time and money and, maybe more importantly, make information more readily and widely accessible.

The agenda was reviewed and approved with one change in the order of presentations to accommodate a schedule change for Co-chair Tim Keeney, Deputy Assistant Secretary for Oceans and Atmosphere (NOAA). After approving minutes for the October 2005 ANSTF meeting with no changes, Newsham reviewed progress on the following action items (in italics) from the fall 2005 meeting:

- *ANSTF co-chairs will ascertain the interest of the Pacific Islands in participating on the existing Screening Aquatic Organisms Working Group and/or creating a Pacific Islands regional panel. Communications on this issue will be provided to Richard Orr (NISC), Prevention Committee chair.* Discussions with representatives in Hawaii and on the WRP have taken place, but no direct proposals have resulted. Principal players have been identified. Newsham has contacted Lu Eldredge (Bishop Museum), who is exploring setting up an organizational meeting of interested parties.
- *Pam Thibodeaux (USFWS) will implement the clearance process for the FY 2004 Report to Congress.* The clearance process for the 2004 report is nearly complete.
- *Executive Secretary Newsham, working with ANSTF members and regional panels, will develop an annual reporting process and associated document formats. The target date for a draft process is December 15, 2005.* Newsham has been working with regional panels on a format and process. This issue is on the agenda for further discussion (see p. 27).
- *The Executive Secretary will look into FACA concerns of the regional panels.* After researching the issue, Newsham found that regional panels are not subject to strict FACA requirements. As committees of the ANSTF, they are required to submit all reports and recommendations to the ANSTF for action. Appropriate effort should be made to raise public awareness of panel activities. Newsham will continue to work with panels in this regard.
- *Pam Fuller and Tom Stohlgren, both of the USGS, will coordinate to discuss the relationship of Stohlgren's predictive modeling work with objectives of the Detection and Monitoring Committee. Fuller will report results of their discussion at the next ANSTF meeting.* Discussions continue.
- *The Executive Secretary will coordinate with Jeff Herod (USFWS) on a list of assistance needs regarding Nerodia species to disseminate to members.* This action item is pending.
- *Jeff Herod will seek opportunities to work with other groups concerned with invasive and/or declining herptiles (such as the Partners in Amphibian and Reptile Conservation and Declining Amphibian Population Task Force).* This action item is ongoing.
- *ANSTF members are to look at primary priorities in the Caulerpa NMP, determine whether their organization is in a position to assist, and if applicable, provide contact information directly to David Bergendorf (USFWS).* David Bergendorf transferred. Jeff Herod is now the point of contact for the *Caulerpa* NMP. He has received nothing to date. An update is on the agenda for further discussion (see p. 16).

- *The Executive Secretary will distribute copies of the draft Asian carp NMP for review and comment when it is complete.* The draft was completed in April 2006 and posted to the ANSTF website. This issue is on the agenda for further discussion (see p. 14).
- *Regional panel chairs will submit research priorities to Dorn Carlson (NOAA) by December 15.* Regional panel research priorities were submitted to Carlson as requested and incorporated into the RFPs (see p. 32 for additional information).
- *The Executive Secretary will invite appropriate Congressional staff members to future ANSTF meetings.* Newsham extended invitations through the USFWS legislative affairs office. He was told that attendance was unlikely given pressing issues and the proximity to the Memorial Day recess.
- *The Executive Secretary will coordinate with Bill Wallace (APHIS) to assume the lead on revision of the ANSTF strategic plan.* Newsham received records from Wallace. Revision of the ANSTF strategic plan is on the agenda for further discussion (see p. 5).

Invasive Species Merit Badge for the Boy Scouts of America

The USFWS, through the Minnesota Valley National Wildlife Refuge, is building an application packet for submission to the Boy Scouts of America detailing a merit badge dedicated to invasive species management. The goal is to provide resource management professionals across the nation with an avenue to inform young adults and their families about the importance of invasive species management through hands-on activities. The application consists of letters of support from city, state, and federal agencies and organizations from across the nation (submitted by May 30); approximately \$75,000 to assist the Boy Scouts of America with further development and distribution of the badge if the idea is accepted; and a proposed merit badge pamphlet. Newsham read the draft letter supporting the invasive species merit badge. Several editorial suggestions were raised by members and discussed. The ANSTF approved the submission of the letter once these suggestions were incorporated. Paul Zajicek (NASAC) and Larry Riley (AFWA) volunteered to help Newsham with the final revisions.

ANSTF 2010

Parker directed participants to questions in the agenda that were designed to help a potential drafting group revise the *Aquatic Nuisance Species Task Force Strategic Plan (2002–2007)*, dated February 2002:

- What do members (both federal and ex officio) want from their association with the ANSTF?
- What direction does the ANSTF want to take over the next 4.5 years?
- What should ANSTF near-term goals be and where should it focus its activities?
- Is the 1994 *ANS Program* still the base document from which we want to work? Should a working group be formed to update it to reflect the current structure and scope of activity?

For several minutes, people reviewed the questions, jotted notes, and talked with others regarding the questions. Then the full group reconvened, during which time the following issues were discussed:

- Although coordination with NISC and ISAC should be improved, the ANSTF is important in that it focuses on aquatic issues.
- A number of benefits of having the ANSTF were identified and included facilitating the exchange of ideas through participant networks and collaborative activities, leveraging resources across agencies and organizations, minimizing duplication of efforts, providing an established mechanism for interaction with states and regions, providing some funding, and improving the likelihood of effective rapid response.

- Revisions to the strategic plan should consider the following:
 - Set clear goals, objectives, performance measures, and enforcement provisions.
 - Set goals that focus on enhancing biodiversity. Maybe more attention should be given to pathways. Is too much emphasis given to ballast water, monitoring, and risk assessment?
 - Set goals that keep regional panels and the ANSTF accountable to each other.
 - Examine the effectiveness of existing committees and working groups. Set priorities for their work.
 - Identify progress made by the joint Prevention Committee working groups on existing goals.
 - Provide regional panel staff for cohesion of efforts.
- So that members aren't unduly burdened with justifying their organization's involvement with the ANSTF, communication from the ANSTF to organizations needs to be improved, reiterating the importance of this issue and successes of the joint involvement. Such communication should include information about the economic costs of AIS in addition to other concerns.
- Because regional panel members do most of the actual implementation of the ANS Program, the panels should have a "seat at the table" during ANSTF meetings.
- The ANSTF must frequently communicate the status of ANS efforts and challenges to Congress.

Members approved the formation of an ad hoc drafting group to revise the strategic plan and ANS Program document under the leadership of Executive Secretary Newsham. Parker summarized that, during the revision process, this group will look at strategic goals; performance measures; the role of the ANSTF vs. that of NISC and ISAC; and connections with the states, regional panels, and NISC. It was suggested that the regional panels talk about this issue at their next meetings and forward input to the ANSTF. Newsham was encouraged to seek input from NISC and ISAC as well.

Structure/Conduct of Future ANSTF Meetings

Newsham asked whether building meetings around a theme would better enable the ANSTF to realize the maximum value of its face-to-face meetings. Under this approach, the ANSTF would increase use of the website to disseminate administrative and informational items prior to meetings to allow more time for focused discussions and expedite approval of routine ANSTF business. Then, a substantial portion (such as one day) would be set aside for invited speakers and moderated discussion on a predetermined issue. The intended outcome would be the identification of opportunities for a coordinated multiagency/multiparty approach to the issue. Possible themes included rapid response, control methods, ballast water management and treatment, biofouling, risk assessment, gap analysis on monitoring programs, and measurement of invasion impacts.

ANSTF members favored such an approach, commenting that they welcomed the opportunity to explore issues more deeply and learn from other experts outside the ANSTF. Themes should be tied to the strategic plan, perhaps focusing on near-term goals. However, people appreciated the geographic theme associated with the spring meetings and didn't want to lose the opportunity to learn the regional perspective.

One primary concern was the potential need for more than two ANSTF meetings a year. An additional meeting would add travel costs, but it might allow a "work session" for ANSTF members to accomplish what they often try to do intersessionally. Another suggestion was to lengthen the meeting to three or four days to accommodate a theme as well as other important business. No decision was made regarding the number or duration of meetings to be held.

Participants also expressed the need for strong regional panel involvement in thematic discussions. One suggestion was to have the regional panel chairs at the table during such discussions since they bring a regional perspective on various issues. Another was to have a facilitated discussion format.

Marilyn Katz (USEPA) and Dean Wilkinson (NOAA) volunteered to help Newsham plan further for the next ANSTF meeting. Newsham also asked to revisit the issue at the end of the meeting (see p. 33).

State/Interstate ANS Management Plan Funding

Newsham reported that, since its inception in 1994, the USFWS-funded grant program that supports implementation of state and interstate ANS management has lacked a consistent and straightforward allocation model. While the amount of funding has changed little or not at all, the number of plans has increased. Referring to the memo associated with this agenda item and posted on the ANSTF website, he requested that the ANSTF consider distributing funds equitably (one plan/one share) or using another model. He commented that providing equal shares appears to be the most practical solutions since it avoids making judgments on state priorities or favoring those with more established programs over those states that are “just getting their footing.”

Although everyone agreed that the root of the issue was a very low level of federal funding, the consensus was to distribute funds equally among plans. Larry Riley (AFWA) offered to raise the question of alternative allocation models at the September 17–22 AFWA meeting in Aspen, CO. It was suggested that states look to other sources or opportunities to fund their plans (that is, other federal agencies, grants from private organizations, etc.).

Newsham added that he was willing to compile a list of projects in need of funding at the state level so that this information was readily available to potential funding agencies if money became available through midyear allocations, end-of-fiscal-year residuals, or other avenues. He would work directly with management plan points of contact to obtain the most recent information.

State ANS Management Plan Updates

Louisiana State Management Plan

Scott Longman (Louisiana Department of Wildlife and Fisheries), who chaired the Louisiana Aquatic Invasive Species (LAIS) Council and Task Force, presented on the Louisiana management plan and requested approval. As a newcomer to the process, much of the work was done by the time he got involved. Longman summarized the plan development timeline from February 2000 when the LDWF was designated the lead agency through March 2006 when Governor Kathleen Babineaux Blanco approved the plan and submitted it to the ANSTF. Diverse entities participated in the effort, and funding was provided by the USEPA Gulf of Mexico Program, Barataria-Terrebonne National Estuary Program, NOAA Aquatic Invasive Species Program, Louisiana Sea Grant, and LDWF.

Longman also reviewed the plan’s goal and objectives. The goal is to “prevent and control the introduction of new nonindigenous species into Louisiana; control the spread and impact of existing invasive species; and eradicate locally established invasive species wherever possible.” Common themes are prevention, cooperation, and monitoring. The initial implementation objective is to coordinate all AIS management activities or programs within Louisiana and collaborate with regional, national, and international AIS programs. Under the plan, the state was to form a permanent LAIS Council, establish an MOU to address overlapping jurisdictions, and hire a statewide AIS coordinator.

In 2004, the LAIS Council was created by the state legislature and included the Office of the Governor as well as representatives from appropriate state agencies. The MOU was written and adopted by the LAIS Council in 2006. However, the statewide coordinator desk is still empty. Longman hopes that

this position can be filled soon. Unfortunately, only a small part of his job as an inland fisheries regional manager deals with AIS, so he can't dedicate the time necessary to oversee effective implementation.

Current aquatic invasive species of concern in Louisiana are nutria, black carp, giant salvinia, Formosan termites, and Rio Grande cichlids. Longman provided pathway, distribution, and control information about each of these species:

- Nutria were intentionally released for the fur industry and then escaped. However, they are no longer regulated for the fur industry. They are distributed statewide, and control methods include a coastwide control program.
- Black carp were introduced through aquaculture and may be distributed throughout the Mississippi River drainages. The LDWF is working with local anglers to identify the most effective times and gear type to capture these fish. They are also looking at how to make the fish marketable. Some research underway is funded by the USFWS.
- The pathway for giant salvinia was the water garden industry. This invasive plant is found in five drainages, and controls include herbicides and biocontrol. The state is trying to firm up the legal authority to control aquatic plants. Under the law now, once a plant is in the state, there are no regulations covering it.
- Although Formosan termites are not aquatic, they came into the state through shipping. They are found in over half the parishes. Controls include insecticides, education, and building codes. Controlling these termites during removal of hurricane debris has proven challenging.
- The pathway for cichlids was the aquarium trade, and these fish are found in Jefferson and Orleans parishes. It was thought that they wouldn't survive saltwater, but spawning has been observed in 8 parts per million salinity.

To date, the effects of Hurricanes Katrina and Rita to AIS are unknown. Directly, the hurricanes disturbed habitats along the coast. Saltwater destroyed some of the giant salvinia, but the hurricanes may also have helped spread the species. Indirectly, funding has been "hammered," and some bayous are still inaccessible.

Longman reported that a rapid assessment had been planned for the southwestern part of Louisiana this fall, but that effort has been postponed. At the next LAIS Council meeting, a subcommittee will be charged with writing a request for the coordinator position. He gave special thanks to several people for their involvement.

Following Longman's presentation, the ANSTF approved the plan and thanked him for submitting the plan despite the circumstances in Louisiana this past year.

Connecticut State Management Plan

William Hyatt (Connecticut Department of Environmental Protection) reported on the Connecticut ANS management plan, which is in the final stages of agency review. He expects that it will soon be finished, signed, and ready to submit to the ANSTF. He distributed the executive summary to ANSTF members and remarked that no action was required at this time.

The goal of the plan is "to implement a coordinated approach to minimizing the ecological and socioeconomic impacts of aquatic invasive species in the State of Connecticut." He discussed the structure of the ANS Steering Committee, ANS Working Group, and various subcommittees, as well as guidance provided by the ANSTF and existing approved plans. The draft ANS plan has been extensively reviewed by state agency staff, faculty from various universities, USFWS staff, NOAA staff, and some ANSTF members. Public input has been solicited through two public meetings and website postings.

For easy reference, acronym and species lists are included at the end of this document

Hyatt reviewed key findings that had emerged during plan development:

- More than 50 nonnative species now occur in Long Island Sounds, and 40 cryptogenic (uncertain whether native) species have been found.
- Freshwater invaders to the state include 27 nonnative fish, 24 nonnative plants, and an undetermined number of nonnative invertebrates.
- Among the impacts are degraded water quality, impaired recreational uses, diminished property values, and increased power and water costs.
- Management of established ANS populations is expensive, but costs associated with recent and potential invasions (including hydrilla and water chestnut) are likely to be even greater.
- Not all nonnatives are considered invasive. Several fish species were intentionally introduced and are considered beneficial.

Hyatt then talked about the classification system developed in the plan. Current and potential invasives were categorized into classes based on the extent of their current or potential invasion and availability of eradication/control/management techniques.

Hyatt expressed frustration about the lack of options for control and eradication of invasive species that establish in Long Island Sound, although there are some limited options in freshwater systems. Federal and state laws provide sufficient authority except for rapid response. Enforcement of aquaculture and importation/liberation laws needs to be given higher priority. Improved communication and coordination among programs is necessary, and enforcement needs to be addressed. He emphasized the role of education and regulation in defending the state against the introduction and spread of ANS.

The plan contains a number of recommendations regarding coordination; funding; prevention; detection and monitoring; control and rapid response; education and awareness; research needs; and legislation, regulation, and policy. Action priorities include hiring a statewide coordinator, developing and distributing ANS educational materials to key groups, enforcing importation/liberation regulations, identifying and securing funding to enable implementation of other priorities, developing/implementing an early detection and monitoring plan, developing/implementing a rapid response protocol, evaluating and adapting control techniques, developing/maintaining a website, identifying research priorities, and conducting a legislative briefing on state ANS issues.

Hyatt invited people to pick up the latest draft of the full plan from the display table. The plan is expected to be complete on June 23.

State Pilot Projects with Stop Aquatic Hitchhikers!

Meeting documents associated with this agenda item included a memo from Executive Secretary Newsham regarding pilot state ANS communication projects. The Fisheries and Water Policy Committee of AFWA was awarded a multistate conservation grant (Sport Fish and Wildlife Restoration multistate grants are administered by AFWA and the USFWS) for a three-year project to help address ANS communications issues as well as regional coordination of ANS regulation and enforcement. Participants in the project were AFWA, four regional fish and wildlife agency associations (the Northeastern Association, Southeastern Association, Midwest Association, and Western Association), four pilot state fish and wildlife agencies (Arizona, Missouri, New Hampshire, and South Carolina), and the USFWS. The pilot project is now complete.

Joe Starinchak (USFWS) reported on the Stop Aquatic Hitchhikers! campaign. He distributed a map showing the geographic distribution of partner organizations participating in the public awareness campaign. Larry Riley (AFWA and Arizona Game and Fish Department) commented that the pilot project provided an opportunity for multistate funding and coordination that could benefit all of the

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state wildlife agencies by providing model ANS communication strategies and regional coordination of ANS regulation and enforcement issues. Starinchak emphasized that, although a key element is raising awareness, an effective campaign must influence people's behaviors. This was a target for the pilot project.

Steve Perry (New Hampshire Fish and Game Department) then focused on the New Hampshire's ANS communication plan developed through the multistate grant. His state welcomed the opportunity to be a pilot state and incorporate the Stop Aquatic Hitchhikers! campaign as a key component in raising awareness among target audiences.

In mid-January 2004, an in-state team of planning partners was created, assisted by the AFWA project team. The communications goal that the team agreed on is to "increase the level of awareness and action to address ANS problems in New Hampshire." Initially, principal outcomes are to enhance New Hampshire ANS policies, induce measurable changes in targeted audience behavior, and develop long-term partnerships. Priority ANS include exotic aquatic plants; nonnative, nonnaturalized live bait; prohibited fish; zebra mussels and other Great Lakes ANS invaders; and exotic aquatic ornamental and aquaria species. Target audiences include recreational boaters, policymakers, and aquatic hobbyists and suppliers.

The planning team identified a number of initial actions:

- Develop a New Hampshire ANS management plan.
- Complete a communication and marketing plan.
- Establish a baseline of ANS awareness.
- Build web-based resources for New Hampshire ANS information.
- Capitalize on using the Stop Aquatic Hitchhikers! campaign.
- Initiate a pledge outreach effort.
- Create an ANS coalition among New Hampshire legislators.

Thus far, a draft ANS management plan has been developed and is undergoing review, New Hampshire boaters were surveyed during the 2004 boating season in coordination with the Lake Host program, and the New Hampshire Fish and Game Department has become a partner in the Stop Aquatic Hitchhikers! campaign. Perry added that the ANS management plan should be done by September 2006 and submitted to the ANSTF for review and comment.

Perry believed that New Hampshire had benefited in several ways by being a pilot state. The project had brought partners together, helped them identify key audiences, helped them develop an ANS management plan, and made ANS funding more efficient. He recommended further emphasis on regionally coordinated communication and outreach efforts, increased ANS funding, and similar efforts by neighboring states in the Northeast.

Rapid Response to Invasive Species in Lake Champlain's Interjurisdictional Waters

Dave Tilton (USFWS) described Lake Champlain's environmental, social, and political setting; its ANS challenges; rapid response efforts; and major hurdles to those efforts. The lake has 587 miles of shoreline, more than 70 islands, depths up to 400 feet, and over 300,000 acres of wetlands. The basin covers 8,234 square miles, with 56% in Vermont, 37% in New York, and 7% in Quebec, and the population of the area exceeds 600,000. Numerous agencies and organizations are actively involved with invasive species management.

ANS already in the basin threaten the fishery, ecological integrity, and economy of Lake Champlain. Tilton displayed a list of over 40 nonnative species of concern, including Eurasian watermilfoil, water chestnut, alewife, and zebra mussel. He then described the occurrences of these four ANS. Water

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chestnut infestations are diminishing, although localized mats have not been eradicated. Since 1993, zebra mussels have spread throughout most of Lake Champlain. Eurasian watermilfoil is also widespread in this and other lakes in the region. Alewife has been confirmed in a number of places in the lake. Tilton mentioned that, because plenty of other invasive species, such as hydrilla, threaten to find their way to Lake Champlain, a rapid response plan needs to be developed. Hydrilla is a good hypothetical invasive to consider in the process. It is a huge problem in Florida, has been creeping up the coast, and is now documented in many states around New York and Vermont.

Because of ANS that have already been and/or are likely to be introduced to Lake Champlain and the multiple jurisdictions, Tilton emphasized the need to establish a coordinative body with the capacity to function across boundaries to effectively address AIS. This body must operate to effectively eradicate and/or control a new AIS invasion within a reasonable time frame to limit the extent of ecological and economic damage. The Lake Champlain Basin Program was deemed the most likely organization to coordinate development of a rapid response plan. The Technical Advisory Committee formed the ANS Subcommittee, which in turn formed the Rapid Response Workgroup. This group is developing a draft process for rapid response.

Tilton went through the weekly process chart and its decision trees for rapid response thus far. Part of that process involves a rapid response task force evaluating the threat, risk of spread, and potential for eradication. He commented that a feasibility determination is tricky and has to consider technical, economic, and political factors. In addition, there are several major hurdles to overcome:

- What specific statutes or rules exist that provide authority to cross state boundaries or cooperate with adjacent states for joint eradication programs?
- What specific statutes or rules exist that provide authority to access invasive species on private property?
- How is money appropriated to implement emergency response for controlling new introductions?
- Who has the authority to decide whether and when a rapid response action is warranted?

Permitting is probably the most problematic issue. Five permitting agencies have been identified. Hand-pulling plants can be easily permitted, if a permit is needed at all, but mechanical harvesters, mats, and other means are more difficult to permit. Currently, no rapid response is possible in Vermont if chemical control is necessary. Tilton commented that state legislatures need to be educated on the economic impacts of AIS because that is the level at which pesticide-use restrictions are codified. The Environmental Law Institute in Washington was mentioned during follow-up discussion since it is interested in model legislation for rapid response. Members also discussed the role of the ANSTF in developing model rapid response guidelines.

Model Rapid Response Contingency Strategies

The proposed comprehensive federal ANS legislation calls for the ANSTF to develop model state and regional rapid response contingency strategies for AIS. Three of the regional panels have taken action in this area. Newsham asked whether the ANSTF wanted to take this issue on as a work item and develop guidance documents that meet the intent of the draft legislation. Several participants thought it was a good idea to draw from the three models as well as a USEPA model on rapid response. Newsham agreed to gauge interest in informal discussions outside the meeting and perhaps revisit the topic at the end of the meeting.

Control Committee Update

As outlined in a memo on this subject included on the website, at its May 2005 meeting, the ANSTF discussed forming a Control Committee to provide oversight and guidance in the development of new

station/regional ANS plans, monitor the implementation of established plans, and coordinate with the other ANSTF standing committees. The implementation working group for each plan would inform the Control Committee of research, monitoring, and public outreach needs, and these would be communicated to the ANSTF and respective committee for appropriate action. The Control Committee would also recommend a review and revision process for all ANSTF-approved plans so that they could evolve. At the request of the ANSTF, Jonathan McKnight (Maryland Department of Natural Resources) volunteered to serve as chair of the Control Committee and was present to hear the ANSTF's thoughts on the committee.

Discussion focused on the proposed committee's actual role or charter. Possibilities included monitoring implementation of the species-specific control and management plans (tracking conservation actions once a plan is approved by the ANSTF) and providing guidance for working groups charged with developing control and management plans (such as the nutria working group; see p. 13). McKnight proposed that he communicate with the chairs of the five plans established to date to determine progress in converting implementation actions to conservation actions and then report back to the ANSTF at the next meeting with suggestions on the role the committee might play. With this information, the ANSTF will be better able to formally establish a Control Committee and guide its activities.

Management Plans

Green Crab Management Plan Workshop

Liz Fairey (NOAA) talked about a green crab technical workshop held in Portland as well as several implementation activities from the *Management Plan for the European Green Crab* taking place along the West Coast. Control and management actions listed in the plan include a model detection/rapid response strategy, increased predictive capabilities for new invasions, vector management, coordinated information system and public outreach, and eradication and control measures targeting range expansions and new invasions.

The purpose of the December green crab technical workshop was to talk about monitoring and viable control and management options. This workshop, hosted by NOAA and the Pacific States Marine Fisheries Commission, was attended by 17 people representing state, federal, academic, and nongovernmental entities. Highlights included West Coast monitoring coordination, recruitment strength predictions, and potential control methods (such as trapping, pheromones, and artificial habitats).

Monitoring is ongoing in California, Oregon, and Washington where green crabs now occur, but Alaska, which has had no green crabs reported, has no statewide monitoring program yet. In 2006, monitoring will begin in Prince William Sound. Fairey commented on the need to include Canada in future discussions. Regarding prediction, participants discussed the ability to provide information regarding recruitment strength to shellfish growers and managers and, therefore, the economic benefits of eradicating or controlling green crabs. Several actions came out of the workshop: holding another workshop to develop coordinated monitoring protocols, conducting localized eradication studies in an estuary or bay, and increasing cooperation with Canada.

After the meeting, contact was initiated with Canadian counterparts, and more discussion will take place June 4–9 at the American Society of Limnology and Oceanography meeting in Victoria, BC. NOAA also provided \$30,000 to be used for a sort of “49th parallel initiative,” and its four components (research, monitoring, population reduction, and invasion/reinvasion prevention). NOAA activities for FY 2006 include modeling the potential range of green crab infestations on the West Coast and assessing the ecological impacts of green crabs in the United States (NOAA Fisheries, Northwest Fisheries Science Center), as well as mapping green crab habitat in southeastern Alaska,

British Columbia, and Washington (NOAA Fisheries, National Marine Fisheries Service, Alaska Research Office).

NOAA also entered into a joint project with the USEPA to support economic evaluation of the impacts of invasive species, hopefully with a focus on the impacts of green crabs. NOAA will fund \$100,000, part of the budget for the project. Additionally, NOAA will fund several grants, which haven't been processed yet, including research into the use of pheromones as chemical attractants, localized eradication along the coast, recruitment dynamics, and biogeographic assessments.

According to Fairey, next steps include continuing to support control research and pilot projects, engaging the aquaculture industry, holding the next meeting to assess activities, and initiating activities related to outreach and education.

ANSTF members commented on the need to engage West Coast shellfish growers. The industry hasn't yet seen specific impacts, especially since native crabs are a problem for them as well.

Nutria National Management Plan Working Group

Steve Kendrot (APHIS) presented on the desirability of developing a national nutria management plan, per an action item from the May 2005 ANSTF meeting. Nutria, a native of South America and a species of concern in its native homeland, has long been identified as both a nuisance and invasive animal. Management efforts have been successful in both controlling and reducing nutria populations. Kendrot discussed characteristics of this species; its status in 17 states; and impacts it has to property, horticulture and agriculture, dikes and other flood control measures, and marshes. The Blackwater National Wildlife Refuge lost 8,000 acres of marsh habitat due to nutria foraging before recovery efforts reversed the trend.

Kendrot described several control programs throughout the country, including those in Louisiana, Maryland, Washington, Oregon, and Mississippi. Maryland implemented an eradication program since nutria were restricted in geographic distribution and isolated from populations in other states. They had come into the state from a specific introduction rather than expanding from neighboring states. Efforts now are focused on expanding the eradication zone and preventing nutria from recolonizing the Blackwater Refuge. In Mississippi, Hurricane Katrina may have helped with nutria control on some Gulf Coast barrier islands.

In spring 2000 before eradication, fixed plots in the Blackwater Refuge were nearly devoid of marsh vegetation. As of spring 2004, vegetation in these plots has recovered. Kendrot has also heard anecdotal information about a muskrat response. These animals are returning in force to areas where they had been scarce.

Kendrot provided several reasons why he thought a national approach was necessary for nutria. They have broad geographic distribution, issues are common throughout affected areas, techniques developed in one place are generally applicable in other areas, control efforts are effective with this species, and interest has been increasing nationwide. Nutria eradication and control have received Congressional support, especially from Wayne Gilchrest (Maryland). Potential goals for an NMP include compiling regional control techniques, developing monitoring protocols, facilitating information exchange and education, providing management alternatives, unifying management response, and jumpstarting funding initiatives. He proposed that the working group comprise federal and state agencies, private organizations, and research agencies.

ANSTF members acknowledged efforts already underway or ongoing regarding nutria infestations and wondered about duplicating efforts. However, Kendrot stated that ANSTF support would add value to these efforts. Otherwise, concern could diminish after nutria have been controlled or eradicated in an area. The ANSTF then approved developing a nutria NMP. Anyone interested in participating is to contact Kendrot.

New Zealand Mudsnaill Management Plan

Tina Proctor (USFWS) presented the draft New Zealand mudsnail management plan. Plan development started in 2003 and involved a collaborative working group from academia, private organizations, state and federal agencies, and consultants.

Proctor has talked to the ANSTF about the species twice, but new information recently became available. Instead of one western clone, a second one has now been found in the Snake River, Idaho. It is broader and paler and has a larger last whorl. In addition, some shells of this second western clone have a carina broken into isolated scales. Mark Dybdahl (Washington State University) is conducting genetic studies to determine the pathway of introduction for this new clone. Both clones reproduce asexually in the United States, although males are occasionally present (more so for the second clone). The eastern clone, found in the Great Lakes, is similar to the typical western clone. All have an operculum that protects the snail from being easily digested.

Proctor showed a world map of the distribution of introduced clones and provided some general information about biology and ecology. Various clones occur in the United States, Europe, Australia, and Japan. Invasive populations are generally made up of a single clonal genotype, but in New Zealand, populations comprise a diverse array of clones. Environmental tolerances are very broad, although clonal lineages may have either broad or narrow tolerances. In the West, the infestation was isolated to the middle Snake River and a small portion of Montana in 1995. Now, this clone is found in nine western states. Numbers in the winter are lower, and densities can reach 300,000 to 500,000 individuals per square meter in the summer. The eastern clone originally invaded Lake Ontario, likely from Europe. Occurrences have also been reported in Lakes Superior and Erie. This year, a new occurrence was reported in the Duluth Harbor. Not as much research has been done on this clone. Impacts of mudsnails are largely unknown, although some research is being done on competition with a listed snail and effects on fish nutrition.

The goal of the *National Management and Control Plan for the New Zealand Mudsnaill* (*Potamopyrgus antipodarum*) is “to prevent and delay the spread of NZ mudsnails to new areas, reduce the impacts of existing and new populations, and continue developing information to meet this goal.” Objectives focus on pathways, detection, control and management, impacts, and public outreach. Proctor commented that the plan has three prioritized implementation tables. Among the tasks are developing risk assessments for different pathways, expanding the website and creating a database on sampling efforts, developing a hatchery certification, creating a model provision that requires a HACCP plan for aquaculture, developing sources of funding, and raising awareness in audiences associated with identified pathways (such as a corps of volunteer anglers).

Research needs include establishing baseline data where mudsnails already occur, developing effective control methods, investigating effective treatment of fishing gear to curtail spread, investigating effects to ecosystem function, and investigating effectiveness of outreach in changing audience behaviors.

John Dekam (American Water Works Association) suggested that utilities be advised to watch for New Zealand mudsnails when cleaning suction wells. Joe Starinchak (USFWS) added that this species has mobilized fly fishers and the industry that provides their gear. ANSTF members were requested to provide comments to Proctor by June 15. If no major problems are identified, the plan will be forwarded to the Federal Register for publication for public comment once ANSTF member comments are considered.

Asian Carp Management Plan

Greg Conover (USFWS) presented the draft *Management and Control Plan for Asian Carps in the United States* and requested plan approval for public review.

The ANSTF considers Asian carps as aquatic nuisance species that warrant active management and requested that the USFWS develop an NMP. The Asian Carp Working Group (ACWG) was formed in early 2004. Approximately 70 ACWG members representing 45 organizations attended a meeting in May 2004 to begin collaborative development of a draft NMP. A first draft of the NMP was provided to the full ACWG in July 2005 for review. A second meeting was held shortly thereafter, a revised draft was circulated in October 2005, and the draft NMP was provided to the ANSTF in April 2006. Overall, the ACWG reached consensus on 129 of 131 recommendations.

The ACWG agreed to a shared stakeholder vision to guide development of management recommendations. That shared vision is the extirpation of Asian carps from the wild, except for nonreproducing grass carp within planned locations. The ACWG also worked within the following framework to develop the draft NMP. First and foremost, the plan must protect natural resources. Additionally, the ACWG was challenged with finding solutions that allow for a viable aquaculture industry when the NMP is implemented. Considerations unique to developing this NMP are the four different species included and the constituencies that desire these species for commercial trade. To develop an NMP that will garner broad support for implementation, the ACWG worked with the aquaculture industry to find workable solutions. As a result, the NMP describes a framework for responsible use that includes recommendations to minimize the likelihood and consequences of escapes and to develop ecologically safe and economically viable alternatives to Asian carps.

The plan includes 46 strategies and 131 recommendations that address seven goals. Conover spoke about each goal:

- *Prevention of introduction.* This goal was the most challenging for the ACWG to address. Twenty-two pathways of introduction are identified. The draft NMP emphasizes developing, promulgating, and enforcing state regulations. Of 55 recommendations made to address this goal, ACWG members disagreed on two: use of triploid black carp and live transport of farm-raised bighead and grass carps. The plan includes considerable discussion on these two issues. There was also disagreement within the ACWG regarding the pathway "Risk Levels." Although no comments were made by the ACWG on the proposed Risk Levels during review of the first draft, numerous comments came during the final review. Given the time likely needed to resolve this issue, Conover asked for feedback from the ANSTF.
- *Containment of feral populations.* A long-term, large-scale cooperative effort is necessary. Recommendations include dispersal barriers, an early detection monitoring program, and preplanned rapid response actions.
- *Reduction of feral populations.* This goal describes the need for an integrated management framework. Of eight potential tools identified in the plan, the main tool immediately available is enhancement of commercial harvest, although research is still needed on gear and market development. Recreational harvest could have a cumulative effect over time. Biocontrols are not recommended at this time, leaving sterile carps, transgenic carps, pheromones, habitat or hydrologic modifications, and piscicides as other potential tools.
- *Minimization of potential adverse effects.* Conover acknowledged that this goal addresses symptoms rather than problems and will require a better understanding of the ecological effects of Asian carps.
- *Education and outreach.* A nationally coordinated initiative that involves stakeholders in the process is needed. The ACWG suggested a science-based approach to inform people about Asian carps and to avoid using fear-based information.
- *Research.* Research is necessary for moving forward with other aspects of the plan. The list of research needs includes understanding Asian carps' biology and life history requirements, developing effective sampling gears and methods, developing effective control techniques,

understanding ecological and economic effects, identifying alternatives to Asian carps, and minimizing risks from any future use of Asian carps.

- *Coordinated implementation.* The NMP outlines a structure for implementation that provides a foundation for national coordination.

Conover then reviewed recommendations for implementation. An implementation team, smaller than the ACWG, should be formed. Members need to be familiar with their agencies' authorities and available resources. It is important to have formal cooperative agreements in place and a defined process for conflict resolution. As its first action, this group would integrate, sequence, and prioritize recommendations across all goals; prioritize implementation actions; and create action plans. Performance measures would be developed, as would an adaptive management framework to facilitate rapid assimilation of new information. The ACWG estimated that the 131 recommendations would cost approximately \$286 million for the first 20 years and concluded that successful implementation would depend on the amount of resources made available for implementation by all stakeholders and how well those resources were integrated and efficiently used.

Conover requested approval of the draft NMP, including the discussion on the two unresolved management issues, for public review. Conover also requested that ANSTF members provide comments on the pathway Risk Levels. Conover concluded by requesting guidance on implementation, stating that many partners are anxious to begin implementing the plan.

ANSTF discussed the state-centric nature of the plan. To encourage states to pass laws that complement one another, model legislation could be written, and an organization such as the Mississippi Interstate Cooperative Resource Association or MRBP could take the lead.

ANSTF members agreed to provide comments to Conover by June 30 and preliminarily approved the plan for public review. If no comments are received objecting to the release of the NMP, it will be forwarded to the Federal Register for publication for public comment, with an understanding that a few issues may still be unresolved.

Caulerpa Management Plan¹

At the October 2005 meeting, ANSTF members were asked to look at the primary priorities in the *National Management Plan for the Genus Caulerpa*, determine whether their organizations were in a position to assist, and provide contact information directly to the plan coordinator, David Bergendorf. Jeff Herod (USFWS) announced that Bergendorf has moved to another position within the USFWS, so he is serving as plan coordinator for the time being, as well as being ANS Coordinator for the USFWS's California-Nevada Operations.

He focused his presentation on the status of the implementation plan and possible member involvement. A few activities of the *Caulerpa* NMP have been implemented regarding prevention (goal 1), long-term management (goal 4), and education and outreach (goal 5). These projects include educational outreach on *Caulerpa* to target audiences in California and Florida, development of a national website for *Caulerpa* information, and development of rapid DNA assay tests for *Caulerpa taxifolia* (Mediterranean strain).

Herod then described the CNO's ANS proposal process, including requesting, reviewing (in-house and technical), and selecting proposals. Requests are made through www.grants.gov and ask proposers to

¹ The update on the *Caulerpa* NMP was postponed until May 26. However, for organizational purposes, this update is provided here with the other management plans.

specifically identify NMP action items associated with their proposed projects. The CNO has received three proposals. A review has ensured that all are related to high-priority action items.

However, other primary priorities also need support (summarized below). He requested that ANSTF members provide him with points of contact within their agencies and encourage agency personnel to contact him regarding any planned activities that address the NMP. Herod emphasized the need to collect information on activities related to priority actions identified in the NMP. Specifically, his request is for agencies to compile activities that they and/ or their partners are accomplishing and report to Herod so that they can be tracked on the implementation table.

- Provide “No aquarium dumping” signage for high-risk waterways.
- Incorporate *Caulerpa* detection monitoring into ongoing marine surveys.
- Map extent of existing populations.
- Evaluate additional biological control for temperate waters.
- Conduct outreach to target audiences, independent aquarium supply, customs agents, and dive clubs.
- Provide additional contacts that can help implement the NMP.

AIS Database Summit

Melissa Pearson (NOAA) provided proceedings of the AIS Database Summit, held September 12–14, 2005, at the Stone Laboratory, Gibraltar Island, OH. These proceedings included background information, as well as participating databases, overlaps in mission and scope, and other relevant information. She then presented on the ad hoc Non-Indigenous Aquatic Species Database Working Group (NIASDWG, pronounced “nice dog”) for Dr. Rochelle Sturtevant (NOAA).

NIASDWG’s mission is to coordinate “cross-agency efforts relating to federally-sponsored aquatic nonindigenous species databases to promote greater efficacy in communication of aquatic nonindigenous species related data and greater efficiency of database management.” A key component of this effort is the establishment of a unified web “portal” to provide a single location from which to access all the databases. The Sea Grant Nonindigenous Species Site is currently housing the preliminary portal (www.sgnis.org/nisc/niasdwg.htm); however, the website should ultimately be housed at a federal Internet location.

Summit goals were to familiarize participants with 10 databases and their missions and scope, identify gaps and overlaps, explore the potential for consolidation via distributed database systems, and establish or modify interagency agreements among the three agencies covering these databases. Participants concluded that there was no significant overlap among the databases when mission and scope were taken together, little to no overlap even when current plans for expansion were considered, and some overlap and potential for overlap in data and data collection processes.

Several recommendations were also made at the summit:

- That NIASDWG members commit to maintaining the distinctions of their mission/scope—“projecting complementarity and coordination.”
- That the distinctions between NIASDWG member databases be better and more formally articulated and communicated.
- That NIASDWG members commit to coordination aimed at reducing duplication of effort in populating databases.

- That NIASDWG develop a “common face” for distribution of federal AIS data on three levels: 1) integration of the working group, 2) development of a metapage, and 3) use of a common search portal (NISbase).
- That NIASDWG coordinate development of deliverables based on merged databases.
- That NIASDWG members commit to continuing communications and furthering efforts to work cooperatively, increasing the efficiency and efficacy of their efforts.

Pearson then talked about NISbase, a distributed database portal that will, when fully developed, simultaneously search multiple marine and freshwater NIS databases from around the world for species summaries, bibliographies, and research project inventories. It already has many of the capabilities that make it a desirable search portal, and other capabilities are planned.

The USGS and NOAA are also collaborating on a database of taxonomic expertise, both international and regional. This database was requested by ANS regional panels, is funded by the ANSTF, and will be hosted on the ANSTF website.

Pearson requested that any questions be directed to Sturtevant, who would also like input on outreach to agencies and improvement of coordination, sharing, and management of AIS databases. Pam Fuller (USGS) added that one of the tasks associated with the taxonomic database is identifying state contacts who should be notified first regarding potential nonindigenous aquatic species. She planned to coordinate with Larry Riley (AFWA) for this task.

Pathways Work Team Report

Penny Kriesch (APHIS), chair of the Pathways Work Team (under the joint NISC/ANSTF Prevention Committee), acknowledged the hard work of team members, tasked with identifying and ranking invasive species pathways, and requested support for the methods she presented, approval to forward the *Invasive Species Guide to Pathway Definition and Risk Prioritization* to NISC, and continued provision of an ANSTF representative (Don MacLean [USFWS]) in the next phase of development: development of predictive quantitative data for pathway risk analysis. Kriesch had presented the document to ISAC last month.

The first version of the report came out in 2003 in response to a NISC charge to “implement a system for evaluating invasive species pathways and ... issue a report identifying, describing in reasonable detail, and ranking those pathways that it believes are the most significant.” The document was also to “discuss the most useful tools, methods, and monitoring systems for identifying pathways, including emerging or changing pathways, and for intervening and stopping introductions most efficiently.”

The Pathways Work Team sponsored the Invasive Species Pathways Focus Group Assessment Conference in June 2005 to analyze pathways and solicit feedback on a proposed pathway risk assessment tool. About 50 people convened to take the tool through evaluation of three areas: ballast water, air travel, and packing materials. The GSA Regional Panel tried it too. Overall, the process and use of an assessment guide was supported. However, participant indicated that extensive revisions were required to the assessment process, tool, diagrams, and evaluation scales. There was also considerable discussion about qualitative vs quantitative research. She admitted that they would have to rely on expert opinion until sufficient quantitative data were available. Such research was crucial for diminishing the level of uncertainty.

Kriesch talked about the four-stage method that resulted from the input and described each stage:

Stage 1	Pathway triage	Stage 3	Invasiveness scale
Stage 2	Pathway scope, characteristics, and risk analysis	Stage 4	Situational modifiers

For easy reference, acronym and species lists are included at the end of this document

Stage 1 addresses multiple pathways and results in a listing and rough prioritization of where to focus attention individually. This stage involves five steps. Stage 2 considers commonalities in pathway scope. Steps in defining a pathway and identifying its scope, risk level, and risk score are first completed by individual experts independently and then used by the experts as background information for completion of a single focus-group consensus decision that will go to decision makers who will commit resources and make action plans. Levels for scope range from local to international. Stage 3 includes 16 questions dealing with risk to human health, the economy, and ecology, the answers for which calculate a consensus score and bell-curve distribution. Stage 4, which considers situational modifiers, provides one last opportunity to ensure that an assessment incorporates issues such as human infrastructures; biological, primary productivity, and living industries; and political/public sensitivities. No risk assessment is likely to be considered unless it has public support.

The following are desired outcomes of a risk analysis:

- Individual agency/organization identification and prioritization of pathways of interest.
- Individual agency/organization expert risk evaluation of a pathway.
- Local, regional, or national consensus on pathway identification and risk analysis.
- Local, regional, or national quantitative datasets on a pathway.
- Numerical (bell-curve) distribution of pathway risk determinations.
- A foundation for policy determinations regarding resource management and collaboration on invasive species action planning across agency/organization/etc. lines.

Kriesch summarized next steps since ISAC approval, which included enhancing quantitative analysis; developing predictive evaluative statistics, models, techniques, and matrixed databases; developing interagency collaboration and action planning methods; balancing expertise and knowledge; evolving the guide into a training curriculum; and supporting regional and international resource management.

The ANSTF approved forwarding the *Invasive Species Guide to Pathway Definition and Risk Prioritization* (including pathway prioritization tools and methodologies) to NISC for action. Richard Orr (NISC) asked that comments from ANSTF members be directed to him.

Day Two and NEANS Welcome

Co-chair Mamie Parker introduced Judith Pederson and Jim Straub, co-chairs for the NEANS Panel. Pederson welcomed participants and previewed the day's presentations sponsored by NEANS.

Collaboration to Achieve NEANS Goals

Judith Pederson (MIT Sea Grant College Program) provided an overview of the NEANS Panel, located within the Gulf of Maine Council on the Marine Environment. NEANS is completing its first five years, so members are looking back at what they have accomplished and forward to what they can do. She commented that early on they went through a period of communication, followed by a period of cooperation. Now they are moving into a period of collaboration and seeking answers on what the panel can do for the region that fills a gap.

Pederson reviewed the panel's history, from its establishment in 2001 to its functioning today. Seven states and three provinces participate, and the 41 members represent a broad range of stakeholders. The mission is to "protect the marine and freshwater resources of the Northeast from invasive ANS through commitment and cohesive coordinated action." This mission translates into three goals (prevention, control, and mitigation of impacts) and six objectives. She listed several means that NEANS has used to "sow the seeds" of prevention, such as networking with others and conducting outreach. The Spotlight on Species feature illustrates the panel's commitment to sound science. To

date, a number of species have been featured, including the green crab, zebra and quagga mussels, sea lamprey, alewives, hydrilla, and others. The panel's Spotlight program is moving from species to a more issue-oriented focus.

Pederson then compared NEANS to Agora, the marketplace in ancient Greece. It provides for discussion and collaboration regarding vectors, ballast water, invasive plants, research and findings, citizen monitoring programs such as Weed Watchers, and state management plans. Specific experiences transferred via the NEANS Agora include the Maine boat sticker program, Weed Watcher programs in all participating states, management plans in about half the states, commitment to Habitattitude, and others.

She then listed a number of NEANS accomplishments and small projects on which the panel and its committees are working. Pederson commented that, although useful, many of these small projects may not address some of the big issues. The panel needs to focus on what NEANS can do that others cannot as they look forward.

To that end, members are developing a strategic five-year action plan. Like everyone, though, the panel needs more money than it is currently getting. The panel asked the program manager, Michele Tremblay for recommendations for development strategies to obtain additional funding resources. She provided a list of recommendations—contributions, workshop fees, MOUs with states and organizations, project-specific grants, in-kind donations, and earmarks—not all of which are fully supported by panel members.

Following her presentation, Pederson requested additional ideas for funding. Several suggestions were offered by ANSTF and audience members. Matt Fleming (Chesapeake Bay Program) and Marilyn Katz (USEPA) agreed to look into consideration of invasive species as biological impairments under the TMDL process. Pederson distributed flyers for the fifth International Conference on Marine Bioinvasions, to be held May 21–24, 2007, in Cambridge, MA.

Polyvectorism and Integrated Vector Management

Dr. James “Jim” Carlton (Williams College) serves on NEANS and spoke about polyvectorism and integrated vector management. He emphasized that understanding the scale of regional vector diversity is key to prevention. Right now, the vector is the “Achilles heel” of invasion ecology. Global bioflow is increasing steadily because there are more vectors than ever before. A graph of dispersal vectors of the European green crab showed an increase from two vectors in 1800 to ten in 2000.

Carlton then reviewed vector terminology. Researchers are moving away from the term *pathway* because it has been used to encompass four distinct concepts: cause, route, corridor, and vector. Cause is *why* a species is transported (and if deliberately, the purpose). The route is the geographic path from the donor area to the recipient area, while the corridor is the physical conduit over or through which a vector moves within a route (such as canals, shipping lanes, or roads). The vector, then, is *how* a species is transported (the physical means). Other vector concepts include vector tempo (time between events *a* and *b*), origin, biota, and strength. These concepts are detailed in *Invasive Alien Species* (2005) by Carlton and Gregory Ruiz.

Several challenges exist regarding vector diversity. For example, many human-mediated vectors now spread marine and freshwater species, but in peeling back layers, researchers find that vectors can be “noisy” (that is, have multilayered subcomponents) and “dirty” (that is, having associated species). Carlton provided a scenario of one day in the life of the Gulf of Maine and the sheer number of possible vectors that could be in play during that day. Such vectors as restoration as often “off the radar,” as are organisms that may be embedded in mud on visitors' boots. When a new species shows up, the challenge is figuring out which of the many vectors led to it.

Carlton suggested the idea of a “vector blitz,” similar to bioblitzes during which researchers and volunteers survey all the plants and animals in one area in a 12-hour period. In that 12 hours, participants would sample multiple vectors such as vessels, bait shops, aquarium shops, live sea food providers, shoreside activities, and others. Such an event could be a great PR event, bringing instant, broad national attention to vectors and invasive species.

He talked more about “noise.” Fine-grained sampling aboard a cargo ship would look at much more than ballast water, where much of the focus has been. Organisms may be introduced through anchor and bilge systems, the propeller and propeller shaft, and other subcomponents of the ship.

In 2001, Carlton and others conducted a Sea Grant-funded project to investigate the number of species associated with shipments of bait, seafood, marsh plants, and research/education supplies that they ordered via the Internet. When shipments arrived, they evaluated them for organisms that they hadn’t ordered. The bait worms arrived from Maine with an additional 18 species. The seafood shipment (blue crab from Chesapeake Bay) and marsh restoration shipment (*Spartina* from Maryland) arrived with 12 and 10 additional species, respectively. But the greatest number of hitchhikers came with the sea squirts ordered for research/educational purposes. This shipment from California included 104 additional species.

With finite management resources, prioritizing vectors is important but challenging. Two species of crab (Chinese mitten and green) have received a great deal of attention for their spread on the West Coast. Both came from what are considered lower priority vectors. A private citizen released Chinese mitten crabs to establish populations for harvesting, and juvenile European green crab juveniles arrived in seaweed with bait worms from Maine. All vectors need attention, but weighting them is difficult.

A helpful tool is integrated vector management (IVM), a concept developed by the World Health Organization and introduced into the ANS arena a few years ago. This model includes regularly monitored, coordinated integration of methods and strategies (based on scientific research) that interface with a vector at all stages (uptake, transport, and potential release). Prior to IVM, lots of things were happening but not in an integrated manner. IVM requires broad federal, state, and international cooperation since much transport is broad scale. In IVM, seven probabilities can be assessed. For most species, our understanding of their probabilities of being released, surviving upon release, establishing the first reproducing population, and establishing long-term reproducing populations is vague. More is known about a vector taking up or engaging specific species and their survival during transport.

Following his presentation, ANSTF members discussed increasing efficiency in transport of cargo, including living species. In the words of one participant, FedEx’s tagline could be “We’ll get you your invasive species overnight!” Paul Zajicek (NASAC) thought it would be interesting to track which cargoes are dropped as fuel prices rise. Will people still want to pay as much for farmed seafood if costs of shipping it increase? Joe Starinchak (USFWS) noted that Carlton’s Internet study reinforced that consumer behaviors are the intervention points. Speculation about introduction sources often just undermines credibility.

Multilingual Aquatic Invasive Species Outreach Campaign

Johanna Mathieu (research assistant for the MIT Sea Grant College Program) reported on a live seafood market study aimed at determining potential risks for AIS introductions by non-English-speaking populations in the Northeast and developing an effective AIS message, outreach materials, and distribution strategy for these populations. She remarked that, in some cases, people of certain cultures eat one seafood specimen and release another one for good luck. People may also dispose of

live seafood intentionally (that is, fish stocking) or accidentally or improperly dispose of seafood waste, introducing new species, hitchhikers, and/or diseases into water bodies.

Investigators found 19 markets and 18 restaurants with live food fish and seafood in the Greater Boston Area. Few wholesalers operate in the area. Over 38 vendors were identified in New York City, which has numerous wholesalers. The key ethnic groups are Chinese, Vietnamese, Korean, Cambodian, and Hispanic. Researchers also compiled species lists for each market and restaurant visited. Mathieu commented on challenges finding markets, often because of language barriers and secrecy in the industry. Identifying species was also difficult. Many were mislabeled, unlabeled, or in poor condition after being shipped. Several specimens were brought to the lab for identification. Overall, results from their surveys were probably conservative (that is, more species are available than were recorded).

Seafood available in live seafood markets was generally cultured in the United States, caught live in the United States, or shipped internationally. Some fish were cultured in the United States, shipped to Canada, and then reimported to the states. Knowing their points of origin has helped during the risk analysis phase of the study. This analysis is still underway and fairly qualitative at this point. Through a FOIA request, the research team obtained helpful USFWS importation data (although scientific names are often missing). Mathieu summarized risk analysis charts that she displayed, as well as preliminary results. Fish from abroad are at the highest risk of being introduced or introducing hitchhikers. In addition, potential for invasion is highest with the end customers because they have more reasons to release specimens to the environment. Aquaculture likely loses some specimens through escapement. Releases are possible during transport as well: if a shipment is delayed and mortality rates are high, the cargo may be released directly into the environment.

Based on the ethnic groups that culturally are major consumers of live seafood found in Asian markets, pamphlets have been developed and made available in Chinese, English, Khmer, Korean, Spanish, and Vietnamese. The pamphlets, which include information on what to do, what not to do, legal issues, and consequences of introduction, were displayed. Other means of outreach include newspaper articles, TV and radio interviews, websites, and press releases.

Several recommendations came from this effort:

- Use scientific names on live seafood documentation and packaging to increase recordkeeping accuracy.
- Develop an inspection process for live seafood imported to the United States to minimize illegal seafood imports.
- Develop an inspection process for live seafood markets in the Northeast to minimize illegal seafood sales.
- Document and/or regulate interstate seafood shipments.
- Standardize inconsistent state legislation regarding invasive species.

NEANS Communication Accomplishments

Michele L. Tremblay (NEANS Program Manager) reiterated Judy Peterson's point about NEANS starting as a communication forum. Despite evolving through cooperation to collaboration, communication remains an important focus.

NEANS communication accomplishments include semiannual meetings with the Spotlight on Species feature; professional development forums; NEANS Panel brochure; website; and NEANS Panel listserv (panel@northeastans.org). The listserv enables regional and national communication among panel members and "friends." Committees and task groups use individual listserves, an approach that

they have found to be effective. The NEANS Panel also maintains the ANS regional panel listserv for all the other regional panels.

To encourage professional development, the NEANS Panel has organized high-level introductions and training sessions on effective media relations, legislative interactions, and volunteer recruitment and management. Topics proposed for future professional development include fundraising, grant writing, project management, and planning using logic models.

Tremblay then showed pages from the NEANS website, which includes the usual resources such as a calendar, although it also has a form so that people can submit events to the calendar. Content has been expanded recently, and now the website provides priority species lists with response protocols and control technologies, links to databases and other helpful resources, and publications targeted to resource managers, lake groups, and volunteer trainers. Users can also access companion webpages for panel products such as the floating key chain and water chestnut brochure.

Working with Volunteers

Michele Tremblay (NEANS Program Manager) also spoke on behalf of Amy Smagula (New Hampshire Department of Environmental Services [NHDES]) about Weed Watcher, a volunteer program that numerous states have emulated. This program was piloted to help a small agency staff monitor the flora in lots of lakes in the state. Essentially, NHDES decided to ask people who were already at the lakes to participate in the Weed Watcher program.

Volunteer Weed Watchers are the first line of defense if an exotic is introduced. Therefore, the state can catch infestations early, facilitate a rapid response action, and prevent further spread. Volunteers include members of lake associations, garden clubs, retirement groups, fishing clubs, and Boy Scout and Girl Scout troops, as well as lake residents and other interested parties. These people are not only helping the department, but they are benefiting themselves. They are motivated by love of the lakes and a desire to maintain property values. Volunteers have proven to be a great source of knowledge about their lakes.

Tremblay passed around a kit used to train volunteers. She explained components in the kit, the training process, and then the actual monitoring process used by Weed Watchers and those to whom they report. Tremblay emphasized that flexibility is a must when working with volunteers. A successful program considers their needs, availabilities, and motivations. Volunteers are not constrained by rigid sampling guidelines—they just need to monitor for anything undesirable that shows up. They are, however, asked to report anything suspicious immediately. Groups submit year-end reports, either by e-mail or hardcopy. Information is then housed at the NHDES.

Although a flexible program, its success has been measurable. Tremblay described successful early detection and rapid responses for Dublin Lake and Lake Sunapee. Tremblay encouraged people wanting more information to contact Amy Smagula at the NHDES. She commented on the energy Smagula puts into the program and the ongoing interaction she has with interested groups.

Following the presentation, participants discussed use of the program for nonnative animals as well. Smagula has put many groups on alert for zebra mussels. The rapid response model would likely differ, and another department would lead that effort. Some people wondered about the level of effort, in terms of hours, volunteers put into the program now. Tremblay suggested that they contact Smagula for that information, which might be useful for funding requests.

Addressing the Hydrilla Problem in Massachusetts

NEANS Co-chair Jim Straub (Massachusetts Department of Recreation and Conservation) spoke about hydrilla invading the Northeast. Initially, people thought that it was too cold, that they could

only spend money to manage existing resources and problems, and that nonnative plants couldn't cause significant damage. Now, of course, people recognize that these arguments are incorrect. In addition, prevention is beginning to appeal to legislators because of the costs of control and management.

Straub then discussed the spread of hydrilla in the Northeast since it was first discovered in 1989 in a 4-acre, private pond in Connecticut. In 2001, hydrilla was identified in a 50-acre pond on Cape Cod. It was initially thought to be elodea, which had been reported in that pond for years, so the pond may have had hydrilla prior to that time. Once identified, however, the response was immediate. Two taxonomists confirmed the species, the pond was closed, and the weeds were treated in 2002. In addition, education was offered to lake groups, and all the lakes on Cape Cod were surveyed for hydrilla. Then hydrilla was found in Pickerel Pond in Maine by a trained volunteer. Access to the pond was closed, and resource managers began extensive mapping and matting of the infestation. They also worked toward herbicide use.

To date, hydrilla has expanded to four lakes and one small watershed in Connecticut, but the state has had difficulty working with residents. In Massachusetts, the infested pond is still closed, and tuber counts are down. Although the public has been educated and trained and the entire cape is being monitored, no other infestations have been reported. Maine has also focused extensively on monitoring/eradication and trained volunteers in removal. That state has also implemented treatment with an herbicide. Overall, individual state hydrilla management actions are working to some extent. Obstacles to better implementation include lack of coordination above the program manager level, little to no funds for immediate response, and no regionwide response protocols. Straub commented that he'd like to take Northeast legislators to Florida to help them understand the impacts of hydrilla. Unfortunately, in some northeastern states, agency personnel are barred from talking directly with legislators, so they have to encourage the public to talk with them.

In 2005, the NEANS Panel became involved in hydrilla efforts. The panel's goals are to prevent additional infestations, develop EDRR protocols for the Northeast, implement EDRR protocols, and attempt eradication of existing populations. To meet these goals, NEANS has worked on developing a consistent message and design so that people traveling throughout New England see a similar emphasis. The panel also plans to develop a memorandum of agreement for New England and eastern Canada governments, regional education and advertisements, and a funding source for regional work; convene national experts on hydrilla; draft a model EDRR plan; and work with other panels in preventing spread. Straub reemphasized the need for prevention, monitoring, coordination, and EDRR plans.

When asked about milfoil, Straub said that 600 of 3,000 state-owned lakes and ponds were inspected. About 400 of those have variable or other milfoil species in them. Surveyors are finding more infestation all the time. The state is still working on a definition for success.

Early Detection and Rapid Response Protocols in the Northeast

According to Jay Baker (Massachusetts Office of Coastal Zone Management), like other regional panels, NEANS has been interested in and challenged by EDRR since its inception. Although many states have been developing comprehensive state management plans, efforts primarily focus on education and prevention ("plan A"), likely because these are the most cost-effective invasive species management measures. However, invaders such as Asian clam, hydrilla, and colonial tunicate (*Didemnum* spp.) are still slipping through the cracks. Potential invaders include the northern snakehead, veined whelk, and mitten crab, none of which has been confirmed in regional waters yet.

Plan B, then, is EDRR. The goal is to find and eradicate a species before eradication becomes impossible. Of course, the capacity to respond effectively requires careful planning *before* an invasion

occurs. Therefore, NEANS sponsored an EDRR planning workshop in Bar Harbor in 2003, with the help of invasive species experts from around the country. Participants developed a framework for EDRR that includes detection, delineation, quarantine, assessment, implementation, and monitoring. This approach is based on the work of other regional panels, as well as organizations such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO) Australia. Because much of the work of detection, eradication, and control falls to state government, the NEANS Panel has decided to develop resources to assist states in planning for EDRR efforts. To date, the panel's focus has been on detection and assessment, and efforts have not been species specific. Baker then talked about several activities associated with framework elements:

- Supporting development of a marine invasive species monitoring network and database.
- Providing web links to resources for geographic information about nonnative freshwater, marine, and wetland species, as well as to various nuisance species lists for the region.
- Participating in development of the NOAA taxonomic experts database.
- Assessing potential risks to human health, the environment, and the economy using impact and management criteria.
- Providing a web library of control methods for selected ANS.

Future efforts include refining species evaluation methods, continuing development of web and print resources, participating in development of the taxonomic experts database, and focusing on hydrilla as a potential EDRR case study for the region. When asked about the key to nurturing synergy in the process, Baker responded on the importance of getting the right people involved from the start. Once NEANS held the first workshop, they had numerous resources with freshwater and marine expertise. A second workshop in 2005 focused on developing policies to support EDRR efforts. He invited input on the panel's website.

Exotic Pet Amnesty Day

Paul Zajicek (NASAC) reported on an exotic pet amnesty event in Orlando, FL. The appearance of large snakes in the Everglades has increased concern, so after the Florida Fish and Wildlife Conservation Commission's invasive species coordinator talked with Marshall Meyers (PIJAC), the Commission organized the event, and the Wildlife Foundation of Florida funded it. In Florida, authority over fish and wildlife rests with the Commission, per the state constitution.

Zajicek was pleased with the number of participants for the one-day event. Two herpetological societies were on hand, as were local, state, and federal agencies; a veterinary hospital; Sea World and GatorLand Zoo; the Miami-Dade Anti-Venom Unit; The Nature Conservancy; PIJAC; University of Florida's Tropical Aquaculture Laboratory; and Habitattitude. The location and set up were also well planned. Zajicek showed photographs of the event. In addition, the event was given phenomenal media coverage.

Despite all the efforts, only six animals were collected, all of which were low-value pets. He said that many people seemed to be "checking out" the event, perhaps not comfortable turning in an exotic pet at this time. The low number didn't dampen volunteer enthusiasm though, since it was still a great forum for education. Zajicek thought that a series of events or an established network of resources might result in more exotic pets being turned in rather than dumped or mistreated. Similar programs such as that for collecting toxic material also took some time to catch on. He said that the Commission will evaluate the event and submit a report. Joe Starinchak (USFWS) added that he had learned several things through the event and was overhauling the Habitattitude website to focus on the behavioral aspect rather than the invasive species aspect of the problem.

Shipping

Judy Pederson (MIT Sea Grant College Program and co-chair of the NEANS Panel) provided an update on the panel's Shipping Committee, a committee in transition. The committee, co-chaired by Kevin Cute (Rhode Island Office of Coastal Resource Management) and Andrea Locke (Department of Fisheries and Oceans), originally focused on ballast water issues. Two workshops were held. The first workshop, which focused on problem identification, was supported by MIT Sea Grant and Massport, while the second one examined potential alternative ballast water exchange zones for coastal vessel traffic and was supported by MIT Sea Grant and Transport Canada.

The committee attempted to get New England Governors and Eastern Canadian Premiers to adopt ballast water as an issue but failed to capture legislative attention. The USEPA funded an intern to develop outreach materials, which were not as user-friendly as desired. At this point, committee members reevaluated their focus, renamed the committee, and developed a new direction.

Future events for the Shipping Committee include reviewing policies and legislation, using information to develop a recommendation for the panel, developing a bibliography, and developing AIS data for ports. Issues that the committee is still discussing include the role of the ANSTF in the hydrilla project, multiple vectors, seafood vectors, and ballast water. Regarding seafood vectors, the committee has several recommendations (p. 21).

Pederson requested ideas on how to raise awareness of the ANSTF and NEANS Panel with state/provincial governments and compete with other pressing environmental issues for more funds. People suggested developing a relationship with the regional governors' association, focusing on specific species of concern to Canadians (such as tunicates) to encourage funding for their participation, and showcasing ANSTF efforts and successes. Participants also talked about strategies that states and organizations are using to reach out to various audiences. Pederson then previewed the agenda for the field trip to a hydrilla-infested freshwater pond and to the Woods Hole Oceanographic Institution (WHOI) that afternoon. At WHOI, they would visit a dock with *Didemnum* (sea squirt) and an experiment designed to explore competition between *Didemnum* and the marine common (or blue) mussel.

Field Trip To Red River Beach and Woods Hole Oceanographic Institute

Two components of the afternoon field trip were scheduled by NEANS to highlight the challenges of marine invasions and underscore the difficulty, if not impossibility, of eradication once populations become widespread. The first component was a trip to Red River Beach in Harwichport, MA, a town beach facing Nantucket Sound. The area is a long stretch of beach with groins designed to protect the beach and nearby houses from erosion. Tom Leach, Harwichport Harbor Master and shellfisherman, described the problem and frustration to the town of coping with algae. In the past several years, the beach area has had huge amounts of an invasive green alga (*Codium fragile* ssp. *tomentosoides*) washing up on shore and interfering with swimming and recreational enjoyment of the area. One summer, a dune was constructed of sand and *Codium* scraped from the beach, but space to continue this practice was limited. This spring, *Codium* that washed ashore during several spring storms were present in amounts that were unusual for that time of year. The algae were removed to the landfill, but space is also limited there. Although this invasive has been in the Cape Cod region since the 1970s, its "success" in the Harwichport area is relatively new and probably due to the physical oceanography and topography of that area and increased nutrients from the groundwater of development projects (the area uses septic systems) that have occurred since the 1980s. Depending on the area and soils, groundwater takes from 10 to 15 years to reach coastal waters and is additive to stormwater, lawn, and other runoff. Decreasing nutrients in this type of system is as challenging as removing an invader. A student is studying the hydrodynamics of the area to develop a fuller understanding of the system.

For easy reference, acronym and species lists are included at the end of this document

The second component of the field trip was a visit to the WHOI dock where an experiment was conducted in an area where the *Didemnum* sp., an aggressive, compound sea squirt, is present (that is, it was not introduced by the experiment). Dr. Page Valentine (USGS) and Mary Carman (WHOI) described what is known about *Didemnum* and its impacts. They described the previous year's experiment where *Didemnum* specimens were placed in cages with mussels and their growth followed over time to record the rate of growth and impacts, if any, to the mussels. Although the experiments were not continued during the winter months, the cages were still present at the time of the field trip. Colonies were in various states of recovery from the winter, a time when growth is slower and colonies die back. The success of *Didemnum* is related in part to its ability to grow into large colonies asexually, reproduce sexually, and disperse larvae to new areas; prevent other species from growing on the colonies; and (apparently) be unpalatable to a large variety of predators. This species is found in Georges Bank and recorded as covering approximately 80 square miles of cobble habitat and possibly more. In addition, large patches (around 1 square mile) are also found subtidally in Long Island Sound. The species is also found throughout subtidal areas near shore and on docks and piers in marinas. Options are limited for management and control of the invader, particularly offshore, and to date no eradication effort has successfully removed all *Didemnum* from a limited area, although some measure of success was achieved in New Zealand. More information about *Didemnum* and its distribution worldwide is available at woodshole.er.usgs.gov/project-pages/stellwagen/didemnum/.

Day Three Welcome

Co-chair Tim Keeney welcomed participants to the last day of the meeting and reminded those wanting to make public comment to sign up before or during the morning break.

Report to Congress

Executive Secretary Newsham reported that the *Aquatic Nuisance Species Task Force Report to Congress: Fiscal Year 2004* was awaiting one more signature, after which it would be submitted. Referring to the memo associated with this agenda item and posted on the ANSTF website, Newsham summarized challenges he had encountered in developing an annual reporting process and requested input on several issues:

- *Focus and level of detail.* Regional panels had requested a uniform template that would not only provide information to the ANSTF for its annual report but would also fulfill the panels' funding agreement requirement. This template would also be used by states receiving USFWS funds for their ANS management plans. Newsham had attached sample templates to the memo for people to peruse, but he was concerned about the amount of information to compile and the lack of uniformity in fiscal years (if financial data were included). To meet desired objectives of providing an annual report, keeping the issue in front of legislators, and focusing on accomplishments and challenges, he would like to submit a brief report that is more qualitative in nature. One participant commented that the annual report was less of an accountability record and more of a "state of the union" regarding ANS.
- *Biennial report.* While annual reports are required under the authorizing legislation, Newsham would like the ANSTF to approve completing a biennial report for 2005 and 2006 by December 2006. Doing so would enable the ANSTF to submit future reports on schedule, an approach that could influence budget decisions for the coming federal fiscal year.
- *Timing.* Newsham suggested drafting the annual report by the end of August (given the federal fiscal year end of September 30) and having it reviewed by the fall ANSTF meeting.
- *Coordination.* Participants suggested strategies for coordination, including submission of state updates through regional panels (despite some overlap), the Executive Secretary (allowing one contact), or USFWS regional coordinators.

For easy reference, acronym and species lists are included at the end of this document

- *Inclusions.* Mike Ripley (Chippewa Ottawa Resource Authority) requested a structure that allows for tribal reporting (such as for directing funding that his organization receives from the USFWS for sea lamprey control). And although participants agreed that states receiving funds for ANS management plans must submit reports for inclusion, there was less agreement on whether other states should be included as well. Some believed that updates on accomplishments and challenges from all states could result in increased funding and other benefits, while others pointed out the challenge of convincing states not receiving funds to submit reports. One suggestion was to market it as an opportunity for states and regional panels to communicate with Congress and their representatives, since state delegates are likely to scan the document to find their own state reports.

Newsham summarized the approach that evolved during the discussion. Regional panel chairs will contact their state members and request reports focusing on major accomplishments and programmatic needs. They will collect these reports and forward them to Newsham, who will integrate the information into the annual report. After the discussion, he felt he had a sense of what to pull from the reports and include. He acknowledged that getting the process moving is key and adjustments to the process and product can be made over time.

Regional Panel Reports

Regional panel representatives highlighted activities and issues in their areas that would benefit from ANSTF attention.

Mississippi River Basin Panel

As the acting chair of the MRBP, Michael Hoff (USFWS) talked of the panel's need to "think big," focus on next steps, and act fast. His update focused on revision of the MRBP's operational guidance document, upcoming panel-supported activities, description of panel progress and direction, and panel members' perspectives on funding for state and interstate plans.

The "Organization Framework" that had been approved by the ANSTF needed updating, so a revision, entitled "Operational Guidance," was drafted by the Executive Committee (ExCom). This draft was sent to panel members along with a ballot and recommendation to vote for approval. Although June 5 is the deadline, ballots thus far are positive. Changes affect leadership (two co-chairs rather than a chair and vice chair), committee structure, and panel membership. If changes are approved by the panel, elections for co-chair positions will follow and recommendations will be made to the ANSTF.

Upcoming activities include the MRBP's fifth meeting scheduled for August 24 in Peoria, IL, following the Asian Carp Symposium August 22 and 23. The purpose of the symposium, cosponsored by the MRBP and several other groups, is to share results of studies describing biology and ecology of Asian carps and provide a forum for advancement of Asian carp management and control. Proceedings may be published.

Regarding progress and direction, the four standing committees (ExCom, Research and Risk Assessment, Education and Outreach, and Prevention and Control) are implementing their work plans. Development of a field guide to AIS in the basin will be completed in the summer of 2006, and the "Help Stop Aquatic Hitchhikers" brochure is being reprinted for all requesting members. The 24-page field guide will include 14 full-page profiles and 8 to 12 short profiles. In addition, the MRBP is partnering with the GSA Regional Panel and WRP on a risk assessment training workshop, tentatively planned for this fall. The panel is also considering holding workshops on AIS control (developing a list of priority management actions and research needs to enhance control capabilities) and possible strategies for rapid response given NEPA regulations. Right now, the region's priority species are the Asian carps.

For easy reference, acronym and species lists are included at the end of this document

The panel recently requested member feedback on funding levels for state and interstate management plans. To date, eight states and the Southeast Aquatic Resource Partnership have responded. Hoff read excerpts from some of the responses. Generally, responders agreed on the need for more federal funding.

Hoff reiterated that ANSTF members can expect to see MRBP recommendations regarding the “Operational Guidance” document and panel co-chairs. It was pointed out that panels are not required to get ANSTF approval for their standard operating procedures. Regardless of whether “Operational Guidance” was viewed as an action item or information only, Hoff was more comfortable forwarding the document to the ANSTF. He also emphasized the need for follow-through. The panel has good ideas and intentions, but it is limited by funding as well as the availability of participants’ time.

Mid-Atlantic Regional Panel

Jim Bean (BASF Corporation and MARP vice chair) spoke first about the role that industry can have in addressing AIS and strategies for working cooperatively with the private sector. A recurring issue at this meeting is inadequate funding, so his primary role of helping find funding for environmental resources could be especially beneficial to attendees. Although AIS issues have opened a new and growing market for BASF products, BASF is the only chemical manufacturer with resources dedicated to the issue. His involvement is tied to plants, but the company also provides support for PR, advertising, and other needs. In addition, the company considers participation key to being a good corporate citizen.

Bean was pleased to see how many good things are already happening. However, he understands that increasing funding must be the priority to fully implement ANS activities. He urged the ANSTF to gain non-agency participants and thus increase funding. He summarized some strategies for succeeding, including practicing basic marketing principles, developing a strategic plan, focusing on a few actions and doing them well, monitoring results, adapting to address weaknesses, sharing successes, focusing on information gaps and coordination, and being an information clearinghouse.

Bean then spoke about the regional panel’s successes and priorities. MARP is the newest of the panels, but the panel has been very busy with two meetings a year. The panel will next meet in Annapolis and then move around to highlight needs of hosting states. Because of the lack of time, participants are trying to include more breakout sessions for working groups. Recently, two new members joined the panel: the U.S. Coast Guard and Partnership for Delaware Estuary. Regarding the ANSTF’s annual report, the panel supports the simpler structure that is proposed, as well as inclusion of preliminary economic figures.

Priorities for MARP include developing a new website, databases, and a rapid response plan for regional distribution, as well as connecting with other invasive species councils. Through a regional survey, MARP will determine state status, gaps, needs, and key legislators and develop priorities and funding needs. Bean also mentioned a project with the Environmental Law Institute for which MARP is helping identify expertise in monitoring, surveying, mapping, database development, education and outreach, risk and pathway analysis, rapid response and management plans, and laws and regulations.

On all of these efforts, the regional panel would like to build on what already exists to maximize limited resources. He specifically mentioned collaborating on the USGS taxonomic expert database, creating compatible databases, sharing webmasters, and reviewing regional panel successes. ANSTF members suggested that MARP look carefully at databases that already exist such as NEMESIS and NISbase.

Gulf and South Atlantic Regional Panel

Ron Lukens (GSMFC) reiterated an issue raised by other panel coordinators as well—the need for state plans with dedicated coordinators so that many of the responsibilities falling to the regional

panels (and especially the coordinators) can be taken on by others. Right now, the panels are “professional hobbies” for members, who have great ideas but also the responsibilities of their “real jobs.” He then reported on activities of the GSA Regional Panel:

- The semiannual GSA Regional Panel meeting was held April 5–6 in Atlanta, GA, and well attended. Lukens was encouraged to hear in today’s meeting that operating procedures can be revised as needed. Those for the GSA Regional Panel are on file with the ANSTF
- State management plans for South Carolina and Georgia are in early stages, while Mississippi and Alabama plans are in progress. ANSTF members should see plans for Texas and Florida soon. Florida has actually had its plan for a number of years, but because it covers all taxa, it was not initially submitted. Lukens suggested that the ANSTF be amenable to all-taxa plans, even though only aquatic components could be commented on and funded.
- The panel is cooperating on development of the taxonomic experts database. Although a USGS/NOAA project, Lukens urged the ANSTF and regional panels to think about how panels could get information into the database once it was built.
- Roberto Mendoza, a panel member and powerhouse from Mexico, has volunteered to translate information for education and outreach into Spanish. He also helped Bob Pitman (USFWS) on a HACCP training workshop in Mexico City.
- The Pathways and Prevention Work Group has been active. Pam Fuller (USGS) will provide a report on this work to the ANSTF. This report will also be used to develop state and regional priorities for addressing pathways.
- The Research and Development Work Group is developing a list of research needs. He commented on the difficulty of ascertaining what has already been done. Sea Grant provided considerable information, but other sources are not as “clean.”
- The ED/RR Work Group developed a plan that must be expanded to include South Carolina and Georgia. The work group would also like to conduct a mock rapid response in the region to find out the obstacles to overcome. Tina Proctor (USFWS and WRP Coordinator) said that the WRP is conducting a mock rapid response in California in July. She will provide information about it to people via the ANSTF panel’s listserv.
- The Education/Outreach Work Group is developing an inventory of E&O materials and programs. Members plan to work cooperatively with the WRP on its initiative to develop an E&O database, preferably a national one.
- The GSA Regional Panel is supporting the International Conference on Aquatic Invasive Species scheduled for mid-May in Key Biscayne, FL. The panel will sponsor a session on May 18.
- The regional panel is cooperating with the MRBP to plan and conduct a “phase 2” risk assessment training workshop.
- The panel’s next meeting will be in October 2006 in Charleston, SC.

Lukens reported that the only recommendation the GSA Regional Panel forwarded to the ANSTF concerned the merit badge discussed earlier in the meeting (see p. 5). The panel supports establishment of the badge, although one member thought it could be combined with other environmental merit badges.

Great Lakes Panel

Kathe Glassner-Shwayder (GLC) expressed her appreciation for ideas and lessons from other panels and the ANSTF. The spring meeting of the GLP was held May 9–10 in Chicago, IL. The agenda was full, including updates on federal programs and legislation as well as other issues. The fall meeting,

planned for November in Ann Arbor, MI, will focus on EDRR in the Great Lakes region and at-large membership on the panel.

Glassner-Shwayder reported on several action items:

- *Advance development of a prohibited species list for organisms in trade.* This need was addressed by staff in the statement on AIS research priorities submitted for the Sea Grant RFP in December 2005.
- *Panel membership on the ANSTF outreach campaigns (Habitattitude and Stop Aquatic Hitchhikers!).* GLC staff will proceed with formally joining the campaigns.
- *Prospective panel membership of the Maritime Administration (MARAD) under the USDOT.* With interest expressed by MARAD in joining the GLP, the Executive Committee decided that any agency and/or organization seeking to join must first serve as an interested party or at-large member for at least two years. The full process for obtaining membership was articulated.

To date, the panel chair has had to be from a state natural resource agency, while the vice chair has been drawn from the broader pool of members. Elections are held every two years. The new chair is Mike Conlin (Illinois Department of Natural Resources), and the vice chair is Jim Grazio (Pennsylvania Department of Environmental Protection). Glassner-Shwayder also reviewed leadership and status for the three working committees (Research Coordination, Information/Education, and Policy/Legislation).

At-large membership will serve as a mechanism for keeping the GLP equipped to address emerging ANS issues. Criteria were developed for selecting at-large members, including their ability to and effectiveness in representing a constituency, expertise on current and/or emerging issues regarding ANS prevention and control; and ability to fill important unmet needs. Glassner-Shwayder then listed six new at-large members and reviewed their expertise and qualifications.

She had hoped that revision of the operational guidance document would be finished by this time, but the draft will be ready for discussion at the November meeting. This document will articulate the panel's vision statement, changes to leadership criteria (opening chair and vice chair positions to all regular members representing U.S. organizations on the panel), member roles and responsibilities, membership policies (such as members in good standing designed to promote active participation), and committee charges and processes. The mission statement has been revised to include more coordination. In addition, given clarification on the GLP's role as a subcommittee to the ANSTF, which is governed by FACA requirements, the role of FACA is not as significant as it was in the previous draft. According to Glassner-Shwayder, the greatest challenge has been resolving conflict, and she welcomes any advice for dealing with polarization.

She also reported on the Information/Education Committee's priorities document that is being refined by committee members. The purpose of the document is "to guide funding entities and to assist stakeholders in the development of projects that address AIS information and education priority needs." The document, which includes several different categories, will be distributed to ANSTF members soon, along with a request that they "give consideration to these priorities in the course of work within their agencies/entities on AIS prevention and control."

The former *ANS Update* is now called *News from the Great Lakes Commission on Aquatic Invasions*, an approach that helps address sensitive issues on which GLP members don't agree. She commented that states are getting impatient with no federal regulatory direction on how to protect their waters. This situation has provided an opportunity to promote a regional approach to state management planning on ANS prevention and control. To that end, the GLC is administering a grant in cooperation with Sea Grant programs and state resource agencies in the Great Lakes region. State-specific workshops will be conducted around the region to help these states develop, implement, evaluate, or

revise their state management plans. The plan is to have a culminating regional summit in the spring of 2007 to share lessons learned and promote coordination.

Western Regional Panel

Tina Proctor (USFWS) reported on new leadership and activities of the WRP. Kevin Anderson (Puget Sound Water Quality Action Team) is the new chair, and Eileen Ryce (Montana Department of Fish, Wildlife, and Parks) is the vice chair. In regard to the issue of operating procedures raised in other panel presentations, Proctor said that the WRP takes operating procedures seriously and revises them as needed. For example, terms on the Executive Committee were four years, but when members requested shorter terms, those terms were changed to two years.

With Anderson's election, the strategic planning process was initiated to consider priorities for the next two years. Members were sent information to aid in development of the priorities, and the response rate thus far is about 60%. Preliminary results show the four priorities to be 1) working with Canada to develop a program/message for inspecting trailers at the border, 2) identifying risks/threats and ways to address them, 3) working with governors and the Western Association of Fish and Wildlife Agencies to develop policy, and 4) developing communication strategies for the region. She commented that the border-crossing item is limited to the West, but she would be happy to talk with regional panels that share a border with Canada about expanding this project.

Proctor also said that California's state ANS management plan will probably be ready for ANSTF review by November. Arizona has had a draft for a long time, but a recent Executive Order has made the plan a priority. The state will take an all-species approach.

Work continues on the educational materials database that Portland State University is developing. Although originally planned as a regional database, there has been interest in making it a national database, a process that would need involvement from other panels as well.

Regarding an issue raised at the last October 2005 ANSTF meeting, Proctor has offered WRP guidance in case the Pacific Islanders are interested in forming their own panel. She added that the next WRP meeting will be held September 13–15 in Portland, OR. The agenda may include an additional one-day training session on working with tribal governments.

Northeast ANS Panel

Although Judy Pederson ((MIT Sea Grant College Program) updated participants on NEANS activities on the second day of the meeting (see p. 19), she reiterated several important issues:

- Information in annual reports from states could be adapted to letters to governors praising ANS activities and efforts in their states and raising visibility of the ANSTF and ANS issues.
- The Superfund model of funding (a revolving fund of borrowing and repaying) might be worth considering for rapid response efforts.
- Regarding the seafood trade, scientific names of imported live seafood species should be on FOIA forms and any other documentation, inspection of live seafood needs to be improved, and interstate seafood shipments should be documented/regulated. Participants endorsed the idea of inviting a Department of Homeland Security representative to future discussions.

Sea Grant Competition Funds

Dorn Carlson (NOAA) thanked panels for providing regional priorities to be used in evaluating grant applications. The RFP has been written and is being reviewed by the attorneys. Unfortunately, funding has been reduced substantially (from \$3 million a year to about \$250,000). Because of the reduction, they are asking only for projects that address regional priorities. With 50% matching funds, these

projects are constrained to about \$150,000 (\$100,000 from Sea Grant). He invited comments from participants.

Meeting Wrap-Up

After updates from the regional panels, Executive Secretary Newsham led participants in discussing several action items and issues of concern. The following were addressed:

- Several people volunteered to serve on an ad hoc group to look at revising the ANS Program document and ANSTF strategic plan (Ron Lukens [GSMFC], Whitman Miller [SERC], Cindy Kolar [USGS], Paul Zajicek [NASAC], Ken Seeley [USFWS], and Kari Duncan [USFWS]). Newsham aims to have a draft for review at the fall meeting and a final for approval at the spring meeting.
- Newsham solicited ideas for the theme of the fall meeting, and participants decided on rapid response. Possible topics to be incorporated into that portion of the meeting included having Tina Proctor (USFWS) report on the WRP's mock trial findings and getting an understanding of the obstacles to effective rapid response and the authorities for herbicide/pesticide use.
- Given that the funding for state management plans has never approached the authorized level of \$4 million, Ron Lukens suggested that federal agencies work to increase funding in this area. Participants debated the best approaches for seeking additional funding although those who commented agreed that current funding is insufficient. Regardless of the approach chosen, it should focus on the interjurisdictional aspects of ANS and prevention. Al Cofrancesco (ACOE) suggested that the co-chairs develop a letter to agencies/organizations participating in ANSTF activities thanking them for their past support; outlining ANSTF accomplishments, current activities, and goals; and asking for continued support and input on how the ANSTF could be more relevant to them. Members approved this action.
- Interaction between the regional panels and ANSTF needs to be two-way. Panel chairs requested input on what the ANSTF would like to have the regional panels do. Ideas mentioned included facilitating interpanel interactions, organizing activities into operational plans, and making recommendations on organizational and operating structures/formats that work best.
- The structure of meetings was discussed. Many participants wanted an extra day so that discussions were not compressed/hurried due to time limitations. Although generally included for relief, breaks are important for networking, brainstorming, updating, and other important interactions. It was agreed that breaks should be lengthened.

Before adjourning, the ANSTF opened the meeting to public comment (there was none), thanked those who helped organize and run the meeting, and evaluated meeting productivity. Members also reviewed and approved action items (see p. 1).

ACRONYMS USED

ACOE	U.S. Army Corps of Engineers	MARAD	U.S. Maritime Administration
ACWG	Asian Carp Working Group	MARP	Mid-Atlantic Regional Aquatic Nuisance Species Panel
AFWA	Association of Fish and Wildlife Agencies	MIT	Massachusetts Institute of Technology
AIS	aquatic invasive species	MOU	memorandum of understanding
ANS	aquatic nuisance species	MRBP	Mississippi River Basin Panel
ANSTF	Aquatic Nuisance Species Task Force	NASAC	National Association of State Aquaculture Coordinators
APHIS	Animal and Plant Health Inspection Service	NEANS	Northeast Aquatic Nuisance Species (Regional Panel)
BASF	a leading chemical company	NISC	National Invasive Species Council
CNO	California-Nevada Operations (of the USFWS)	NMP	national management plan
DNA	deoxyribonucleic acid	NOAA	National Oceanic and Atmospheric Administration
E&O	education and outreach	NSDES	New Hampshire Department of Environmental Services
EDRR	(or ED/RR) early detection/rapid response	PIJAC	Pet Industry Joint Advisory Council
FACA	Federal Advisory Committee Act	PR	public relations
FOIA	Freedom of Information Act	RFP	request for proposal
FY	fiscal year	SERC	Smithsonian Environmental Research Center
GLC	Great Lakes Commission	TMDL	total maximum daily load
GLP	Great Lakes Panel	USDOT	U.S. Department of Transportation
GSA	Gulf and South Atlantic (Regional Panel)	USEPA	U.S. Environmental Protection Agency
GSMFC	Gulf States Marine Fisheries Commission	USFWS	U.S. Fish and Wildlife Service
HACCP	Hazard Analysis Critical Control Points	USGS	U.S. Geological Survey
ISAC	Invasive Species Advisory Committee	WHOI	Woods Hole Oceanographic Institute
IVM	integrated vector management	WRP	Western Regional Panel
LAIS	Louisiana Aquatic Invasive Species		
LDWF	Louisiana Department of Wildlife and Fisheries		

SPECIES LIST

alewife	<i>Alosa pseudoharengus</i>
Asian clam	<i>Corbicula fluminea</i>
bighead carp	<i>Aristichthys nobilis</i>
black carp	<i>Mylopharyngodon piceus</i>
blue crab	<i>Callinectes sapidus</i>
Chinese mitten crab	<i>Eriocheir sinensis</i>
colonial tunicate (sea squirt)	<i>Didemnum</i> spp.
common (blue) mussel	<i>Mytilus edulis</i>
common carp	<i>Cyprinus carpio</i>
Eurasian watermilfoil	<i>Myriophyllum spicatum</i>
European green crab	<i>Carcinus maenas</i>
Formosan termite	<i>Coptotermes formosanus</i>
giant salvinia	<i>Salvinia molesta</i>
grass carp	<i>Ctenopharyngodon idella</i>
green fleece alga	<i>Codium fragile</i> ssp. <i>tomentosoides</i>
hydrilla	<i>Hydrilla verticillata</i>
New Zealand mudsnail	<i>Potamopyrgus antipodarum</i>
northern snakehead	<i>Channa argus</i>
nutria	<i>Myocastor coypus</i>
quagga mussel	<i>Dreissena bugensis</i>
Rio Grande cichlid	<i>Cichlasoma cyanoguttatum</i>
sea lamprey	<i>Petromyzon marinus</i>
silver carp	<i>Hypophthalmichthys molitrix</i>
variable milfoil	<i>Myriophyllum heterophyllum</i>
veined whelk	<i>Rapana venosa</i>
water chestnut	<i>Trapa natans</i>
zebra mussel	<i>Dreissena polymorpha</i>