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

On November 7–9, 2006, the ANSTF met at the Holiday Inn in Arlington, VA. This document includes the following sections:

- Summary of the three-day ANSTF meeting
- A list of acronyms used (Appendix A)
- Flipchart notes from breakout sessions on rapid response (Appendix B)

ANSTF FALL MEETING NOVEMBER 7–9, 2006

Decisions

The ANSTF made the following decisions:

- Approved minutes of the May 2006 ANSTF meeting.
- Approved definition of “rapid response,” pending the addition of qualifying language about economics being part of the assessment.
- Approved cosponsorship of a symposium on genetic methods of biological control of invasive fish as the opportunity presents itself.
- Confirmed Kim Bogenschutz (Iowa DNR) as co-chair of the MRBP.
- Confirmed David Yeager (Mobile Bay National Estuary Program) as chair and Earl Chilton (Texas Parks and Wildlife Department) as vice-chair of the GSARP.
- Authorized Executive Secretary to work as necessary to amend the Intel ISEF rules to incorporate concerns about nonnative species in science fairs.

Action Items

- (ANSTF members) Submit review comments on the rapid response plan for zebra mussels (*Dreissena polymorpha*) in the Columbia River Basin by December 1.
- (Detection and Monitoring Committee) Review/revise the committee description and provide a draft to the Executive Secretary by the end of January.
- (CEO Committee) Review the committee description and revise if necessary.
- (CEO Committee) Coordinate with regional panels on potential education/outreach direction.
- (Research Committee) Revise the research protocols and present the draft at the next ANSTF meeting.
- (ANSTF/Executive Secretary) Send a letter to the federal agencies conveying the high priority that the ANSTF places on research into economic impacts of ANS, encourage the agencies to fund studies, and request existing economic studies.
- (ANSTF/Executive Secretary) Send a letter to the ACOE expressing support for the Aquatic Plant Control Cost Share Research Program.
- (ANSTF/Executive Secretary) Prepare a letter to state governors for co-chairs’ signature (recognition and appreciation for state efforts to date and encouragement of future efforts in this area).

Action Items Specific to Rapid Response

1. (ANSTF) Form an ad hoc working group to explore ICS applicability to AIS rapid response. Ask regional panels to explore its applicability at the regional/state level.
2. (ANSTF) Explore options for the establishment of a funding mechanism for rapid response to confirmed sightings of potentially invasive nonnative species. Convey to the Administration and Congress that the absence of this mechanism is viewed as the key barrier to reducing impacts of nonnative species.
3. (Executive Secretary) Report on the above efforts at the next ANSTF meeting.
4. (Federal agencies with Executive Secretary) Form an interagency work group to develop environmental compliance documents (e.g., programmatic environmental assessments, categorical exclusions, Section 7 consultation, and permits [CWA]).
5. (Research Committee) Investigate what federal research and development is being done to develop tools for eradication and control of invasives, develop a gap analysis, and recommend research priorities.
6. (Executive Secretary) Gather examples of memoranda of understanding in place for cooperative environmental response efforts with an eye toward a model for invasive species rapid response.
7. (Executive Secretary) Promote development of USEPA-like permit guidance documents by other federal agencies and states. Coordinate this effort with regional panels.
8. (Prevention Committee) Develop decision-making tools to guide response actions.
9. (Executive Secretary) Gather information on existing rapid response capacities of states. Coordinate this effort with regional panels.

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November 7 Welcome and Preliminary Business

Co-chair Tim Keeney, Deputy Assistant Secretary for Oceans and Atmosphere (NOAA), welcomed ANSTF members and observers. He introduced CDR Vickie Hyuck, the USCG representative replacing CDR Kathy Moore. William Howland replaces Linda Windhausen as representative for the Lake Champlain Basin Program. Fredrika Moser (Maryland Sea Grant) was on hand to represent the MARP. Gary Johnson served as the alternate for Michael Soukup (NPS), Chris O'Bara for Mike Armstrong (MICRA), Richard Corley for Carolyn Junemann (MARAD), and Sharon Gross for Susan Haseltine (USGS). Co-chair Mamie Parker, Assistant Director, Fisheries and Habitat Conservation (USFWS), acknowledged Roger Helm, who replaced Everett Wilson as the new chief of the Division of Environmental Contaminants.

Keeney reviewed the agenda. From participants, he encouraged discussion and feedback for state and federal agencies involved. He also asked that participants focus on action items and recommendations. A public comment period was scheduled at the end of the day's session.

After the ANSTF approved minutes for the May 2006 meeting, Newsham reviewed progress on the following action items (in italics) from that meeting:

- *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. This action item was completed within a few days of the spring meeting. The letter was signed by ANSTF co-chairs and submitted. No response has been received from the Boy Scouts of America.*
- *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 and NISC and the ISAC. The draft strategic plan revision has been completed and will be reviewed later in the meeting. The NISC/ISAC issue still needs to be addressed.*
- *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 the Control and Management Committee at the next ANSTF. The ANSTF will then discuss the future of this committee at the next meeting. McKnight's review continues. The item originally had McKnight reviewing eight plans, but only five are ANSTF approved. Three others are included on the website but are not considered ANSTF control plans. McKnight continues to review the plans and will report on Thursday, November 9.*
- *Steve Kendrot (APHIS) will continue with development of a nutria (*Myocastor coypus*) NMP. Interest is still there but progress has been slow. No timeline has been established yet.*
- *Comments on the New Zealand mudsnail (*Potamopyrgus antipodarum*) NMP are due to Tina Proctor (USFWS) by June 15. Availability of the draft plan was published in the Federal Register on October 19, and comments are due by December 4.*
- *Comments on the Asian carp NMP are due to Greg Conover (USFWS) by June 30. Availability of the draft plan was published in the Federal Register on October 24, and comments are due by December 26. Based on concerns that USGS comments were not addressed, Sharon Gross requested that there be better clarification of the types of comments that will be addressed when the ANSTF grants conditional approval of a plan.*
- *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 priorities were mailed shortly after the spring meeting. Herod received three responses with good*

detail. He hopes to reconvene the working group to assess short-term actions. Herod has also requested that Newsham resend these priorities to various agencies and solicit feedback on current and future activities.

- *The Executive Secretary will revise the process for the annual report per issues discussed and e-mail for review.* The annual report, a work in progress, took second place to revision of the strategic plan. Newsham hopes to discuss a process later in the meeting and mentioned that the annual report could serve as a feedback loop between the ANSTF and entities making recommendations to the ANSTF. For a variety of reasons, budgetary data will not be included in the report.
- *The Executive Secretary will request input on the development of a day-long session on rapid response for the next meeting and coordinate with others to implement it.* The day's focus on rapid response reflects the intersessional work.
- *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.* This letter is awaiting co-chair signatures and will shortly be mailed to 16 of 22 organizations (those that provided contact information).

Rapid Response Presentations and Discussion

At its spring meeting, the ANSTF discussed dedicating one day of the fall meeting to a theme, and rapid response was chosen as that theme. Rapid response to invasive species has been problematic because of complex regulations and authorities. Members of the ANSTF have been interested in approaches for dealing with various obstacles to rapid response once an invasive has been identified in an area. Newsham introduced several presentations about rapid response in preparation for afternoon breakout sessions.

Working Definition of Rapid Response

NISC previously developed the following definition of rapid response:

Rapid response is a systematic effort to eradicate, contain, or control a potentially invasive non-native species introduced into an ecosystem while the infestation of that ecosystem is still localized.

Dean Wilkinson (NOAA) said the definition includes two elements that people wanted to make sure were represented: the spatial and temporal aspects of an invasion. He added that this definition is accompanied by a page of qualifying language (bullets). For consistency between NISC and the ANSTF, he suggested that the definition be adopted since federal agencies involved in the NISC definition negotiations had already agreed to it. During discussion, several issues were raised:

- Any definition of rapid response should include the determination that no action is necessary. This course of action was covered in the qualifying language for the NISC definition.
- Some people felt that rapid assessment/early detection was inherent in the definition while others would like to see this part of the process explicitly stated.
- ANSTF members discussed consideration of economic factors, as well as the already stated environmental factors, during the assessment process.
- Although ANSTF members understood the need for a concise definition, they believed it should always be accompanied by the bullets that explain aspects of the definition.

After the discussion, ANSTF moved to accept the NISC definition pending the addition of qualifying language about economics being part of the assessment for rapid response.

National Framework

Sharon Gross (USGS) spoke about an assessment being conducted for a national early detection, rapid assessment, and rapid response (EDRR) framework to ensure that it meets agency needs. Although housed in the USGS, this effort is a partnership of federal and nonfederal groups. Gross listed members of the team of invasive species scientists who began creating this national framework for EDRR about a year ago. Their goal is to identify and coherently portray existing EDRR efforts, projects, and elements throughout the United States. Multiple databases and resources are available, but coverage is not necessarily comprehensive or linked. National coordination is needed to determine gaps (geographic, taxonomic, and thematic), avoid duplication of effort, and enable more effective rapid response to new invasions. By using broad platforms throughout the invasive species science community, future cross-agency funding can be better allocated.

NISC staff developed a needs assessment questionnaire that included a draft diagram to help illustrate the national framework and its components. It was built based on models proposed by the Federal Interagency Committee for the Management of Noxious and Exotic Weeds, Department of the Interior, U.S. Forest Service, and others. Seven framework components include identification, reporting, expertise, occurrences, assessment, planning, and response. In essence, the national framework will serve as a portal to databases, directories, listservs, management plans and reports, and other tools addressing any of these components. Gross reviewed some of the resources available for each component.

After distributing the needs assessment questionnaire to 70 federal employees, the team received 27 responses (35%) from five federal departments (U.S. Departments of Agriculture, Defense, Commerce, the Interior, and Homeland Security). Most (93%) of the respondents are interested in participating in the EDRR national framework project. The questionnaire covered two areas: 1) names and contact information for experts in EDRR and 2) EDRR resources and where they fit within the framework. Thirty experts were suggested, and 66 EDRR elements described.

The results were incorporated into a website hosted by the National Biological Information Infrastructure (<http://edrr.nbi.gov/>). Submission of the 38 online resources resulted in a greater number of resources being identified. Each resource has been catalogued under the relevant component(s). Since the website was launched, the team has received three other submissions from website visitors. In addition to hosting the website, the National Biological Information Infrastructure has contributed over 1,100 resources to the site. Gross encouraged ANSTF members to take the survey or e-mail her with specific EDRR resources or programs.

Based on efforts to date, the team has concluded that there are a number of differing perspectives and interpretations on EDRR, that organizations are incorporating the EDRR concept into more of their activities and websites, and that people are important to the process. Increased recognition and application of the concept will help to better define it and educate people about it.

One primary concern is follow-up. If the website leads someone to a telephone hotline for reporting an invasive species sighting, then it is vital that someone is responsible for answering that call, verifying the report, distributing valid reports to the appropriate EDRR participants, responding to the initial reporter, ensuring that the event is resolved, and ultimately documenting the event for future reference. Gross showed a simple flowchart of the EDRR process, beginning with a decision leading people to resources on the EDRR website. Users find a catalog of useful resources that help them identify, validate, assess, plan, and respond to a report. Users then take action on the ground.

The assessment and resulting website have helped the invasive species community visualize how various resources and services might be combined. But more work is needed to identify and classify existing EDRR efforts from around the country. Gross invited input on how to achieve broad buy-in on quantifying and classifying EDRR efforts for future reference by everyone. Additional questions exist about the architecture of the EDRR community. She showed a diagram of a land-based architecture vs. an organism-based architecture. So more work is needed to responsibility for communications.

Gross demonstrated use of the website. The resources are arranged and grouped under each of the seven framework components, and each component page provides an introduction, list of online EDRR resources catalogued by the National Biological Information Infrastructure, and a list of resources specifically gathered through the needs assessment questionnaire. An additional link provides access to offline resources gathered.

Gross added that the next step will be to get nonfederal input. It takes longer to go through the bureaucratic process to query these entities (states and NGOs). She will have Annie Simpson (asimpson@usgs.gov) contact ANSTF members for names once the project is ready for nonfederal participation. She also hoped that the regional panels would review the website later in the process and ensure that any known resources are included, especially any rapid response plans. Ron Lukens (GSMFC) commented that each regional panel has been developing a rapid response contingency plan and looking for opportunities to test interstate responses.

Zebra Mussel Rapid Response Plan for the Columbia River Basin

Keeney commented that several states are anticipating high-profile ANS and developing rapid response plan to address possible invasion. He then introduced Paul Heimowitz (USFWS) and Stephen Phillips (PSMFC) to talk about one such plan for zebra mussels (*Dreissena polymorpha*) and the Columbia River Basin. Phillips gave some background on the PSMFC ANS Program, which began in 1999. Because salmon and steelhead (*Oncorhynchus tshawytscha* and *O. mykiss*, both listed species) are important to the Pacific Northwest culture, there was concern about the immense impact that zebra mussels could have on the industry if they established in the Columbia River system. As it is, salmon and steelhead migrate upstream and downstream through several hydropower projects. Those fish migrating to/from Idaho pass through eight such projects. In addition, the Columbia River Basin includes 55 major hydro projects, 31 of which are federally owned and operated. The economic impacts alone of zebra mussel invasion could be huge.

So the Bonneville Power Administration funded a scoping study to determine potential economic impacts of zebra mussels on its hydropower facilities in the Columbia River Basin. Portland State University (Mark Sytsma) and the ACOE (Tim Darland) were also authors on the study. For the scoping study, PSMFC investigators assessed two potential mitigations: a sodium hypochlorite injection system and trash rack antifouling paint. Ultimately, the estimated capital costs of installing the sodium hypochlorite injection system and using antifouling paint were approximately \$150,000 per generator. Using these estimates, the total capital costs of implementing these mitigation technologies at the 13 hydropower facilities assessed would be \$23,621,000. These estimates, which don't include annual maintenance, provided a strong economic and ecological basis for rapid response.

In the late 1990s, Jim Athearn (ACOE, now retired) established an ANS ad hoc group that has since been brought under the 100th Meridian Initiative and PSMFC administration. This group, now called the Columbia River Basin Team, develops project priorities using USFWS funding, which is matched by the Bonneville Power Administration, PSMFC, NOAA, and USEPA. Rapid response for zebra mussels in the Columbia River Basin has been a high priority for the last three years. Phillips listed participating organizations and the timeline for the last three years. In 2003, the WRP produced a regional model rapid response plan, and the next year, it approved the zebra mussel project. A

contractor hired in 2004 delivered a draft plan in 2005. In the meantime, a jar of zebra mussels was left near Fort Peck Reservoir in Montana, and Virginia succeeded in eradicating zebra mussels from a quarry. These events caught the attention of the Bonneville Power Administration and other agencies. Since then, the Columbia River Basin Team has continued refining the plan, which is now available at <http://100thmeridian.org/ColumbiaRT.asp> for review and comment.

Heimowitz then discussed the plan. He acknowledged a number of gaps, but given the Fort Peck incident, they decided that the draft should be available for people to use if necessary. The purpose of the plan, which is operational and not strategic, is to serve as a roadmap to actively guide response activities, so it is organized accordingly into a who, what, how format. Emphasis is on “rapid,” meaning the initial steps that take hours and days, not weeks, although implementation of the full plan may take much longer if zebra mussels are found in the basin. The plan is not intended to guide land-based watercraft interception since other activities already deal with this prevention issue. Heimowitz added that they hope to build new contacts in Canada since Canadian participation has not been at the level needed so far.

Ten activities are covered in the rapid response plan. These activities are not necessarily sequential but may happen concurrently.

- Verifying a reported detection
- Making initial notifications
- Defining the initial extent of colonization
- Setting up a coordination mechanism
- Establishing an external communications system
- Organizing resources
- Initiating quarantine/pathway management
- Initiating available/relevant control measures
- Monitoring for the long term
- Evaluating the response and plan

The appendices include notification lists and procedures, as well as a matrix of eradication and control options.

Next steps include developing MOUs and agreements to clarify roles and secure commitments, reviewing and developing regulatory and permit materials in advance, developing abbreviated scenarios for the plan, evaluating gaps through a table-top exercise, identifying associated plans, and securing a funding source for emergency response. Just a few days ago, a contractor began the advance review of regulatory and permit materials.

When asked what the ANSTF could do, Heimowitz mentioned the usefulness of the *Overview of EPA Authorities for Natural Resource Managers Developing Aquatic Invasive Species Rapid Response and Management Plans* (www.epa.gov/owow/invasive_species). Other agencies might consider developing similar documents. In addition, he asked people to review the draft plan and provide comments by December 1.

Response to Report of Chinese Mitten Crab in Chesapeake Bay

Lynn Fegley (Maryland DNR) was scheduled to talk about the response to a recent report of a Chinese mitten crab (*Eriocheir sinensis*) in Chesapeake Bay, but she was unable to attend, so Whitman Miller (SERC) discussed the response process in her place. This process included report of the discovery, formation of the response, development of a media strategy, and evaluation of results and lessons

learned. He hoped that this response process to a new potential invasive would inform later discussion on rapid response.

A male mitten crab that was found in June at the mouth of the Patapsco River near Baltimore, MD, was discovered not by scientists or agency staff, but by a waterman who sent a photograph and note to the *Maryland Waterman's Gazette*, a local industry newspaper. Fegley happened to see it and contacted the waterman, asking that the specimen be saved and available for examination. An Internet search revealed that the crab could be problematic if introduced to Chesapeake Bay tributaries. During juveniles migration from tributaries to an estuary, generally from September through November, the crabs can reach tremendous densities.

In forming its response, the Maryland DNR generated several questions covering identification, prior occurrence in Chesapeake Bay, proper contacts and actions, and an effective media strategy. A graph showed Fegley's first points of contact, including people who could help with identification, species expertise, media coverage, and rapid response. This group became the Mitten Crab Ad Hoc Response Team (McAHRT). Fortunately, in contacting Dr. Greg Ruiz (SERC Marine Invasions Research Lab), she was able to draw upon the expertise of visitor Yongxu Cheng. Mitten crabs are cultured in China for commercial purposes, and he was knowledgeable with mitten crab ecology and biology. He said that the specimen was more similar to those introduced into northeastern Europe than those native to China. The specimen is now catalogued and in the National Museum of Natural History. No other occurrences were documented for Chesapeake Bay.

The McAHRT convened within days of the discovery and developed three primary objectives: developing a strategy for assessing the extent of introduction, developing a strategy for media involvement, and discussing potential funding sources for monitoring and outreach. The first outcome was a watch statement with species identification and contact information, which was assembled and distributed to a large number and diversity of people working in the bay within potential range of this animal. In compiling that list of people, they ended up with a master list of contacts that formed the backbone of the response strategy that they subsequently relayed to the press.

The second outcome was a collaborative media strategy with a coordinated response structure in place before media contact was made. This strategy was successful and prevented "wild card" quotes to the media that might lead to sensationalism of the issue. The third outcome was a proposal seeking funding for communication and outreach, target reconnaissance for mitten crab, and documentation and coordination of existing surveys that could encounter mitten crabs.

Feedback from the alert network has been promising. Despite the hundreds of people now searching for mitten crabs through various other efforts (state fish surveys and commercial eel fishing), no new specimens have been found. Media coverage, which was brief, informative, and noninflammatory, netted a number of calls about other crabs and the report of a second crab collected at least a year before the June 2006 discovery. Fortunately, this second specimen had been frozen and could be verified. Two other reports are likely; however, these specimens were not saved.

As a result of the funding proposal, MARP responded quickly and has funded efforts by several agencies to educate the public and target groups, provide a central source of current information on mitten crab status in Chesapeake Bay, document existing sampling/fishing efforts and gaps in the bay, and conduct target surveys and reconnaissance for the mitten crab.

In September, an article about the mitten crab in Chesapeake Bay was published (G.M. Ruiz, L. Fegley, P. Fofonoff, Y. Cheng, and R. Lemaitre. 2006. First records of *Eriocheir sinensis* H. Milne Edwards, 1853 [Crestacea: Brachyura: Varunidae] for Chesapeake Bay and the mid-Atlantic coast of North America. *Aquatic Invasions* 1(3):137–142.). This article describes the biology of the species and the real impacts where it was introduced elsewhere.

October 19 was spent trawling the river around North Point State Park and the mouths of the Back and Middle river. Fortunately, no mitten crabs were found. Long slinky-like traps are also being deployed to intercept animals migrating to saline waters for spawning. Per Cheng, these are the most effective traps for capturing mitten crabs.

Miller then summarized the current status. Two male mitten crabs have been confirmed in Chesapeake Bay, but no reproductive population has been confirmed. Future specimens are expected, either through further introduction or reproduction of any resident crabs, because of the suitability of Chesapeake Bay habitat for mitten crabs. Although eradication may be impossible, the McAHRT is developing the infrastructure to coordinate, store, and disseminate information to facilitate rapid response to the next encounter.

Fegley learned some personal lessons through this project. Although not an invasive species expert, she learned the concepts fairly quickly. She started by asking about the worst-case scenario. Answers to that question guided future efforts. Effective lines of communication, strategic media relations, and understanding of regulations resulted in a controlled and comprehensive response to a small-scale event. Education is also vital. Although ballast water discharge is a likely culprit, other possibilities warrant community outreach. For example, the Maryland DNR works with a Buddhist prayer group that sponsors an annual prayer release of animals to ensure that these animals are native and appropriate. However, there is a cultural favoritism toward male mitten crabs.

Potential ecological and economic impacts of mitten crab establishment are considerable. They can impact water supply and management, cause erosion and slumping of earthen banks and levees, interfere with fisheries gear, and damage aquatic vegetation via feeding. On the bright side, however, crab biologists have said that there is not much niche overlap between the native blue crab (*Callinectes sapidus*) and the mitten crab.

ANSTF wondered how useful the mitten crab management plan, developed seven years ago, was in the response effort. Such feedback could be very helpful. Miller agreed to pursue that issue and contact Newsham with the results.

Incident Command System as a Framework for ANS Response

CDR Vickie Huyck (USCG) provided an overview of the ICS, which has been used for multijurisdictional emergency response, so that ANSTF members could consider it as a potential tool for rapid response. Although ANS issues are new to her, emergency response is not.

ICS is a response management system that can be used for emergencies and event planning (such as the Olympics). It transcends the unique organizational structures and processes used in people's daily jobs and provides a common structure and process for everyone involved in the response. ICS was first developed in the 1970s following a series of catastrophic fires in the California urban interface. Lack of coordination and weak management were determined to be the primary problems leading to loss of life and exorbitant property damage. Initially, the system was fire specific. Other problems such as the Exxon Valdez oil spill and 9/11 highlighted the need for a coordinated multijurisdictional response. Following 9/11, the President signed Homeland Security Presidential Directive 5 requiring federal departments to adopt the National Incident Management System, of which ICS is one aspect.

ICS includes a number of features, including unity of command, management by objectives, scalable organization, span of control, common terminology, resource management, integrated communications, organizational flexibility, and common processes, that allow it to be an effective tool. Substantial training in ICS is available, some online and some in classrooms.

Based on the size and specifics of an event, the command can be a single agency or organization, or it can be a unified command consisting of multiple agencies with jurisdiction and authority. A unified command (UC) ensures that a single response organization with a single planning process yields a

single response plan that dictates how to use available resources in a coordinated fashion. The UC develops incident objectives and priorities, ensuring that no agency's authority is compromised. Such coordination reduces duplicative efforts and enhances communication. To be considered for inclusion in the UC, a member has to be able to speak for the agency and commit resources, the incident has to impact the agency's area or responsibility, and the agency must have some jurisdictional authority or functional responsibility pertinent to the response. Technical experts can be brought in at the discretion of the UC, but they are not typically members of the UC. Vickie Huyck showed an organizational chart for a standard, full-blown ICS organization. The organization is scalable and built to support the needs of the specific incident.

She then discussed how ICS was used to manage the major oil spill on the Delaware River from the tank vessel *Athos I* in 2004. This spill affected three states, shut the port for 11 days, threatened to impact several endangered species and water intakes (including those for a nuclear power plant), and involved over 1,800 people from 12 federal, state, and local agencies. This response took about a year and had the potential for overwhelming chaos. The UC started with eight members but was eventually whittled to five members. The *Athos I* UC had to consider a number of issues, including submerged oil, vessel salvage, the media, wildlife impacts, and port closure, among others. In this incident, everyone in the community had agreed to use this common response management system, so they were able to work as a team and develop an effective plan.

Huyck then shared suggestions for using ICS for ANS invasions. She said that the most effective UCs are those where members know each other and have practiced together. She suggested developing worst-case scenarios and identifying who would be involved in those responses. People identified could meet each other in advance so that, if an incident does arise, they aren't working with complete strangers. Potential strategies can also be developed in advance and then modified or refined for a real incident. She also suggested drafting a generic incident action plan and trying it out in a drill or exercise to see how it works. In her words, "how you practice is how you play." Numerous forms are available to use.

Discussion after the presentation focused on the UC and coordination among members. Tim Deal, an ICS instructor, commented that the UC for the *Athos I* was fairly small, allowing the group to come to consensus. If the UC is too large, consensus is very difficult. If the UC cannot reach consensus on an issue, then the agency with the greatest authority on that issue decides. The decision is recorded, and the group moves on. Vickie Huyck added that, in crisis situations, people are often more willing to compromise than they would be otherwise. Regarding concerns about funding, Huyck said that it is important to understand economic costs of ANS establishment. She thought it might be easier to convince decision makers of the need to have a plan and funding in place if they understand these economic costs.

Breakout Sessions

ANSTF and audience members were invited to participate in breakout sessions, first to brainstorm ideas related to the three questions listed below and then to prioritize and refine these ideas into several recommendations for how the ANSTF could advance rapid response. Breakout sessions were facilitated by Paul Heimowitz (Group 1), Tina Proctor (Group 2), and Erin Williams (Group 3), and people were free to join whichever group they chose.

1. What are the organizational/regulatory barriers to response and how might these be removed?
2. What types of tools are needed to conduct an effective response? How could these be developed?
3. What should a model response plan contain and how should it be organized?

Following the first round of breakout sessions, spokespersons for the groups shared their flipchart notes (see Appendix B) and reported their discussions to the plenary. Then the groups reconvened to distill

their lists into a few recommendations to the ANSTF. The three groups developed and then presented the following recommendations:

Group 1 recommendations

- Promote information sharing about rapid response models, MOUs as examples (include on ANSTF website) and ask regional panels to promote model MOUs.
- Provide statement/background in next report to Congress regarding lack of dedicated funds as a barrier.
- Promote development of USEPA-like permit guidance documents and review of regulating authorities by other federal and state agencies.
- Risk assessment: Promote development of decision-making tools to guide response actions and determine risk of no action.
- Request information on rapid response capacity (self assessment) to state management plan budget requests.
- Promote public outreach regarding ANS impacts and costs of not responding.

Group 2 recommendations

- More funding for rapid response (pool of money, protected).
 - Pool existing funds from each agency
 - New budget initiative with support from nonfederal sources
 - \$5 million
 - Process to allocate funds
 - Explore options for funding outside the federal government (e.g., industry funding)
- Sponsor workshop to develop environmental compliance documents. Examples: programmatic EAs, categorical exclusions, Section 7 consultation, permits (CWA). Or could be interagency working group (federal, states, tribes, NGOs).
- Sponsor meetings to discuss what each agency is doing regarding eradication and control tool development. Gap analysis and coordinate future research and funding requirements.
- Encourage panels to support ICS training for members. Panels report to ANSTF regarding benefits, weaknesses, and ways to modify regarding ANS.

Group 3 recommendations

- Implement ICS (regional panels, local, states/management)
 - 4-hour executive overview of ICS at next meeting
 - Analysis of agency-specific implementation of ICS
- ANSTF develop ICS rapid response model (ad hoc group) that utilizes today's brainstorming
- Seek options for dedicated rapid response fund
- Examine existing ANSTF MOU to see if applicable to rapid response
- Submit rapid response contact list to Scott for web posting

ANSTF members talked about the brainstormed recommendations and a process for continuing. It was decided that Newsham and Natalie Chavez (Chavez Writing & Editing) would work after the meeting to identify overlap or categories and compile the recommendations into a document for consideration the next day.

November 8 Welcome and Committee Reports

Newsham circulated the compilation of rapid response recommendations from the previous day's breakout sessions for ANSTF members and observers to review before further discussion later in the day.

Keeney then introduced committee representatives to report on 2006 accomplishments and 2007 work plans. Because the ANSTF is revising its strategic plan and making decisions on where to focus its efforts, he thought this meeting was an appropriate forum for reviewing each committee's roles and responsibilities and either confirm or modify them. Roles and responsibilities for each committee were available at the ANSTF website prior to the meeting and during the reports.

Prevention

Richard Orr (NISC) reported that joint NISC/ANSTF Prevention Committee members reviewed and updated the roles and responsibilities in March. The committee also reviewed the revised "Prevention" section of the NISC national management plan (*Meeting the Invasive Species Challenge*, pp. 29–34). Once the ANSTF strategic plan revision is further along, the committee will assess the roles and responsibilities against it. The next meeting of the Prevention Committee will be held at the ISAC meeting during the week of April 30 in Florida. The committee will also meet at the next ANSTF meeting in May.

Orr also talked about the three working groups:

- The Pathways Work Team, chaired by Penny Kriesch (APHIS), is developing two products: a ranking guide and a training and implementation guide. Mexico and Canada asked to participate in the working group after hearing Kriesch speak at an international conference.
- On the Risk Analysis Working Group, Annie Simpson (USEPA) was the chair until she changed jobs, so Cindy Kolar (USGS) has replaced her as chair. This working group will be updating the 1994 ANSTF risk analysis document.
- The Aquatic Organisms Screening Working Group also had a change in leadership after Pam Thibideaux was replaced by Kari Duncan (USFWS). This group is struggling, but it has a challenging set of roles and responsibilities. Orr has given Duncan considerable freedom to rework the group so that it can function more effectively. Orr will report the progress at the next Prevention Committee meeting.

Newsham asked whether the committee or working groups were looking for new members. Orr thought that the working groups may appreciate additional membership, although they are already fairly large and well balanced. He added that, if someone was interested in participating, that person would probably not be turned away. He also asked that the ANSTF review the membership of the committee and working groups for possible gaps in coverage.

Detection and Monitoring

Pam Fuller (USGS) acknowledged her co-chair, Greg Ruiz (SERC). Tasks of the Detection and Monitoring Committee are 1) development of standard protocols for aquatic monitoring efforts, 2) an inventory of existing AIS monitoring efforts, and 3) data management of monitoring efforts and aid in establishing database standards. The committee has had great difficulty with the first task for a number of reasons: Some protocols are general while others are specific, and protocols vary widely depending on species, number of personnel available, funding levels, habitat conditions, consistency of data collection, and other factors. Originally, it was hoped that there might be one or two protocols per species or habitat so that data collected could be compared, but the committee concluded very quickly that that approach was unrealistic. After compiling a large number of protocols for various species and habitats, the committee chose to focus on four species and has compared protocols for those species,

highlighting strengths and weaknesses of each. Results will be posted to the ANSTF website at some point.

The committee held off on work for the second task until the National Resources Monitoring Partnership (a national initiative) finished developing its database to hold information about monitoring efforts around the country. Fuller was involved with the beta testing, and the database is about ready to populate. Information about monitoring in the Southeast will be inputted first.

Fuller commented that the committee has few people who are actively engaged. Scheduling meetings has been difficult, given limited or no funding for interstate travel. Teleconferencing may work for some sessions, but it is not very effective for brainstorming. She suggested seeking new membership, although she wasn't sure how to solve the funding problems. A member suggested that regional compacts among states might facilitate travel. Committees of the American Fisheries Society might also be a good source for new members.

Several issues were raised during follow-up discussion. Detection and monitoring are vital as first steps in rapid response, so the real importance of the protocols database is with new invaders. People are unlikely to change protocols for existing efforts, but the database could guide researchers by providing information about what has worked in other places. Of course, for the database to work and for the committee to meet other tasks of developing long-term priorities and recommendations to the ANSTF, agencies and people have to share their data. Fuller agreed that efforts for the next few years will likely focus on conducting inventories and identifying data gaps.

Newsham commented that, because of the Detection and Monitoring Committee's difficulties, it might be very important to review and revise the committee description. Several people on the committee agreed that such a review was necessary; otherwise, they aren't sure how they can meet their responsibilities. They agreed to review the current roles and responsibilities and provide a draft revision by the end of January.

Communication, Education and Outreach

Joe Starinchak (USFWS) spoke about the status of two outreach programs: Stop Aquatic Hitchhikers! and Habitattitude. The first campaign continues to grow and is now international, with New Zealand and Ireland as partners. Although it is being promoted further at the spring AFWA conference and in the Greater Yellowstone Ecosystem region, it is still primarily restricted to the public sector and NGOs. Starinchak would like to see more corporate involvement.

Habitattitude has also been a great effort, drawing on the strengths of its two co-chair agencies (NOAA Sea Grant and USFWS) and PIJAC and allowing the committee to take Stop Aquatic Hitchhikers! to a new level. In a survey done by the Minnesota Sea Grant College Program, members saw themselves as being part of the solution. The campaign gave them the opportunity to promote their environmental ethics. Work now focuses on defining the future of the campaign.

Starinchak commented that the committee is now in a kind of advisory holding pattern. Members need guidance on future efforts. He suggested that a new task might be working with regional panels on additional target audiences and communication strategies to make the best use of the two campaigns. The regional panels have education and outreach committees or working groups, but there may be opportunities to leverage strategies and information.

ANSTF members discussed means for evaluating outcomes of the campaigns. Social marketing can be difficult to evaluate because it involves behavioral changes. Sometimes the baseline is unclear, and other factors can be difficult to tease out. Starinchak commented that the WRP has provided funding for adoption of Habitattitude for the outer Hawaiian Islands, with the addition of an evaluation component.

The ANSTF advised that the CEO Committee review the committee description, revising it if necessary, and coordinate with regional panels on potential education and outreach direction. They suggested that the committee include representatives from all regional panels.

Research

Dorn Carlson (NOAA) reviewed the Research Committee's four actions: research protocols, inventory of research projects (information gathering), inventory of research priorities (from individual agencies), and response to the NISC national management plan (*Meeting the Invasive Species Challenge*, October 2001), which is being revised. He said that the committee had been inactive this year. Revised roles and responsibilities were approved a year ago, and the one scheduled meeting for this year was canceled.

The committee has taken the first steps toward updating research protocols by forming a working group led by Dave Reid (NOAA Great Lakes Environmental Research Lab). The HACCP approach has been discussed, but no draft is available yet. Regarding the second action, Carlson has asked for research plans. The committee has received very few but plans to pursue its request more aggressively.

Inventorying research priorities has been difficult. Although different agencies have different priorities, the committee doesn't just want to compile and communicate those priorities. Members would like to come up with a harmonized process to help the agencies develop their research priorities.

Overall, Carlson is pleased with the membership and working relationships with other committees and regional panels. He did comment on one gap in membership, the National Science Foundation. The committee will submit a letter to the ANSTF requesting that it invite a representative from this entity. Other challenges include staff time and competing projects. Because deadlines and definition for some tasks are clearer, other tasks, such as identifying research needs and priorities, are put off.

When asked whether the Research Committee could revisit the roles and responsibilities, Carlson responded that the committee could probably concentrate on revising the research protocols and presenting that draft at the next ANSTF meeting. He will also submit the committee's 2007 work plan to Newsham. ANSTF members discussed the importance of ANS research, especially regarding economic impacts, and the need to communicate that importance to the federal agencies. Ultimately, the ANSTF decided to send a letter to the federal agencies conveying the high priority that the ANSTF places on research into economic impacts of ANS, encouraging the agencies to fund studies, and requesting existing economic studies.

Control

Jonathan McKnight (Maryland DNR) commented that, as sole member of the Control Committee, he has had no problem scheduling meetings! Over the last six months, he has reviewed the ANSTF-approved NMPs. Checking the status of implementation quickly escalated into the more complex task of reading entire plans. But he is assessing how to tease out individual tasks and benchmarks, after which he'd like to interview those who led plan development and find out where they are in implementation (two people for each plan—writer and implementer). He has two staff members who can help.

The ANSTF then discussed the appropriateness of the committee name. One possible alternative is the National Management Plan Implementation Committee. McKnight believed that the committee could take a broader look at control. He considered reviewing the NMPs and their implementation as an initial phase. Others commented on the need, whether here or elsewhere, to track what is being done and whether NMPs need to be revised periodically.

Ballast Water Management

Heather St. Pierre (USCG) distributed a copy of the USCG newsletter and updated the group on USCG policy and international activity on ballast water. The USCG leads the U.S. delegation to the MEPC and participated in development of the Ballast Water Management Convention of 2004. The MEPC is still in the process of developing guidelines to accompany the Convention, although 12 of the 15 total sets of guidelines have been adopted. One set of guidelines will be implemented upon ratification of the Convention. Five sets were adopted at MEPC 55 in October 2006, and three remaining sets will be further developed at BLG 11 in April 2007. The Ballast Water Management Convention will be effective upon ratification by 30 member states representing 35% of the world's merchant shipping tonnage. To date, the Convention has been ratified by six member states.

The MEPC completed a review of BW management technologies that will be available to meet the 2009 deadline. This review is important because, once the Convention enters into force, from 2009 to 2016, BW discharges will be required to meet the discharge standard, depending on ship construction date and BW capacity of the vessel. At this review, 15 technologies were presented. It was determined on the basis of this information that treatment technologies will probably be available by 2009. The next review is scheduled for MEPC 56 in July.

The USCG is developing a domestic BW discharge standard because BW exchange is not as effective or protective as once thought (confirming exchange is difficult). The USCG needs a benchmark to approve and monitor BW management systems used in lieu of BW exchange. In developing a discharge standard, the USCG is conducting an environmental and regulatory analysis. Five alternatives are being evaluated, including maintaining our current policy, adopting the IMO's standard, or adopting others that are more stringent.

The USCG and Smithsonian Institution jointly operate the National Ballast Information Clearinghouse, which monitors compliance by vessels with the mandatory BW management reporting requirements and analyzes patterns of ballast management practices, BW movement, and BW discharge.

Several advancements have been made in research and development. The Ballast Water Treatment Test Facility, established under a collaborative partnership by the USCG and Naval Research Lab in Key West, FL, is operational. The USCG and Naval Research Lab are now working to validate its Environmental Technology Verification (ETV) Protocols, developed jointly by the USEPA and USCG.

The Shipboard Technology Evaluation Program (STEP) was implemented to facilitate development of effective shipboard BW treatment options. STEP was introduced in 2004 and made available to all vessels, foreign and domestic, that are subject to USCG regulations. The program is reviewing three applications submitted in 2006. Additional applications are expected in 2007.

In addition, BW legislation is on the horizon. Several BW bills have been introduced, and more are being drafted, although none are anticipated to pass during this session. The USCG continues to research and evaluate BW management, policy, and regulations and to coordinate with other stakeholders to develop and implement ANS prevention and control strategies, both internationally and domestically.

St. Pierre was asked to provide more information about the research facility in Key West. This facility is used to evaluate test protocols to determine whether they are effective. Once a standard is set, the facility may be used to test different equipment to determine whether BW treated by the equipment meets the standard. Others are developing test facilities as well. In the future, members of industry may develop their own testing facilities and will likely be able to use the protocols developed to verify that equipment meets the discharge standard.

Further discussion focused on the difference between state and federal BW standards. Currently, states can enforce standards that are more stringent than federal standards. However, some legislation being drafted would preempt state standards once a federal standard was approved.

St. Pierre was also asked about vessel-monitoring systems to verify that a unit had moved to a location and exchanged BW. She noted that the USCG has no requirements for automatic identification system in place to monitor BW exchange and relies on BW management reports and vessel logs that track vessel activities. Because the USCG wants to move toward shipboard BW treatment, it doesn't intend to develop new processes for verifying such exchange.

Experts Database

Pam Fuller (USGS) announced that programming for the experts database is complete. The project began as a database for taxonomic experts but was expanded to include experts in control, ecology, and pathways. The database has been uploaded to the ANSTF website. Once it is populated, a link will be added to the navigation bar.

Fuller then demonstrated how users enter the state where the specimen is found and how the database displays contact information for a local tier 1 expert. Tier 1 contacts are state contacts who have agreed to be listed in the database. Tier 2 contact information is available to those with a login and password but hidden from the public. Additional information is included, such as multiple disciplines and multiple states. Login permission is required to add new experts to the database. A user administration site will also be available for members of regional panels who will be given the authority to change expert information and add new users.

AFWA has gathered information regarding the appropriate state contacts. This information will be sent to the regional panels. Response from the states has been very positive.

Intel Science and Engineering Fair Rules

Newsham spoke about ongoing efforts to provide a protocol for science fair participants to raise their awareness of potential consequences of working with nonnative species. In November 2003, the GSARP approached the ANSTF and suggested that the Intel Science and Engineering Fair (ISEF) be contacted about the risks of using nonnative species in science fairs. The GSARP Education and Outreach Working Group developed a draft protocol and asked the ANSTF to advance it to the ISEF and ask that it be included in the ISEF rules. Chuck Jacoby (GSARP and University of Florida Department of Fisheries and Aquatic Sciences) and Newsham met with the ISEF Scientific Review Committee in September 2006 and explained their goal of increasing awareness of the dangers of nonnative species. ISEF was receptive and suggested that the ANSTF develop a protocol document that could be posted on the ANSTF website and referenced in the ISEF rules. Students would go to the ANSTF website for details, making the ANSTF responsible for the protocol content and allowing for updates if necessary.

Jacoby worked with representatives from four ANSTF regional panels to suggest a revision to rule 17 of the ISEF rules and revise the draft protocols. Rule 17 reads: "Introduction or disposal of foreign or non-native substances or species, toxic chemicals or pathogenic substances into the environment is prohibited." Newsham distributed copies of the 12-page draft protocols that were recently completed.

ANSTF members asked why the ANSTF protocols focused on nonnatives while rule 17 included the disposal of toxic chemicals and pathogenic substances. Newsham replied that Jacoby was working within the limits of rule 17's existing language; he had to keep references to toxic chemicals and pathogenic substances. The ANSTF is not rewriting the rules; rather, it is adding clarification for part of rule 17 and looking to get the detailed protocols referenced by the rule.

The ISEF Rules Committee will meet in January to finalize the 2007–2008 rulebook, so work on the draft protocol will need to be completed by mid-December. The ANSTF authorized the Executive Secretary to work as necessary to amend the ISEF rules to incorporate concerns about nonnative species in science fairs.

As a final note, Newsham commented that the ISEF committee was very interested in ANS and offered to have an ANSTF representative conduct a Shop Talk (one-hour presentation) at the annual conference. This conference hosts approximately 5,000 attendees. The ISEF committee also noted that many groups offer prizes for the best projects in their area of interest and said that state or regional members of the ANSTF might offer a prize for work regarding invasive species. Newsham will provide more information on this opportunity as it becomes known to him.

Genetics as a Biocontrol Strategy

Larry Riley (Arizona Game and Fish Department) compiled data from various experts concerning the use of genetic approaches for biocontrol. Genetic control strategies are emerging for nuisance species, but they are not new and have been used for a long time in other areas. However, new and novel strategies, such as genetically manipulated organisms, are emerging.

Anne Kapuscinski (University of Minnesota) and Timothy Patronski (USFWS) have investigated the overall feasibility of using various genetic methods to control nonnative fish in the Gila River Basin. This feasibility study had five main objectives: review relevant literature and ongoing research, compare transgenic and nontransgenic techniques, address regulatory and policy considerations, address public and stakeholder considerations, and develop a roadmap for a genetic biocontrol program that included cost estimates for pursuing research. Although their research focused on the Gila River, they made many important points relevant for any future efforts to explore use of genetic methods to control nonnative fish.

Dr. Ron Thresher (Commonwealth Scientific and Industrial Research Organisation) in Australia has been working on a genetic framework called a daughterless framework. Thresher notes that genetic technology approaches are preferable because the same basic approach is applicable to many species, they can be targeted at particular life history stages, and they are inherently species specific. Genetic technologies can be classified as either virally vectored immunocontraception (VVIC) or autocidal. Using a virus to infect tadpoles with a trait that rejects adult frog form is an example of VVIC. The tadpole is unable to metamorphose and cannot reproduce.

Autocidal techniques are varied and can include inducible fatality, stage or sex-specific sterility or mortality, pleiotropy, homing endonuclease genes/under-dominance, and daughterless technology. Daughterless technology uses species-native genes, meaning that it is not transgenic, it is inheritable, and it biases offspring sex ratios toward males. Daughterless technology is a viable option for biocontrol of fish since all fish embryos begin as female and require signals from hormones to transform into functional males. Remaining female requires the organism to turn off these same hormones. Two key questions must be answered for daughterless technology: Will this genetic method work under real conditions? And what are the environmental and human-health risks?

According to Thresher, most genetic approaches suggested thus far are technically feasible, though only VVIC, daughterless technologies, and pleiotropy are operational. These operational methods are good at getting genes into a pest population given a reasonable (and probably feasible) stocking effort. However, all the technologies are affected by “real world” factors, such as leakage, fitness effects, and population dynamics. Of the technologies suggested, gender distortion appears to be the most effective and robust method.

When asked whether they supported daughterless carp control, 65% of Australians polled answered favorably. However, support could be influenced by the fact that Australians do not like carp.

According to Kapuscinski and Patronski, risk communication and natural resource management have been much less participatory than necessary, and meaningful deliberation among interested and affected parties is essential. They proposed the use of a problem formulation and options assessment process to guide deliberation on any proposed use of genetic methods for biocontrol of nonnative fish. In terms of regulatory approval, relatively few policies and regulations exist for transgenic fish, and it is unclear whether the Food and Drug Administration or another agency would have lead authority over environmental release of transgenics. In their final report, Kapuscinski and Patronski further explore relevant federal policies, as well as state, tribal, and international policy considerations.

In Australia, safety and specificity are key underlying concerns. Before transgenic organisms are released, there needs to be transparent public discussion and an approval process. Researchers expect opposition based on ideological or ethical grounds and a general lack of knowledge.

To summarize Kapuscinski and Patronski's report, Riley reiterated that using genetic methods for biocontrol raises difficult social and ecological questions. Genetic methods are not a silver bullet, but they are potentially powerful new approaches. Kapuscinski and Patronski would recommend moving forward if genetic techniques were pursued as part of a multicomponent research and development program and implemented as part of a broader, basinwide integrated pest management strategy.

Riley acknowledged the many programs that sponsored research and contributed information. He believed participants should consider the following questions:

- Should the ANSTF and ISAC (NISC) take up the issue of “daughterless” gene technology and other genetic technologies as control and management techniques for ANS management in the United States? Specifically, should they investigate the feasibility of developing a national policy framework for review and approval of such technologies?
- Should the ANSTF cosponsor a symposium to address technical, ecological, economic, social, international, and regulatory issues?

Ken Seeley (APHIS) noted that APHIS is heavily involved with insects and, in some cases, is ready to go from the research to the operation stage. Seeley offered to share results from public meetings after January. ANSTF members expressed concern regarding which federal agencies would regulate the use of transgenics for biocontrol and suggested bringing together agencies with potential control.

Following an active discussion and Keeney's reading of an ISAC recommendation for an international symposium on transgenic methods of biocontrol of invasive fish, the ANSTF approved cosponsorship of such a symposium as the opportunity presents itself.

Rapid Response Recommendations

Newsham distributed two handouts with recommendations from the previous day's breakout sessions. One sheet included all recommendations organized into three broad categories and worded for consistency: ICS, funding, and uncategorized recommendations. The other sheet included the same information, but Newsham had also provided suggested verbiage to consolidate recommendations. The recommendations, as well as Newsham's consolidated recommendations (in bold), are provided below. ANSTF members preferred to advance as many of the recommendations as possible without prioritizing the top five.

ICS Recommendations

1. (Regional panels) Encourage panels to support ICS training for members. Panels report to ANSTF regarding benefits, weaknesses, and ways to modify regarding ANS.
2. (Regional panels, local, states/management) Implement ICS
 - 4-hour executive overview of ICS at next meeting

- Analysis of agency-specific implementation of ICS

3. (ANSTF) Develop ICS-RR model (ad hoc group) that utilizes today's brainstorming

The ANSTF will form an ad hoc working group to explore ICS applicability to AIS rapid response. The ANSTF will ask regional panels to explore its applicability at the regional/state level.

The ANSTF spent considerable time discussing use of ICS for rapid response. Several issues were raised during this discussion:

- Some people agreed with having an ad hoc working group explore the applicability of ICS to AIS rapid response and then offering results to regional panels to interpret in ways that are locally relevant. Others thought that the exploration should begin with the regional panels, who have already been giving thought or action to rapid response plans. They would then report back to the ANSTF.
- ICS has obviously been effective for incidents that people agree are crises. However, new invasions are not always viewed as crises, even if caught immediately. So any use of ICS would have to address this distinction, especially since the urgency of responses may be perceived differently. For example, most people see the need to deal with an oil spill immediately and through whatever means necessary. But there may be public outcry against the use of chemicals to eradicate a new invasion.
- ICS involves a preplanning strategy. Its implementation would allow people to preplan for potential invasions and address barriers beforehand if something happens.
- ICS is only a tool to organize a response. It is not a decision maker. The decision to implement an ICS response has to be made.

After the ANSTF decided to form an ad hoc working group, Newsham agreed to broadcast an e-mail requesting participation. The USCG will be offered the leadership role since the ANSTF proposes to work from its model.

Funding Recommendations

4. More funding for RR (pool of money, protected)
 - Pool existing funds from each agency
 - New budget initiative with support from nonfederal sources
 - \$5 million
 - Process to allocate funds
 - Explore options for funding outside fed (e.g., industry funding)
5. (ANSTF) Seek options for dedicated RR fund
6. (ANSTF) Examine existing ANSTF MOU to see if applicable to RR
7. (ANSTF) Provide statement/background in next report to Congress regarding lack of dedicated funds as a barrier

The ANSTF will explore options for the establishment of a funding mechanism for rapid response to confirmed sightings of potentially invasive nonnative species and convey to the Administration and Congress that the absence of this mechanism is viewed as the key barrier to reducing the impacts of nonnative species. The Executive Secretary will report on this effort at the next ANSTF meeting.

Participants wondered about the best way to raise awareness of ANS issues within the Administration. The Council on Environmental Quality, NISC, and Ocean Action (on which Marilyn Katz's [USEPA] supervisor is co-chair) were all mentioned as possibilities. Given the recent *E. coli* scare related to spinach, showing a connection between some ANS and impacts to human health could elevate the issue.

Following discussion, the ANSTF agreed to have the Executive Secretary explore options for the establishment of a funding mechanism for rapid response to confirmed sightings of potentially invasive nonnative species. He will report on his findings at the spring meeting, after which the ANSTF can decide how the results might be used to influence legislation.

Uncategorized Recommendations

8. (ANSTF member agencies) Sponsor workshop to develop environmental compliance documents. Examples: programmatic EAs, categorical exclusions, Section 7 consultation, permits (CWA). Or could be interagency working group (fed, state, tribes, NGOs). (**Ad hoc interagency working group to develop scope**)
9. (ANSTF member agencies and regional panels) Sponsor meeting to discuss what each agency is doing regarding eradication and control-tool development. Gap analysis and coordinate future research and funding requirements. (**Assign to Research Committee?**)
10. (ANSTF) Promote information sharing about RR models, MOUs as examples (include on ANSTF website) and ask regional panels to promote model MOUs. (**Survey of panels? See if anyone has examples of MOUs that work. Maybe look at oil/hazardous substances**)
11. (ANSTF) Promote development of USEPA-like permit guidance documents and review of regulating authorities by other feds and states. (**Federal agencies lead the way. Ask regional panels to see what state response is.**)
12. (ANSTF) Risk assessment: Promote development of decision-making tools to guide response actions and determine risk of no action. (**Prevention Committee consider simple risk assessment tool**)
13. (ANSTF/USFWS) Request information on RR capacity (self-assessment) to state management plan budget requests. (**USFWS incorporate into 2007 SMP funding, but need to know the parameters of what the self-assessment includes. Newsham work with ad hoc group to develop this? One week?**)
14. (ANSTF) Promote public outreach regarding ANS impacts and costs of not responding.
15. (Regional panels) Submit RR contact list to Newsham for web posting. (**Password protected on ANSTF site?**)

ANSTF agreed that most of the recommendations could be carried out. Recommendation 9 was referred to the Research Committee. This committee will investigate what federal research and development is being done to develop tools for eradication and control of invasives, develop a gap analysis, and recommend research priorities. Another one, recommendation 12, was referred to the Prevention Committee to develop decision-making tools to guide response actions.

To address recommendation 8, the ANSTF member agencies could form an interagency work group to develop environmental compliance documents (such as programmatic EAs, categorical exclusions, Section 7 consultation, and permits). For a related recommendation (10), Newsham will gather examples of MOUs in place for cooperative environmental response efforts with an eye toward a model for AIS rapid response. Michael Hoff (USFWS) wrote one that he will forward to the Executive Secretary.

Newsham will also promote development of USEPA-like permit guidance documents by other federal agencies and states, coordinating this effort with the regional panels (recommendation 11). For recommendation 13, Newsham will coordinate with the regional panels to gather information on the existing rapid response capacities of their member states. He and Hoff will draft language to ensure that the request clearly articulates the kind of information needed.

Recommendation 14 was removed because a previous ANSTF action item involved sending a letter to federal agencies conveying the high priority that the ANSTF places on research into economic impacts of ANS and encouraging them to fund such studies. Member also believed that the experts database addressed recommendation 15, so it was also removed from the list.

Regional Panel Reports

Regional panel principals had met Monday before the ANSTF meeting to identify recommendations for possible ANSTF actions. Each principal provided an update on regional panel activities and recommendations, after which a spokesperson presented four issues raised and discussed during Monday's meeting. No one was able to attend from NEANS, but a handout was provided as an update.

Western Regional Panel

Tina Proctor (USFWS) discussed the WRP's recent activities. In September, the WRP held its annual meeting in Portland, OR, and nearly 75% of the panel members attended. The meeting began with an excellent one-day workshop, presented by USEPA Region 10 staff, on working effectively with tribal governments. In addition, two panels were held at the meeting, one on successful eradication stories and the second on biological supply houses and school curricula as possible invasion pathways.

The WRP has several new projects underway. The first is a pilot program examining the risk of species transfer on recreational boats in the marine system, a pathway that has not been researched on the West Coast. The WRP also funded a Habitattitude project in the outer Hawaiian Islands (Kauai, Maui, Hawaii, and Molokai). Hawaii now has a member on the WRP, and the panel voted to have its meeting there next year. As Joe Starinchak (USFWS) commented earlier, an evaluation component was added to that project. Finally, the WRP has funded a project through Portland State University to survey for burrowing invasive isopods along the West Coast from California through British Columbia.

Blaine Parker (Columbia River Intertribal Fisheries Commission) is presenting at a Native American invasive species conference in Sparks, NV. He will highlight the WRP and how the panel can connect with this group.

The WRP requested guidelines on how western states can be involved on ANSTF committees. Additional projects that may need help from the ANSTF include a pilot project to distribute ANS materials at the United States–Canada border crossing and an ad hoc committee, led by Paul Heimowitz (USFWS) to create guidelines for biological supply houses. Heimowitz is working with Sea Grant, PIJAC, and others to create guidelines, but he will want support from other panels and the ANSTF.

The WRP would also like ANSTF agencies to consider ways to create consistency and equity in funding for BW technology between the Atlantic Ocean, Pacific Ocean, Great Lakes, and Gulf Coast. Dean Wilkinson (NOAA) noted that Congress specified funding for the Great Lakes and Chesapeake Bay, so the ANSTF is powerless to reallocate that funding.

The Lake Champlain Basin Program has several bilingual outreach products that it shares with partners in Canada. These materials could be shared with the WRP for the pilot border program.

Mississippi River Basin Panel

Michael Hoff (USFWS) reported on the MRBP's recent accomplishments and future direction. The executive committee drafted an operational guidance document to update the organizational framework of the MRBP and revise its processes and structure. A copy of the guidance document was sent to all panel members, who then voted for its approval. Two major changes in officer structure were included in the guidance document: The chair and co-chair positions were divided among three co-chairs, and federal employees were allowed to serve as co-chairs. The document includes detailed guidance for operations, particularly regarding development of annual work plans and budget requests. Members added to the panel include the NPS, U.S. Forest Service, state of Mississippi, Arkansas-Red River Subbasin Group, and Tennessee River Subbasin Group.

On August 22-23, 2006, the Asian Carp Symposium was held in Peoria, IL. More than 200 people attended the symposium. The agenda included 24 platform and 17 poster presentations. The MRBP will provide funding and two co-editors to publish the proceedings. The co-editors submitted a proposal for publication to the American Fisheries Society as a possible book in its special publication series. The MRBP annual meeting was also held in Peoria immediately following the symposium. All committees submitted their annual work plans at the meeting.

During the year, the panel reprinted the Stop Aquatic Hitchhikers! brochure for all requesting members, and each requesting member received up to 15,000 brochures.

The MRBP has several activities planned for the next year. In cooperation with the GSARP and WRP, the MRBP will convene a risk assessment training workshop January 9-11, 2007, in Kansas City, MO. For more information, contact Jerry Rasmussen at ijrivers@aol.com. A field guide to AIS in the Mississippi River Basin will be completed by the fall of 2007, and 2,000 copies will be provided to each member state. Also scheduled for completion in the fall are the bighead and silver carp (*Aristichthys nobilis* and *Hypophthalmichthys molitrix*) watch cards. Finally, the MRBP website will soon host a compilation of control methods for priority AIS.

The panel held an election, and Kim Bogenschutz (Iowa DNR) was elected as co-chair. The ANSTF confirmed Bogenschutz as co-chair of the MRBP. Hoff's chair position will be up for election in 2007.

According to a survey of MRBP members, primary state needs regarding rapid response include funds, a communication network, technical assistance, and a streamlined approval process. In the states' interest, the MRBP made several recommendations to the ANSTF concerning rapid response. The first recommendation was to develop contingency funds for partner rapid response efforts and to establish a process for allocating those funds. Suggestions for producing contingency funds included either pooling ANSTF member funds or developing budget initiatives for new funding. The second recommendation was to establish a committee to develop joint or model compliance documents or to pool ANSTF member funds to contract the development of joint or model compliance documents. The third recommendation was to consult with NISC to determine progress toward the development of environmental compliance documents.

Gulf and South Atlantic Regional Panel

Ron Lukens (GSMFC) gave an overview of the GSARP's recent activities, including the panel meeting held October 4-5, 2006, in Charleston, SC. During the meeting, the GSARP developed the recommendation that the ANSTF support full funding of the Aquatic Plant Control Cost Share Research Program administered by the ACOE. The next GSARP meeting will be held April 2007 in Orange Beach, AL.

Several state plans have been completed, including those for Texas and Louisiana. Florida is ready to submit its plan, while Mississippi hopes to complete its plan by December 2006. Alabama has a plan

in progress, which is quite an achievement since, not long ago, it did not even have an initiative to do a plan. Plans are in progress for both South Carolina and Georgia.

The Research and Development Work Group has been cooperating with the USGS to develop the experts database. The work group will develop protocols for including tier 1 and 2 experts and cooperate with other regional panels to establish standard compatible protocols. Many of the protocols suggested by the work group were discussed in Pam Fuller's presentation (see p. 17).

The Pathways and Prevention Work Group has been trying to prioritize pathways. Fuller produced a pathway analysis report that will be used by the work group to develop state and regional priorities for addressing pathways. The work group held a workshop to review the NISC/ANSTF pathways ranking guide and analysis that Fuller completed. Following the workshop, the work group decided it could not use the pathways ranking guide as designed. Penny Kriesch (APHIS) attended the workshop and has already made many of the requested changes. The guide should be tested again.

The Research and Development Work Group has compiled a list of research priorities and needs. Lukens will provide a complete list to Newsham to distribute. Meanwhile, the Education and Outreach Work Group has been working with the ANSTF to finalize ISEF language to clarify and complement science fair guidelines regarding nonnative species (see p. 17).

Discussion following the presentation focused on the need of states to collaborate on research that crosses state boundaries and the difficulty in obtaining funding for such a project. Suggestions included contacting NOAA and working with the ACOE. The latter was the preferred option since the agency just started an invasive species leadership team.

The ANSTF then confirmed David Yeager (Mobile Bay National Estuary Program) as chair and Earl Chilton (Texas Parks and Wildlife Department) as vice-chair of the GSARP. The ANSTF also agreed to send a letter to the ACOE expressing support for the Aquatic Plant Control Cost Share Research Program.

Mid-Atlantic Regional Panel

Fredrika Moser (Maryland Sea Grant) gave an update on the relatively new MARP. The first meeting was held in the spring of 2005. During this meeting, the panel developed and adopted standard operating procedures, a mission statement, some broad goals, and several committees. Because the MARP is short on both money and time, setting priorities has been extremely important, and three workgroups were immediately formed: education and outreach, policy, and science and management.

Ann Faulds (Pennsylvania Sea Grant and Education and Outreach Workgroup chair) is developing an identity for the panel. She has created a logo and is developing a new website that will replace the current one hosted by the Chesapeake Bay office. The website will be interactive and include review documents for discussion and a password-protected area for blogging.

The Policy Workgroup is focusing on understanding pressing needs in the region and articulating several policy initiatives based on perceived regional priorities. Members have developed a survey to help them understand who is doing what regarding invasive species in the region and how the MARP can help in their efforts. Sarah Whitney (Pennsylvania Sea Grant and workgroup chair) will conduct the survey; she hopes to have results by the next ANSTF meeting.

The Science and Management Workgroup developed some research priorities, but it has little money by which to execute these priorities. Jonathan McKnight (Maryland DNR and workgroup chair) took the lead in identifying important species in the region. If species that everyone cares about can be identified, then they can be used as vehicles for coordination and communication concerning invasive species across the region. The list of organisms has been narrowed to seven. Simple strategic maps will be developed for each of the seven species to use as a starting point for discussion. Mitten crab

has been identified in the Chesapeake Bay, and the panel dedicated \$12,000 toward leveraging money from other agencies to support investigation into the extent of the organism's distribution.

The MARP is willing to be a test case for rapid response approaches and will use designated funding from NOAA to develop a rapid response plan. The Environmental Law Institute is working with the Chesapeake Bay region and reviewing authorities for horticulture, aquaculture, and the pet trade to look for ways to coordinate among different states under different regulatory regimes.

Future efforts include looking for funding for a regional workshop to bring state invasive species councils together to discuss mutual areas of interest and coordination, cooperation, and communication with MARP.

Great Lakes Panel

Kathe Glassner-Shwayder (GLC) reported on recent GLP activities. The GLC is the administrative home of the GLP, and in July 2006, Tim Eder was appointed the new executive director of the GLC. He formerly served as the Great Lakes regional director of the National Wildlife Federation and recognizes AIS as a priority issue.

The next GLP meeting is scheduled for December 13–14, with early detection/monitoring and rapid response in the Great Lakes region as the theme. Items on the meeting agenda include federal programs supporting early detection/monitoring and rapid response, projects facilitating development of early detection/monitoring and rapid response tools, and several committee sessions focusing on applying current early detection/monitoring and rapid response knowledge to the Great Lakes. In addition, the meeting will feature several collaborative projects developed by the GLC and Michigan state agencies with guidance from the GLP:

- Model rapid response plan for Great Lakes aquatic invasions
- Hydrilla (*Hydrilla verticillata*) rapid response plan: case study (Michigan DEQ, Office of the Great Lakes)
- Nonindigenous species early detection and monitoring: a pilot for Great Lakes invasions

Much of the past year has been spent developing an operational guidance document for the GLP. The purpose of this document is to provide an institutional framework for the GLP to facilitate interagency/organizational communication and regional dialogue on AIS issues. Roger Eberhardt (Michigan DEQ) has nearly completed the document, and it will be presented to the GLP for approval at the December meeting. Several membership issues remain under discussion, including maintaining the "categories of interest" membership categories that were established through federal legislation, establishing at-large membership positions to represent emerging AIS issues, and defining membership responsibilities and creating guidelines to evaluate members in good standing. Other issues under discussion include designating the vice-chair as the chair-elect to strengthen the continuity of leadership, creating decision-making procedures, and creating guidelines on advocacy versus education.

The GLP has created a Great Lakes aquatic invasions brochure that will be distributed to state and federal legislators and other decision makers as well as to recreational and commercial water users. The purpose of the brochure is to make AIS a priority environmental issue among decision makers and policy leaders by profiling global AIS movement, primary vectors, and the associated urgent need for pathway interruption. Several vectors of AIS introduction and spread, as well as model strategies of AIS prevention and control, are highlighted in the brochure. Other highlights of the brochure include future management of AIS in the Great Lakes, compelling graphics and photographs, and information about various AIS websites.

In collaboration with state Sea Grant programs and natural resource agencies, the GLC has been administering state-specific workshops in the Great Lakes regions. The program is funded through the NOAA National Sea Grant Program. The focus of the workshops varies depending on the status of the SMP process. In addition, a Great Lakes regional summit on state management planning will be held May 22–25 at the Tom Ridge Center in Erie, PA.

Recommendations from the GLP to the ANSTF include remaining apprised of the status of priorities and needs of SMPs, participating in the Great Lakes regional summit on state management plans, and supporting the Lacey Act listing of silver carp as an injurious species.

Regional Panel Principals' Report

Ron Lukens (GSMFC) presented results of Monday's meeting among the regional panel principals. He commented that, although they had met at other meetings in different configurations, they felt that this meeting was the most productive. The principals would like to continue having their meeting prior to the fall ANSTF meeting. He displayed a list of four items they discussed, clarifying that the items were not recommendations as much as they were issues on which participants focused their discussion:

1. **Letter to governors.** The governors have been involved in ANS processes to the extent that they sign their state management plans or direct agencies to address ANS. The ANSTF could send a letter of gratitude to the governors for recognizing the issue; such a letter would likely encourage continued interest. This letter could be similar to that sent to agency directors from the ANSTF (see Action Items on p. 1).
2. **Session on predictive models.** The principals had spent considerable time talking about a database. Although people can now create maps, there are some limitations over the Internet. They thought it would be useful to hold a session at which people could brainstorm what they need from a database and what databases already exist. Before such a session were planned though, more discussion on the focus and outcome was necessary. Lukens suggested that the principals further discuss the idea and return with more clarification on this request.
3. **Searchable database of education and outreach materials.** A regional database has been developed by Portland State University, with funding from the WRP. It will be available in December 2006. Other panels expressed interest in the database, so they will be invited to add materials from their regions. However, it is now housed on the university server. The principals suggested moving the database to the ANSTF website. ANSTF members thanked the WRP for graciously offering to share and expand the database.
4. **NGO interest in helping secure ANS funding for states.** Given limitations on federal agencies asking for funding, NGOs such as the Federation of Fly Fishers, may be interested in leading requests to Congress for more state funds. Principals thought that it would be useful for regional panels to work with their state representatives to find out how they are obtaining ANS funds beyond those provided from the USFWS for the state management plans.

Lukens reiterated that items 2 through 4 were suggestions that were not yet ready to be offered as recommendations. Newsham agreed to work on a letter to the governors. ANSTF members suggested that all state governors be sent the letter even though not all states have ANS management plans yet. They were still dedicating resources by sending representatives to the regional panels. Newsham will also talk with David Britton (USFWS) about the feasibility of housing the education and outreach materials database on the website at some point.

Request for Common Carp NMP

According to Newsham, Dr. Brent Sorenson (University of Minnesota) had asked about the ANSTF interest in developing an NMP for the common carp (*Cyprinus carpio*). Sorenson had commented that

the common carp was widely dispersed, well established, and viewed as a problem by numerous groups. Recognizing development of the NMP for Asian carp, he thought it made sense to expand management planning efforts to common carp. Newsham had briefed Sorenson on the process for proposing an NMP, but Sorenson was interested in hearing how a proposal might be received. Michael Hoff (USFWS) added that Sorenson had lottery funding for a four-year research project if it were allocated to environmental issues. He had helped Sorenson plan and run a workshop, at which people were interested in better coordination at the regional or national level. Several have already volunteered to participate if development of an NMP is approved. Given that common carp is already broadly distributed and well established, ANSTF members weren't certain what control and management would look like and how such actions would be implemented, especially with foreseeable funding levels. Hoff will follow up with Sorenson and see how he may want to proceed in light of ANSTF input.

November 9 Strategic Plan Revision

The draft strategic plan for 2007 through 2012 was displayed on a screen for all to see. Newsham said that the first cut at revision had been done by an ad hoc group. He requested that ANSTF members go through the document section by section and complete the revision. Natalie Chavez (Chavez Writing & Editing) keyed in revisions as they were made so that participants could review and verify the changes. The following issues were raised during the revision process:

- The strategic plan looks forward. A recounting of successes is more appropriate for the website.
- The Executive Secretary will refine some of the wording, proofread, and send the document out for one final review.
- For now, the name of the Control Committee will remain, but the committee may be renamed at some point to reflect its focus on tracking implementation of approved control/management plans.
- When completed, the strategic plan will be forwarded to the regional panels with a letter from the Executive Secretary about the roles of the regional panels.
- Although the ANS Program document should be reviewed and revised, that process will be initiated upon reauthorization.

Plans for Spring 2007 Meeting

The GLP offered to host the spring meeting in conjunction with its meeting the week of May 21, 2007, in Erie, PA. Because these dates conflicted with the Marine Bioinvasions conference, an important one for many ANSTF members dealing with marine issues, the ANSTF scheduled the next meeting for the week of May 7. Kathe Glassner-Shwayder (GLC) will see whether the GLP can reschedule its meeting. If not, NEANS offered to host the ANSTF meeting. Newsham will let people know as more information becomes available. [Following the fall ANSTF meeting, the spring meeting was set for May 8–10, 2007, at the Tom Ridge Environmental Center in Erie, PA.]

APPENDIX A—ACRONYMS USED

ACOE	U.S. Army Corps of Engineers	MEPC	Marine Environment Protection Committee (IMO committee)
AFWA	Association of Fish and Wildlife Agencies	MICRA	Mississippi Interstate Cooperative Resource Association
AIS	aquatic invasive species	MOA	memorandum of agreement
ANS	aquatic nuisance species	MOU	memorandum of understanding
ANSTF	Aquatic Nuisance Species Task Force	MRBP	Mississippi River Basin Panel
APHIS	Animal and Plant Health Inspection Service	NAISA	National Aquatic Invasive Species Act
BLG	Bulk Liquids and Gases (IMO subcommittee)	NASAC	National Association of State Aquaculture Coordinators
BW	ballast water	NEANS	Northeast Aquatic Nuisance Species (Regional Panel)
CDR	Commander	NEPA	National Environmental Policy Act
CEO	Communication, Education, and Outreach (ANSTF committee)	NGO	nongovernmental organization
CWA	Clean Water Act	NISC	National Invasive Species Council
DEQ	Department of Environmental Quality	NMP	national management plan
DNR	Department of Natural Resources	NOAA	National Oceanic and Atmospheric Administration
EA	environmental assessment	NPDES	National Pollutant Discharge Elimination System
EDRR	(or ED/RR) early detection/rapid response	NPS	National Park Service
EPA	(see USEPA)	PIJAC	Pet Industry Joint Advisory Council
ETV	Environmental Technology Verification	PSMFC	Pacific States Marine Fisheries Commission
GLC	Great Lakes Commission	RR	rapid response
GLP	Great Lakes Panel	RRP	rapid response plan
GSARP	Gulf and South Atlantic Regional Panel	SERC	Smithsonian Environmental Research Center
GSMFC	Gulf States Marine Fisheries Commission	SMP	state management plan
HACCP	Hazard Analysis Critical Control Points	STEP	Shipboard Technology Evaluation Program
ICS	Incident Command System	UC	unified command
IMO	International Maritime Organization	USCG	U.S. Coast Guard
ISEF	Intel Science and Engineering Fair	USEPA	U.S. Environmental Protection Agency
ISAC	Invasive Species Advisory Committee	USFWS	U.S. Fish and Wildlife Service
MARAD	U.S. Maritime Administration	USGS	U.S. Geological Survey
MARP	Mid-Atlantic Regional Aquatic Nuisance Species Panel	VVIC	virally vectored immunocontraception
McAHRT	Mitten Crab Ad Hoc Response Team	WRP	Western Regional Panel

APPENDIX B—FLIPCHART NOTES REGARDING RAPID RESPONSE

Breakout Group 1

- Organizational Barriers**
- Multiple jurisdictions (starts local)
 - Can be + or –
 - Need to arrive at decision by lead agencies
 - Lack of process to make decision that urgent action is needed (and lack of support by some agency leaders)
 - Public support/awareness to initiate rapid response? (e.g., private property access)
 - Need to build local response capacity/partnerships

- Organizational Barriers (cont.)**
- “It’s not a problem yet” =educational barrier with agency leaders → economic data + communications
 - Need for decision-support tools (accepted by all players) (modules, etc.)
 - State laws restricting tools such as chemicals in emergency response (need fast track; national lead)

- Barriers/Removal**
- Cooperative Weed Management Area model
 - Authorities to enforce
 - Questions/lack of adequate tools that are effective to contain/eradicate
 - Need more complete planning process
 - Share experiences/models
 - Available \$/resources
 - Support “release time” for staff to help

- Barriers/Removal (cont.)**
- Develop guide to state and federal permit/regulatory processes, using EPA document as model, then address any existing barriers that were identified
 - Treat invasive species more akin to fire/other emergencies
 - Need more success stories and communicate them better
 - Need economic estimates of impacts to support investment in rapid response
 - Dedicated funding source for approved rapid response plans (NAISA as one option)

- Barriers/Removal (cont.)**
- High-level proclamation regarding ANS impacts to ecosystems
 - Lack of information on ANS biology to guide rapid response
 - Proactive risk assessment for species not yet here
- General Issues**
- Federal role vs. states, species, lands, etc.
 - Ability to recognize need for help/scaling up

For easy reference, an acronym list is provided in Appendix A.

Breakout Group 2**Tools**

1. Permits in place to use chemicals
 - Federal consistency
 - NPDES permits
 - State rapid response planning, federal EPA role to develop partially completed permits
2. Need more information about
 - Invasives—particular species
 - Physiology, basic biology, impacts
 - Controls
 - Predicting invasives
 - ID guides, taxonomic expertise (funding, unified webpage USGS)

Tools (cont.)

3. Consistent reporting
4. \$ funding! Way to get it and way to spend it!
Pool of money, protected
5. Quick ways to do risk assessments/include economic
6. NEPA and other laws
 - Categorical exclusion for ANS rapid response
7. Need list of authorities and permits needed from every agency (e.g., EPA guide)
8. Rapid response plan
 - Support development by states

Tools (cont.)

9. ICS training—appropriate state or federal personnel
10. Staff needs to be trained in ANS management
 - 1 ANS coordinator in each state and equipment (networks)
11. Education to vector groups
 - Before an invasion
 - Outreach after initial discovery
 - Outreach to publications (anything unusual, contact ___)
12. Gap analysis for responsibility on state level

Tools (cont.)

13. Guidelines for dealing with media
14. Clearinghouse for reporting suspicious organisms; list of experts
15. Ecological surveys and monitoring programs
16. Develop tools for eradication and control

Breakout Group 3

What should a model RRP contain?

Overall tips: Keep size of document small and information in manageable sizes

- Permits/consultations needed
- Agency roles and responsibilities (including tribes, stakeholders, private lands)
- Develop criteria for trigger mechanisms
- Response organization (perhaps identifying administrator/keeper of updating plan or lead e-mailer)
- Unified Command
- Generic objectives and priorities

What should a model RRP contain? (cont.)

- Contact information—management, regulatory, and stakeholders
- Maps (so can be easily marked up) and photos
- Media relations plan, approach
- Identification of resources—money, personnel, physical (boats available?), scientific expertise
- Technical capability for resources
- Communication plan—information flow from and to field staff
- Training in advance—safety reqs, certifications (applicator’s license?), other

What should a model RRP contain? (cont.)

- Mediation/conflict resolution approach
- Checklists
- Gap analysis of roles/responsibilities
- MOUs/MOAs
- Evaluation of response (post-event, ongoing, field check-ins, debriefings after action)
- Post-event response monitoring approach
- Assurance that higher levels are aware of plan(s) and activities
- Control methods/tools available for various scenarios
- Who “owns” the plan? (for updates, notification)

How should RRP be organized?

1. Main part—generic elements such as permits, etc.
 - General overview of positions—position-specific guidance
 - Purpose, introduction (brief overview of lessons learned from utilizing rapid response)
2. Appendices that can be specific, updated, adapted—checklists, maps, photos, contact lists, etc.