

**AQUATIC NUISANCE SPECIES TASK FORCE:
MINUTES OF THE 2009 SPRING MEETING
MAY 19–21, 2009**

On May 19 through 21, 2009, the Aquatic Nuisance Species Task Force (ANSTF or Task Force) met at the Holiday Inn in Bozeman, MT. On the morning of the first day, the group heard about activities of the Western Regional Panel (WRP), which hosted the meeting. In the afternoon, the Task Force focused on updates and recommendations from the regional panels. The second day included field trips to Darlinton Ditch, Missouri Headwaters State Park, Canyon Ferry Reservoir, and the reclaimed Whites Creek. The last day covered standing committees, aquatic nuisance species (ANS) activities in the Pacific Northwest, and future Task Force meetings. Decisions and action items made during the meeting are listed below and followed by a summary of the three-day meeting.

Decisions

The ANSTF made the following decisions:

- Approved the meeting agenda and minutes for the fall 2009 ANSTF meeting, pending one change.
- Tentatively plan future ANSTF meetings for the first week in November and the first week in May, with the fall meeting in the Washington, DC, area and the spring meeting rotating among the regional panels.
- Continue organizing ANSTF meetings around themes, with the next meeting focusing on implementation on the *ANSTF Strategic Plan* and *NISC Management Plan*.
- Conditionally approved the Utah ANS management plan, pending incorporation of review comments.

Recommended Actions

- (Control Committee) Oversee a review of regional panels' rapid response plans and templates to identify strengths and weaknesses, as part of a possible effort to develop a model, and present at the next meeting.
- (Executive Secretary) Continue discussing the crosswalk of the *NISC Management Plan* and *ANSTF Strategic Plan* at the next meeting, including identifying priorities, tasks, leads, and funding.
- (U.S. Coast Guard and National Park Service) Continue work on a ballast water protocol for grounded vessels and present at the next meeting.
- (Executive Secretary) Write and send a transmittal letter with the draft quagga/zebra mussel action plan (Q-ZAP) to the ANSTF for review.
- (Executive Secretary) Contact David Reid, National Oceanic and Atmospheric Administration (NOAA), for a list of researchers to review the Q-ZAP.
- (ANSTF and WRP) Review and submit comments on the Q-ZAP (to the executive secretary if from ANSTF members and to Eileen Ryce if from WRP members).
- (Executive Secretary, Eileen Ryce, and Erin Williams) Synthesize comments from respective reviewers of the Q-ZAP for a July ANSTF call to determine next steps.
- (Executive Secretary) Review funding recommendations for regional panels and state ANS plans to put more detail to them. Coordinate with co-chairs to determine next steps and report at the fall meeting.

- (Executive Secretary) Follow up with federal agencies about including a link to the experts database and ensuring visibility and clarity.
- (U.S. Coast Guard) Evaluate the Mississippi River Basin Panel (MRBP) recommendation regarding barge industry transport of aquatic invasive species (AIS) and best management practices for applesnail egg masses.
- (USFWS) Explore the MRBP recommendation to establish an implementation committee and a funding plan for the Asian carps national management plan.
- (USFWS) Explore the MRBP recommendation to fund an independent scientific review and evaluation of the Triploid Grass Carp Inspection and Certification Program.
- (Jonathan McKnight) Share the Mid-Atlantic Regional Panel (MARP) list of ANS of special interest with other panels.
- (Executive Secretary) Work with the regional panels on a schedule for rotating spring meetings.
- (Executive Secretary) Send a transmittal letter and draft research protocol to ANSTF members for a 60-day review and comment. Consolidate the comments and provide to the Research Committee.
- (Research Committee) Submit a revised draft of research protocols for approval at the fall meeting.
- (Michael Hoff) Continue moving toward a study of comparative evaluation of screening and other risk assessment systems.

May 19 Welcome and Preliminary Business

Joe Maurier, Montana Department of Fish, Wildlife, and Parks (FWP), welcomed ANSTF members and observers to Montana. He then thanked Eileen Ryce, the “Lone Ranger” for the department on ANS issues, as well as several others who have been instrumental in the state’s ANS program. Agricultural and sports interests together have been a powerful force, and recently passed legislation boosts the ANS program and provides funding. The FWP is partnered with the Montana State Department of Agriculture on ANS endeavors.

Co-chair Gary Frazer, U.S. Fish and Wildlife (USFWS) Assistant Director of Fisheries and Habitat Conservation, also thanked the WRP for hosting the meeting. He also thanked the new executive secretary, Susan Mangin, for her work.

Pat Montanio, Director of Habitat Conservation for NOAA and serving as co-chair at this meeting, provided NOAA highlights. Habitat Conservation is responsible for restoring all the benefits of habitat, and stimulus money allows the agency to give grants for coastal restoration. Staff are studying how healthy habitats are tied to the economy so as to build support for the necessary work.

Following Montanio’s comments, Margaret (Peg) Brady, NOAA liaison to the National Invasive Species Council (NISC) and the Task Force, acknowledged representatives from the Invasive Species Advisory Committee and commented that NOAA is revitalizing its involvement in the ANSTF because it and the state plans are key to stemming the influx of invasives.

Executive Secretary Susan Mangin covered meeting logistics and encouraged people wanting to make public comment to sign up at the registration table before noon on Tuesday or Thursday. She invited everyone to a reception that evening hosted by the Center for Invasive Plant Management.

Following introductions, the ANSTF approved the agenda for this meeting and the summary for the fall 2008 meeting in Arlington, VA, pending one change. Members then reviewed the status of the following action items from the fall meeting:

- *Evaluation of the regional panels' rapid response plans and possible recommendation of a model*—This task was undertaken by Anne Garrett, NOAA Commerce Science and Technology Fellow, who collected eight documents from the regional panels. Half are rapid response plans, while the rest are guidelines on writing rapid response plans. She recommended that a working group be formed to develop a model that people can agree to. The ANSTF charged the Control Committee with overseeing a review of the plans and templates to identify strengths and weaknesses and then consider the possibility of developing a model. Montanio suggested that Garrett and the committee circulate a list of the plans being reviewed in case others could also inform the process. The Control Committee will present its findings at the next ANSTF meeting.
- *Crosswalk of the NISC Management Plan and the ANSTF Strategic Plan*—This task was delegated to Don MacLean, USFWS, who found that all the objectives within the ANSTF plan were addressed in the NISC plan, but the inverse was not true. The NISC plan included objectives regarding habitat restoration and species recovery that were not addressed in the ANSTF plan. Because the task is substantial and requires more time, the ANSTF decided to continue the discussion at the next meeting, including identifying priorities, tasks, leads, and funding.
- *Development of a ballast water protocol for grounded vessels*—Several teleconferences were held with members of the working group formed to propose a protocol for dealing with ballast water discharge in cases of stranding. The first task was a literature review of emergency responses to deballasting vessels grounded in sensitive areas. The International Maritime Organization has emergency guidelines, but they are not as prescriptive as what the group hoped to develop. Working group members believe that a risk assessment model is needed, an effort that Michael Hoff, USFWS, is addressing. (See p. 13.) The strawman that he has drafted seeks to identify the different parameters that a federal on-scene coordinator would need to evaluate what emergency measures might be taken. The strawman addresses the Great Lakes only, but if favorable, it could be developed for other regions. The ANSTF requested that the U.S. Coast Guard and National Park Service continue this task and present their progress at the next meeting.
- *Development of a quagga/zebra mussel action plan*—Deferred to later in the meeting. (See p. 6.)
- *Development of a risk assessment/risk management process*—Deferred to later in the meeting. (See p. 13.)

Montana ANS Program and Illegal Fish Introductions

Frazer introduced Jim Vashro, regional fish manager for the Montana FWP, and Eileen Ryce, Montana's ANS coordinator also with the agency. Ryce discussed Montana's ANS program, which focuses on prevention since Montana has not yet seen some of the "heavy hitters" elsewhere. As a headwater state, any invaders to Montana are likely to affect the downstream states.

The state ANS management plan has been in place since 2002, and statewide coordinated efforts started in February 2004. Efforts for whirling disease (*Myxobolus cerebralis*) and New Zealand mudsnail (*Potamopyrgus antipodarum*) are in the management and control phase, while other efforts are aimed at preventing introduction of aquatic weeds, illegal fish, zebra and quagga mussels (*Dreissena polymorpha* and *D. bugensis*), Asian carps, and viral hemorrhagic septicemia (a deadly fish virus). Montana expanded its fish health and import statutes to include yearly ANS inspections. The state also has statutes and rules in place for leeches, coming primarily from the Great Lakes region; wildlife, including aquatics; and weeds, including Eurasian watermilfoil (*Myriophyllum spicatum*), flowering rush (*Butomus umbellatus*), saltcedar (*Tamarix ramosissima*), yellowflag iris (*Iris pseudacorus*), and purple loosestrife (*Lythrum salicaria*). Legislation passed in 2009 allows the state to develop cooperative agreements with government agencies and other organizations and to assess penalties.

Ryce commented that recreational anglers are the primary target audience for ANS outreach, and tracking their movement is beneficial for evaluating the risk of species introductions. Anglers were instrumental in helping set priorities in the state. Based on boater movements, Flathead Lake and Fort Peck Reservoir, at either end of the state, are the two water bodies most likely to receive an introduction. Flathead is the headwater for the Columbia River, while Fort Peck feeds into the Missouri. Introductions at either place are likely to lead to further introductions in the middle of the state, include Canyon Ferry Reservoir, which participants could visit during the following day's field trip. Yet most ANS sampling locations are in the western part of the state where recreational pressure is greatest. Monitoring includes plankton, substrates and shorelines, and macrophytes. Prevention strategies include public and agency awareness and direct prevention through boat ramp and border checks.

Vashro then discussed Montana's unauthorized fish introduction database and noted that some introductions have been from escaped fish, but most introductions have been intentional and unlawful. The database includes 536 introductions (although 50 still need to be added) that account for 50 different species in 298 water bodies. Most are in the northwest corner of the state. Yellow perch (*Perca flavescens*) is a major concern because it is prolific and aggressive. A Montana State University study found 4,300 commercial fish sources nationwide, and an Idaho commercial dealer illegally planted 43 private ponds in Montana, including one where whirling disease was found. Vashro discussed two case studies: Lake Mary Ronan, where yellow perch have devastated kokanee (*Oncorhynchus nerka*) and salmonid populations, and Canyon Ferry Reservoir, where walleye (*Sander vitreus*) have crashed rainbow trout (*Oncorhynchus mykiss*) and perch fisheries. Vashro also presented a case history of northern pike (*Esox lucius*) introductions to show how fish can spread.

Anglers have various motivations for illegally introducing fish, including entitlement, perceived expertise ("bucket biologists"), ignorance, arrogance, nostalgia, information from fishing shows, and ecosabotage. Although strategies for prevention include education, Montana hasn't found a message that resonates with the public, and existing penalties aren't strong enough for enforcement. Vashro believed that the state needs to hold people accountable for the costs of reclaiming fisheries, including fines and civil liability. TIP Montana is an online tool for reporting infractions, and Vashro was "counting on bitter ex-wives" to use this tool. The department also uses an illegal fish stocking website (stopstocking.cowyoafs.org) as a forum to get people talking.

Discussion focused on the difficulty in catching perpetrators and imposing penalties, the need for increased public awareness, and the varied responses of angling groups to boat check stations. Anglers of warmwater species initially had less awareness of ANS than the fly fishing public. Though unfortunate, the press about quagga mussels in California and Arizona did more to educate anglers than most other efforts. But the Montana FWP struggles with convincing the public that management should be left to the agency. Frazer commented that the illegal transplanting of fish may be an issue missing from current social marketing approaches.

Summary of WRP Marine Issues

Karen McDowell, San Francisco Estuary Partnership, noted that the San Francisco estuary drains 40 percent of California and is one of the most invaded systems in the world, with over 200 species. The WRP, fearing that these species will spread to Washington and Oregon, are closely monitoring zooplankton, ballast water, Chinese mitten crab (*Eriocheir sinensis*), and European green crab (*Carcinus maenas*). Zooplankton impacts the entire food web, and in 1994, the system switched from being dominated by native mysids and copepods to invasives. Fish feeding on the zooplankton are not necessarily adapting. The combination of changes in flows, food sources, and pesticides have caused delta smelt (*Hypomesus transpacificus*) and other delta pelagic fish populations to crash. Since ballast water regulations were adopted in 2000, the state hasn't seen any new invasive zooplankton species.

But invasive species in San Francisco Bay have appeared in the Puget Sound and Columbia River systems.

Ballast water exchange is the primary management tool, and state and coastal regulations are aligned. But ballast water exchange is sometimes ineffective or completed incorrectly because copepods are still showing up at the end destinations. Although ballast water regulations are uniform on the West Coast, California will soon implement standards similar to the standards proposed by the U.S. Coast Guard and International Maritime Organization. From the Columbia River to Puget Sound, no exchange requirement exists. The *West Coast Governors' Agreement on Ocean Health* focused on ballast water and invasive *Spartina* species. The Pacific Ballast Water Group is responsible for making recommendations and coordinating efforts, but exempting the Clean Water Act and state programs remains a contentious issue that has stalled the process of passing a new, strong federal program. Although California has been proactive, the bond freeze has affected many environmental projects, yet missing one treatment cycle can jeopardize progress. McDowell finished by noting that the mitten crab has not been seen in the San Francisco Bay since 2005, although it could return under certain conditions. Both mitten and green crab have management plans approved.

The following topics were discussed after McDowell's presentation:

- California is starting an Invasive Species Council that will liaise with the Ocean Protection Council. The first meeting was last month. Advisory committee nominations are coming in, and the advisory committee will soon form.
- Studies are underway to consider both federal and state authorities and identify gaps where legislation is needed.

Success Stories of Panel-Funded Projects

Erin Williams, USFWS, noted that the WRP has been able to support two to four small projects a year and is now seeing real progress despite quagga mussel introduction to the region. One project involved assessments in Lake Mead to determine boaters' level of awareness and movements. Boats were examined at boat ramps, postcards were placed on trailer windshields, and license plates on boat trailers in parking lots were checked. Boat traffic is of concern now that quagga mussels are in California, Nevada, Colorado and Utah. Another project investigated thermal tolerance limits for zebra mussels and found that species in the north and south had varying thermal tolerances. These findings help prioritize risk and identify control measures. One of the broader outreach tools for the AIS problem is the "Threats to the West" brochure created by the WRP. The brochure is a primary outreach pamphlet for boat shows and sportsman expos. Mark Sytsma, Portland State University, recently developed a catalog of AIS outreach materials and templates to aid in outreach efforts and promote consistent messaging. The online database (www.clr.pdx.edu/projects/edoutreach/) has over 170 entries. Another project targets outreach to master gardeners.

Rapid response planning was one of the first projects funded. The resulting plan serves as a model for other regions and species. Various other projects have been completed or recently funded through the panel, including a project to look at the school/biological supply house pathway, which received some funding at the national level. Three projects are being funded in 2009.

The group discussed criteria for selecting projects. Although criteria have changed over time, the panel generally tries to choose projects with backing from the state and involving the state ANS coordinator.

Trailer Boat Analysis from the 100th Meridian Initiative

Dave Britton, USFWS, discussed data collected from trailered boats. Recent introductions of zebra and quagga mussels include one in Texas and another in Colorado (Lake Jumbo). Most introductions are caused by downstream movement, but transport on trailered boats is an area where prevention is

possible. Houseboats and other resident boats spend most of their time in the water and do not get much time to dry out. Transient boats spend less time in the water. These are usually pulled out daily. Of 15,000 transient boats, only 4 have been found with mussels so far. The 100th Meridian Initiative has surveyed various locations throughout the West and looked at boater origins, destinations, and likely routes, helping to highlight key areas for focusing outreach. The surveys also helped identify additional survey areas in the Columbia River Basin.

The surveys have been very useful in Kansas and Oklahoma since numerous boaters visit El Dorado, KS, and Oologah, OK. The surveys helped identify several at-risk lakes in these areas that have subsequently become invaded. Infestation was recently found at Perry Lake, KS, although the lake hadn't been identified as at risk, so the tool isn't perfect. The database from the initiative has been used in publications as well. More surveys would be helpful, but resources are limited.

During discussion, Britton noted that transient boats do pose a risk for transporting mussels, especially attached to aquatic vegetation, even if they don't transfer many individuals. But a resident boat of Lake Mead (or any other invaded water) could have such a massive number of mussels that, if moved to another water body, it could seed a new population. The stress of transfer and introduction could cause a simultaneous release of gametes from a large number of individuals in a small area (attached to a single boat hull, for example). Thus, resident boats should be of particular concern.

Quagga-Zebra Mussel Action Plan

Frazer reviewed an action item from the fall 2008 meeting requesting that the WRP "take the lead on developing an action plan for quagga/zebra mussels in the West, with a feasibility report due within 45 days and an update at the spring 2009 meeting." He thanked the panel for its substantial work on this issue and Erin Williams for stepping into the leadership role left by Tina Proctor who retired recently.

Eileen Ryce, Montana FWP, then described the panel and its scope, as well as reviewing the history of the feasibility study and draft quagga/zebra mussel action plan (Q-ZAP). She focused her presentation on the highest three priorities. The first priority is to increase funding for ANS management plans and Q-ZAP implementation. Many states struggle with enforcement and need funding for rapid response plans and early detection. The second priority is boat inspection and decontamination. Many states have programs that aren't consistent. This priority also addresses large equipment used for dam maintenance, barges, and other equipment that may be in the water for long periods of time. One of the goals for this priority is to streamline inspection protocols to ensure early detection. The third priority is to develop best management practices, standardize risk assessment models, finalize a notification database, and adopt a consistent outreach message. Many of these goals focus on consistency and communications to ensure all states are conveying the same message.

To date, the plan has been reviewed by the steering committee, but Ryce sought guidance from the ANSTF on a 30-day review by the appropriate parties. During the lengthy discussion, Task Force members raised the following issues and suggestions:

- The Colorado River Fish and Wildlife Council requested a plan from fish managers and is developing a complementary plan. That group may be able to review the plan and consider whether it can be adapted to its needs. The Association of Fish and Wildlife Agencies is also crafting a document that could complement the action plan.
- Some data gaps were filled by referring to information from the Great Lakes and Midwest, but the different water delivery system in the West raises some issues that can't be addressed via methods from other regions. A lengthy appendix lists the research that was used to develop the action plan.
- The method for developing the budget will have to be addressed during the review; some estimates are best guesses, others are based on research.

- Near-term actions should not be delayed until after the review process is completed.
- The plan probably doesn't have as much detail as state plans and is by no means comprehensive. As a new kind of product, one requested by Congress, this action plan doesn't quite fit into processes developed for other plans.
- The U.S. Army Corps of Engineers now has an invasive species leadership team to address this huge concern in the West. Districts in the West have requested funds through stimulus money to monitor lakes and reservoirs, especially in California. They are trying to do some of the activities identified in the plan but would like a concerted effort. The Corps could send some help to the U.S. Bureau of Reclamation in the West.

Following the discussion, the Task Force assigned several action items. Executive Secretary Mangin will write and send a transmittal letter with the draft Q-ZAP to the ANSTF for review. She will also contact David Reid for a list of potential researchers to review the Q-ZAP. Members of the ANSTF and WRP are to review the draft Q-ZAP and submit comments (ANSTF members to Mangin, panel members to Ryce). After comments are submitted, Mangin, Ryce, and Erin Williams will synthesize them for a July ANSTF conference call to determine next steps.

Uniform Minimum Protocols and Standards for Watercraft Intervention Programs

Bill Zook, a contractor with the Pacific States Marine Fisheries Commission, defined and provided background for the Watercraft Intervention (formerly Inspection) (WIT) Program. When quagga mussels were detected in the West in 2007, the program gained a greater sense of urgency. Individual agencies had to develop their own prevention programs, and the watercraft inspection training helped implementation. Since April 2007, 45 WIT trainings have been delivered in 13 western states to more than 2,000 people representing over 90 state, federal, tribal, and local government agencies and organizations. In 2008, the program added trainings for trainers. Because of training contacts and public input, standardization was identified as one of the top priorities in the WRP's action plan. The first step to developing uniform minimum protocols and standards was to define watercraft intervention programs in the West and conduct an online survey of these programs. A report with survey results will be available in the next month or two, but raw data are available now.

Uniform minimum protocols and standards need to be sanctioned by the panel before continuing. All watercraft inspection programs share the same objectives, so different groups should be able to develop agreeable, science-based standards. The objectives of the protocols and standards are to increase program effectiveness with the best available science and technology; increase efficiency by working across jurisdictional boundaries; increase understanding, predictability, compliance, convenience, and support from the public; and provide guidance to agencies and organizations looking to implement watercraft intervention programs. The draft report is complete and will be available for review. It recommends uniform minimum protocols and standards for program levels, screen interviews, inspection, decontamination, quarantine, exclusion, and certification. Research is needed on the effectiveness of decontamination. The group asked questions about funding sources and infrastructure requirements.

West Coast Governors' Action Plan: Spartina Eradication Proposal

Mark Sytsma, Portland State University, noted that the *West Coast Governors' Agreement on Ocean Health* called for the three Pacific Coast states to develop an action plan based on seven priorities. For the ANSTF, the focus is on the second priority: protecting and restoring ocean and coastal habitats. This priority involves several actions, including supporting ballast water policies and eradicating nonnative *Spartina* species by 2018. No West Coast spartina is native except one species in California. Invasive spartina moves slowly into mudflat habitat, raises the mudflat, and changes the hydrology, which damages estuaries. Spartina infestations have occurred all along the West Coast, presumably

moving northward on coastal currents, which is why a coastwide plan is needed. *S. patens* has spread rapidly on Cox Island in the Siuslaw Estuary where the management entity is resistant to herbicide use. Sytsma discussed Oregon's spartina response plan and survey cycle, which focuses efforts in the wintertime on *S. densiflora* when it is easier to spot and in the summertime on *S. altreniflora*, *S. patens*, and *S. anglica*.

Elements of the West Coast governors' spartina action plan are quite typical, and ongoing eradication efforts have been successful in Washington and the San Francisco Bay:

- Prevention plans encourage action in British Columbia through the Pacific Coast Collaborative.
- Early detection focuses on expanding habitat suitability models and implementing surveys.
- Rapid response efforts involve expanding the Oregon model coastwide and developing a fund.
- Restoration efforts focus on restoring the mudflat ecosystem.
- Communication and outreach involve annual meetings, plan reviews, website development, and communication of successes.

Sytsma displayed the costs for the plan elements, which do not include ongoing programs by state and local agencies. The plan's priorities are comprehensive but feasible. Because future governors might not be as supportive as those now, the plan must be implemented and show demonstrable success as soon as possible. The plan can be found at <http://westcoastoceans.gov>. Task Force members discussed the possibility of new introductions from the East Coast, capabilities of remote sensing, and use of biocontrol.

Regional Panel and State ANS Plan Funding Discussion

Jim Grazio, Pennsylvania Department of Environmental Protection, discussed funding challenges for the regional panels. Panel funding under the National Invasive Species Act of 1996 (NISA, \$300,000) expired in 2002, and since 2004 panels have received \$50,000 each. The failed National Aquatic Invasive Species Act proposed ten times the amount authorized under the 1996 act. Panels are struggling under the current economy, so meeting attendance is down and plans are "sitting on the shelf." Supplemental funding for regionally important projects would be helpful, and the regional panels are looking to the ANSTF for creative solutions. Goal 5 of the *ANSTF Strategic Plan* calls for maximizing the organizational effectiveness of the Task Force, and objective 5.3 addresses working within federal agency budget processes. Grazio asked for suggestions to increase funding for regional panel work.

Doug Keller, Indiana Department of Natural Resources, presented a similar plea for increased funding for state ANS management plans. Current allocations—31 states receiving \$35,000 or less—provide little incentive to develop state management plans. Under NISA, the full amount authorized was \$4 million, which works out to \$129,000 for each of 31 states or \$80,000 for all 50 states. Keller polled states to inquire about dedicated ANS staff and found only 9 with at least one dedicated staff member and 17 with someone who spent less than 25 percent of his or her time on ANS issues. Keller then distributed a sheet of five recommendations:

- The regional panels recommend that other USFWS project funding be identified.
 - Regional panel members should communicate the importance of ANS issues and funding to their respective USFWS Regional Directors.
- The regional panels recommend that the ANSTF request that all member agencies explore their respective financial resources to provide funding support to the regional panels and state management plans.

- ANSTF Strategic Plan objective 5.3: Coordinate federal agency budgets to support ANSTF priorities and link state and regional needs with the federal budget process.
- The regional panels request that the USFWS and NOAA assist in this effort by
 - providing staff to help coordinate this effort with other federal agencies.
 - providing information to the regional panels so that member entities can communicate the importance of ANS issues and funding to other federal agencies at the local and regional levels.
- The regional panels recommend to the ANSTF that the authorization for the regional panels and the appropriation for the state management plans be increased.
 - ANSTF member entities are requested to deliver this message within their respective agencies so that it can be communicated outward as appropriate.
 - Regional panel members are requested to deliver this message to their congressional representatives.
- To help communicate the need for additional funding, regional panels recommend that the USFWS request the regional panels and states to provide tiered annual work plans that identify what existing needs are and what can be accomplished at current funding.

The ANSTF discussed the funding issue. The fiscal year 2010 budget has already been delivered, but the recommendations will help Frazer and others involved in the appropriations process to build support for increased funding. Needs could be identified at the fall ANSTF meeting for incorporation into the budgeting process. People also need to pressure USFWS regional managers to do the same. One strategy is to identify what cannot be done regarding aquatic invasives without necessary funding.

Those who can should also contact their congressional representatives about NISA reauthorization. If passage of a full bill with increased allocations is unlikely, a carefully worded amendment to another bill may work. Many projects that address ANS issues could be funded under programs like climate change. In fact, members should package ANSTF needs within priorities of the new administration.

Frazer asked other federal agencies to contribute to administrative support of the ANSTF and executive secretary in some way. Currently, only the U.S. Coast Guard helps with this support. Inkind services would also be appreciated. With the executive secretary position vacant for some time, ANSTF members recognize its value. Then Executive Secretary Mangin was tasked with putting more detail to the above funding recommendations. She will also coordinate with the co-chairs to determine next steps and then report at the fall ANSTF meeting.

Regional Panel Updates

The WRP had already updated the Task Force on ANS in the region, so the other panels reviewed issues in their regions. Brief summaries are provided below, along with any recommendations.

Gulf and South Atlantic Regional Panel (GSARP)

Earl Chilton, Texas Parks and Wildlife Department, commented that the GSARP had no recommendations at this time. High priority items include zebra mussel, lionfish (*Pterois volitans*), giant salvinia (*Salvinia molesta*), brown tree snake (*Boiga irregularis*), and funding. The state agency received a call about a live zebra mussel recently recovered at Lake Texoma. The appropriate local, state, and federal entities have been alerted. Lionfish are continuing to spread along the eastern coast, and giant salvinia is becoming more problematic in Texas and Louisiana. A number of boats coming to a bass tournament on Sam Rayburn Reservoir had giant salvinia on the trailers. Although no brown tree snakes are known to exist in the continental United States, the threat of introduction continues as

the base on Guam will close and equipment will be moved to other bases. The regional panel is also exploring other funding possibilities for ANS demonstration projects in the region.

Key ANS activities in the last six months include completing the rat lung worm (*Angiostrongylus cantonensis*) study, developing region-specific aquatic hitchhiker brochures, reviewing safety and emergency protocols for research institutes, revising a draft rapid response plan, developing a new panel website, and planning the fall meeting in North Carolina. Chilton reviewed the status of state management plans. Florida and Louisiana have finished plans; North Carolina has started the process; and Alabama, Georgia, South Carolina, Mississippi, and Texas plans are in various stages of review.

Mississippi River Basin Panel (MRBP)

Doug Keller, Indiana Department of Natural Resources, described activities at the MRBP's February meeting in San Antonio, TX. Members discussed three relatively unexplored vectors: dry hydrants, river barges, and pay or fee fishing lakes. Other important topics included screening process tools, a zebra mussel eradication effort in Nebraska, a snakehead eradication effort in Arkansas, viral hemorrhagic septicemia, Asian carps management and control plan, triploid grass carp (*Ctenopharyngodon idella*), ANS regulations database, common carp (*Cyprinus carpio*) management, and boat surveys in member states.

Recommendations to the ANSTF included linking to the experts database from member websites to increase visibility, providing ANS information and best management plans to the barge industry, implementing the Asian carp plan via several actions, and seeking an independent scientific review and evaluation of the Triploid Grass Carp Inspection and Certification Program.

Great Lakes Panel (GLP)

Jim Grazio, Pennsylvania Department of Environmental Protection, also reported on the most recent meeting of the GLP. In December, panel members discussed strategic planning, ballast water, and action items from the previous meeting. The Information/Education Committee is distributing a booklet about Great Lake aquatic invasions, while the Research Coordination Committee has completed a regional, regulated invasive species list and is writing a bioethics position statement for new ANS discoveries. The Policy Coordination Committee developed two recommendations for the panel to revise and submit to the ANSTF: facilitate passage of effective federal ballast water regulation and fund development/evaluation of risk assessment screening tools.

Northeast Regional Panel (NEANS)

Susannah King, New England Interstate Water Pollution Control Commission, shared the NEANS Panel's three high priority and emerging issues: didymo (*Didymosphenia geminata*) invasion, early detection and rapid response at the regional level, and volunteer monitoring as an early detection strategy. At the fall meeting, panel members discussed the governance structure, regional initiatives, a regional collaborative, Habitattitude, state risk assessments, and Asian clam (*Corbicula fluminea*). The spring meeting included identification of zebra mussel veligers, panel governance and bylaws, and snakehead eradication in New York. The panel completed a didymo webpage and helped support the Marine Invader Monitoring and Information Collaborative, which includes Massachusetts, New Hampshire, and Maine. Like other panels, the NEANS Panel requested more funding for regional panels and state plans.

Mid-Atlantic Regional Panel (MARP)

Jonathan McKnight, Maryland Department of Natural Resources, talked about the difficulty in developing a list of ANS of special interest, but the exercise and results were worth it. He encouraged other panels to do the same. The panel is holding a regional vectors workshop this fall and continues focusing on Chinese mitten crabs, zebra mussel outreach, and work with the Environmental Law

Institute. He noted that the greater the population of an area, the more opportunity there is for introducing ANS and jokingly suggested transplanting much of the human population from Delaware and Chesapeake bays to the sparsely populated state of Montana!

Discussion of Recommendations

The ANSTF discussed each of the recommendations and in several cases identified action items:

- **Experts Database**—The experts database is housed on the USGS website. Executive Secretary Mangin will follow up with federal agencies about including a link to the experts database on their websites and ensuring that it is visible and the context is clear. A database of state regulations regarding ANS was also discussed.
- **Barge Industry**—According to Commander Gary Croot, the U.S. Coast Guard will evaluate the recommendation regarding barge industry transport of ANS and best management practices for applesnail (*Pomacea* spp.) egg masses.
- **Asian Carp Plan**—The USFWS has hired a coordinator for the Asian carp national management plan and will explore an implementation committee and funding plan.
- **Triploid Grass Carp Inspection and Certification Program**—The USFWS will explore funding an independent scientific review and evaluation of this program.
- **Ballast Water Regulation**—Commander Croot summarized the complex review process for the proposed rulemaking. Once available for public review, everyone should review the draft rule and provide comment so that the final rule addresses their concerns. Public meetings will be held throughout the country. He thinks the final standard will be available this time next year. NISA authorizes states to have stricter standards than the federal one.
- **Risk Assessment Screening Tools**—Michael Hoff, USFWS, was scheduled to talk about risk assessment screening tools later in the meeting. (See page 13.)
- **ANS Lists**—McKnight will share the MARP's list of ANS of special interest with other panels as a potential model.

Public Comment

Jason Goeckler, representing himself, spoke about a U.S. Bureau of Reclamation's idea to stock black carp (*Mylopharyngodon piceus*), an injurious species, to control quagga mussels, a species that is not designated injurious. He was discouraged to hear about a federal agency working against actions of a sister federal agency. Co-chair Frazer agreed to look into the matter and noted the need for further discussions about conflicting actions.

Janet Clark, Center for Invasive Plant Management at Montana State University, discussed six regional invasive plant centers around the nation. They have broad representation on their boards and met for the first time in Indianapolis, IN, in January. There, participants came up with four areas needing national attention, one of which was helping with cooperative weed management areas. Within a couple of weeks, a Google map was available for people to post the cooperative weed management areas all over the country. She was pleased that the groups could act so quickly and supplement actions of the federal agencies. She also invited people to a reception that evening.

May 20 Field Trip

Over 40 people visited a number of spots to learn more about ANS issues in Montana. First they visiting Darlinton Ditch west of Bozeman to see the invasive New Zealand mudsnail. Stacy Schmidt, a

fish technician from the Montana FWP, showed how they sampled the substrate and pointed out various native and nonnative fauna in the sample.

Next, the group visited Missouri Headwaters State Park, which encompasses the confluence of the Jefferson, Madison, and Gallatin rivers and forms the headwaters to the Missouri River. Park Manager Ray Heagney took people to a rocky outcrop from which they could view all three rivers. He also shared stories from the Native Americans who historically used the site and from Lewis and Clark's expedition two centuries earlier.

Canyon Ferry Reservoir was next on the tour. The vans drove up the west side, through Townsend, and past Ryce's house to picnic at White Earth Campground, with a superb lunch provided by the Montana FWP. Eric Roberts spoke about the historic trout and yellow perch fishery at the reservoir before walleye were introduced, likely by a sportsman. The main concern is that anglers will introduce forage species, with unintended and possibly tragic consequences.

The group continued north around the end of the reservoir and then south on the east side of the reservoir, stopping to visit a section of Whites Creek that had been restored from a century of mining impacts. People were able to see native westslope cutthroat trout (*Oncorhynchus clarkii lewisi*). Biologist Lee Nelson, Montana FWP, talked about the isolated populations of cutthroat and the effects of brook trout (*Salvelinus fontinalis*) on these populations. A downstream barrier prevented brook trout from attaining the reclaimed stream.

May 21 Planning for Future Meetings

After thanking the WRP and Montana FWP for the previous day's field trip, Co-chair Frazer recommended that future ANSTF meetings be held the last weeks of January and June since January precedes the budget process and June is generally slow. As with the current schedule, the January meeting would be held in Washington, DC, and the June meeting would be hosted by a regional panel. Members commented that June is very busy for agency employees, the holidays interfere with winter meetings, and two meetings per year seemed sufficient. The ANSTF tentatively agreed to hold meetings the first weeks of November and May. Members suggested several topics, including progress toward tasks of the strategic plan and NISC management plan, screening working group, and risk analysis. Executive Secretary Mangin will work with the panels to schedule rotating spring meetings. The NEANS Panel offered to host the meeting in Maine in 2010 or Rhode Island in 2011. The focus for the fall 2009 meeting will be the strategic plan.

Utah State Management Plan

Larry Dalton, Utah Division of Wildlife Resources, discussed the state's AIS management plan, which has undergone a thorough review by the state and ANSTF. A growing and changing number of aquatic invasive species are threatening Utah. Inadvertent movement of AIS by recreational boaters is the largest threat, seconded by the natural flow of water, including manmade diversions. But aquarium discards are a major pathway, and unlawful bait releases have added to the problem. Also of concern are hatchery releases, where whirling disease originated in 1992, and water movement by industry. The management plan targets dreissenid mussels and the New Zealand mudsnail but includes a limited effort to manage Eurasian watermilfoil. Voluntary public compliance is necessary, especially getting boaters and anglers to clean, drain, and dry after each boating trip.

From a maintenance perspective, quagga or zebra mussel costs in the West are expected to exceed those for the East and Midwest: Costs in Utah alone will likely exceed \$15 million per year. Dreissenids also affect outdoor recreation economically, especially angling and boating, and pose a risk for the entire West. Utah Senate Bill 238 was passed in 2008 to protect Utah's waters from dreissenid mussels and gave the state the necessary authority to act. Accomplishments in 2008

included completing a successful outreach and awareness campaign, conducting boat inspections, determining at-risk waters, drafting an AIS water certification process, and sampling 38 waters for early detection. Utah's AIS future requires vigilance, but funds are uncertain.

One pathway not addressed in the plan is water movement through firefighting efforts since the Forest Service works so closely with the Utah Division of Wildlife Resources. (Other federal and state agencies that fight fires use the Forest Service's exceptional protocol.) Dalton hopes they can reach the same level of cooperation regarding industrial water movement. The group also discussed two infested sites in Utah: Electric Lake in Emery County and Red Fleet Reservoir in Uintah County. The ANSTF conditionally approved Utah's plan, pending Dalton's revisions.

Comment [ELJ1]: Can't remember how we deal with these.

Lake Tahoe Region AIS Management Plan

Steve Chilton, USFWS, discussed Lake Tahoe, which is famous for recreation, has a high residence time for water (700 years), and faces considerable developmental pressures. The Lake Tahoe region has two regional regulatory authorities: the Tahoe Regional Planning Agency and California Regional Water Quality Control Board–Lahontan Region. Passing the same regulations in California and Nevada has been difficult since many agencies disagree on how the lake should be managed and the region is classified as an outstanding national water resource, with state and federal nondegradation standards that are difficult to attain. Also, the area has demonstrated impacts of existing AIS, and continued threats from new introductions necessitate a plan. AIS already present include aquatic plants, fish, Asian clam, and bullfrog (*Rana catesbeiana*), but the main species of concern for introduction are quagga and zebra mussels. Boaters come to Lake Tahoe from many different areas, and despite best efforts, two boats with zebra mussels were stopped just before launching there.

Plan development has been extensive in both states, with leadership and funding provided by the U.S. Army Corps of Engineers and assembly by Tetra Tech. The process involves significant oversight and a number of funding partners and private donations. Priorities for the Lake Tahoe region include prevention, monitoring, control, education, and research.

The ANSTF discussed funding—over \$1 million has been spent in the last two years—and asked about efforts to encourage Nevada to write an ANS management plan. The Nevada Department of Wildlife is looking at this management plan as a basis for its plan.

Working Group and Committee Updates

The ANSTF then heard updates from the newly invigorated Nonnative Wildlife Screening Working Group (formerly Aquatic Organism Screening Working Group) of the joint ANSTF–NISC Prevention Committee, the Research Committee, and the Prevention Committee itself. The other three committees—Control; Communication, Education, and Outreach; and Detection and Monitoring—did not report since they had not met since the fall 2008 ANSTF meeting.

Nonnative Wildlife Screening Working Group

At the fall meeting, the ANSTF had approved Michael Hoff, USFWS, as chair of the Aquatic Organism Screening Work Group and assigned it to refine the joint MRBP–GLP recommendation about a model risk assessment/risk management process and provide an update at this meeting. Hoff presented not only on results of reviewing the rapid screening process developed by the MRBP, but also on providing more detailed recommendations about the scientific evaluation of screening and other risk assessment processes for the purpose of developing a model.

The first step was reorganizing and renaming this work group of the joint ANSTF–NISC Prevention Committee. The renamed Nonnative Wildlife Screening Working Group (SWG) now encompasses terrestrial species as well. Richard Orr, NISC, worked diligently before his retirement to build and

affirm membership in the working group. Under NISC and the Task Force, the group needs to develop roles and responsibilities and terms of reference. Its responsibilities are to develop a draft screening process and report to the Prevention Committee and to the ANSTF and NISC. Terms of reference were discussed by members, but despite not being resolved, the working group is moving forward.

Hoff then shared member comments on the screening process developed by the MRBP, as well as the responses to those comments. No major problems or flaws were found in the screening process, but Hoff developed a flow chart for the entire risk assessment/risk management process to include in the revised screening document, and he modified the process for using results from Google Scholar searches. He will submit the latest draft for review, add decision-support tools and other materials when available, and continue to work with Canadian and Mexican agency staffs.

He then reported on the scientific evaluation of rapid screening and other pre-import risk assessments. This action item also arose from a joint MRBP–GLP recommendation: “If any member of the ANSTF will issue a RFP for AIS research, then we recommend consideration of a project to evaluate existing screen [and other risk assessment] processes...” The Task Force determined that more detail was needed before action was possible. The screening process discussed above is based on science, but it has not been evaluated during comparative testing with other risk assessment systems.

Hoff reviewed project objectives, methods, and deliverables for the proposed evaluation. Methods included developing a database for the United States with information for species in several categories and convening a couple of workshops for experts to assess species in the database and tabulate screening results. After the workshops, a report will be written about the strengths and weaknesses of each screening and risk assessment process. It will also guide development and testing of a “gold standard” screening process, if one exists, for either the entire country or large ecosystems within it. Presentations will also be made to the SWG, Prevention Committee, ANSTF, and NISC. In addition, electronic versions of the species databases used in the evaluations and the report will be distributed. Hoff estimated the cost for the project, with the various subtasks within it to be at least \$150,000.

Research Protocol

David Reid, NOAA and chair of the Research Committee, reported on the recent revision of the *Protocol for Evaluating Research Proposal Concerning Nonindigenous Aquatic Species*, originally adopted in 1994. In a 2008 review, the committee had found the protocol to be outdated, wordy, and overly prescriptive. Although a Research Protocol Committee was mentioned in the document, that committee had responsibility only for drafting the original protocol and ceased to exist once it was adopted. Based on additional guidance from the ANSTF, the Research Committee updated the research protocol, seeking to streamline it to facilitate use and make it less prescriptive. Reid summarized changes that were made and compared the two documents. Overall, the new document is considerably shorter and should be easier to use. The Hazard Analysis and Critical Control Point (HACCP) approach is recommended for preparation of containment plans. And the Research Committee proposes to move appendix information to the ANSTF website where it can be updated.

Reid then requested that the Task Force review and comment on the draft revised protocol, thoroughly test the efficacy of the risk assessment section, and provide suggestions on the reporting/penalties language and appendices. He also suggested August 3 as the deadline for ANSTF agency comments, which will go to Executive Secretary Mangin for harmonization. The compiled comments will be forwarded to the Research Committee for appropriate changes, and a final draft will be officially recommended to the Task Force at the fall 2009 meeting, if possible. Executive Secretary Mangin agreed to send a transmittal letter and the draft research protocol to ANSTF members for a 60-day review and comment.

Comment [dfr2]: I believe the process is the Committee will formally recommend the revised draft to the ANSTF at the fall meeting, which may vote to adopt at that time, but also has to put them out for public comment prior to final adoption. So best to leave off reference to approval at this time since I'm not sure of the process.

Prevention Committee

Mindy Wilkinson, Hawaii Department of Land and Natural Resources on detail with NISC, reported on Prevention Committee work. The committee has an updated membership list and roles and responsibilities, but a major portion of the work has been that of the renamed Nonnative Wildlife Screening Working Group previously presented by Michael Hoff. (See p. 13.)

The Risk Analysis Working Group, chaired by Cindy Kolar, U.S. Geological Survey, has also been active, reviewing and updating the 1996 *Generic Nonindigenous Aquatic Organisms Risk Analysis Review Process*. The revised document will not solely focus on aquatic organisms but will instead address all animals regardless of their introduction pathway.

The Prevention Committee met April 30 and agreed with a recommendation before the ANSTF that its role was generally advisory. Wilkinson added that Richard Orr's position at NISC will likely be split into an international coordinator and Prevention Committee coordinator. She emphasized the need for a strong committee chair and a shift among agencies from species orientation to habitat orientation for funding.

Discussion of Committee Requests

Following the presentations, the ANSTF discussed issues raised by the committees and SWG:

- **Refocusing ANS Efforts**—Wilkinson believes that more resources will be available if research efforts are refocused on understanding climate change effects on species movement. Such refocusing may facilitate working with industry as well.
- **Screening and Risk Assessment**—Hoff was asked to continue moving toward a study of comparative evaluation of screening and other risk assessment systems.

Invasive Fish: Control Efforts and Impacts to Native Species in the Northern Rockies

Clint Muhlfeld, research aquatic ecologist with the U.S. Geological Survey–Northern Rocky Mountain Science Center, discussed effects of invasive fish to cutthroat trout and bull trout (*Salvelinus confluentus*). The Northern Rockies are arguably the most intact ecosystem and provide good habitat for native salmonids and other fish. But the majority of population declines and extinctions are linked to invasive species, intentional and unintentional. Hybridization with invasive species results in the loss of gene complexes and ecological adaptations, thereby threatening the persistence of many rare and endangered species. Because westslope cutthroat and the other 11 extant cutthroat subspecies readily hybridize with rainbow trout in western North America, hybridization is the leading factor in the cutthroat's decline. Hybridization occurs more in warmer, degraded drainages and rapidly reduces fitness, with a 50 percent fitness decline when the proportion of rainbow trout admixture reaches 20 percent. In the North Fork Flathead River, hybridization increased greatly from 1984 to 2002. To conserve native species, managers must reconsider policies that protect hybrids, eradicate hybrid sources, and protect nonhybridized populations. Conservation and nonnative fish suppression efforts have included barrier installation, manual and chemical removal, and habitat complexity enhancement and protection.

Another species of concern is bull trout, listed as threatened under the Endangered Species Act, whose populations are declining from habitat degradation and fragmentation and introduction of nonnative species. Introduced northern pike can negatively impact native salmonids, but the greater threat is invading lake trout (*Salvelinus namaycush*). In Glacier National Park, a dramatic decline in bull trout populations is directly associated with these invading lake trout. Of the 16 Montana lakes west of the Continental Divide in Glacier National Park, 10 are already invaded, and bull trout populations in these lake have dramatically declined. In fact, some may be at imminent risk of extirpation unless effective conservation and management programs are implemented immediately. Therefore, managers

are trying to suppress lake trout populations in one small lake by assessing demographics, identifying timing and spawning location, implementing a removal program, assessing its effectiveness, and participating in experimental and innovative suppression techniques.

Jackson Gross, also with the U.S. Geological Survey, spoke about destroying lake trout embryos in natural settings to enhance native trout persistence. Many invasive fish exist, but few methods of managing them have proven successful. Since lake trout invaded, Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*), the keystone species for the ecosystem, has declined dramatically. Innovative conservation technology aims to remove and destroy specific life stages of adult lake trout, yet managers may have to apply multiple removal tools, including physical, biological, and chemical methods. Electricity, carbon dioxide, ultraviolet light, seismic air guns, and diet modulation are being studied. The group discussed welfare considerations for eradication.

Invasion Issues for Pay Fishing Lakes

Doug Keller discussed ANS and pay fishing lakes (termed “paylakes”) in the eastern United States. Also called fee-fishing lakes, paylakes are stocked with trophy-sized fish and fished competitively. Paylake operations are numerous, mainly in the Mississippi River Basin, and follow various business models. Since no overarching paylake association exists, issues with these operations are hard to identify. Stocked aquaculture species include channel catfish (*Ictalurus punctatus*), bass, sunfish hybrids, tiger muskie (*Esox masquinongy* × *E. lucius*), crappie (*Pomoxis* spp.), grass carp (for weed control), and rainbow trout (for the winter fishery). Stocked wild fish are primarily catfish species but also include common carp, buffalos (*Ictiobus* sp.), bowfin (*Amia calva*), and freshwater drum (*Aplodinotus grunniens*), with most stocked wild fish coming from the Great Lakes, Chesapeake Bay, and river systems throughout the eastern and central United States. Little is known about who catches the wild fish, how far fish are transported, awareness level of state regulations, and hauling procedures.

Paylakes are a potential AIS vector, with invasives entering through intentional and unintentional transport. Various invertebrates, plants, pathogens, and parasites may be transported along with the fish into the lakes. Businesses using wild fish are probably the most problematic, and escapement risk varies by pond type. Various Asian carps have been reported from paylakes, and adult bighead carp (*Hypophthalmichthys nobilis*) were confirmed in one Indiana paylake. Little effort is focused on reducing invasive species via the paylakes vector, and many paylakes lack rules restricting leaving with live fish, so if invasive fish are present, people commonly take them home to stock private ponds. In addition, most states lack regulations specific to paylakes, although some have regulations that affect paylakes (such as disease-testing requirements or prohibited species lists). Arkansas, Kentucky, and Illinois require operator licenses.

It was noted that the term “paylake” is not used in the West, but “private pond” covers many of the same issues and the search term should be expanded for future research. In Montana, these ponds have strict regulations, and stocked fish come only from ANS-inspected facilities. Although paylakes have been largely overlooked as an AIS vector, they have been identified in three of the five panel regions. Keller recommended that the ANSTF fund a full risk assessment to evaluate paylakes as an AIS vector, at an estimated cost of between \$70,000 and \$100,000, to investigate biological and human aspects. Another option is to form a committee to determine effective standardized state regulations and generate AIS outreach materials. Co-chair Frazer commented that AIS in paylakes obviously warrants investigation, but authority appears to lie within the states. Since the ANSTF coordinates with federal agencies, the issue may be dealt with more appropriately by the American Fish and Wildlife Association (AFWA), Invasive Species Advisory Council, or a combination of agencies. Frazer will help get this issue on the agenda for AFWA’s summer meeting, while Kim Bogenschutz,

Iowa Department of Natural Resources, agreed to distribute a summary to AFWA committees and raise the issue at the next meeting in Austin, TX.

Effects of Nonnative Fishes on Northwest Salmonids

Beth Sanderson, NOAA, spoke about the effects of invasive species on Pacific Northwest salmonids. Salmonids migrate 1,000 or more miles and encounter many species during their life cycle. Up to 486 nonnative taxa are present in fourth-level hydrologic unit codes, and up to 40 nonnative fish species occur in individual watersheds in the Pacific Northwest. Roughly half of the taxa within each state are nonnative. As a result, salmon individuals, genetics, populations, communities and ecosystems are impacted. Although effects occur through a variety of mechanisms, Sanderson focused on nonnative predation because so little is known about other mechanisms such as competition, habitat alternation, and disease. Many nonnative fish species feed on salmon, and just a 12 percent increase in salmon survival helps population growth rates.

Although the Bonneville Power Administration provides considerable funding for salmonid research, very little funding has been directed toward decreasing nonnative predator risks. But Sanderson's group and others have identified important research needs, including characterizing the mechanism and magnitude of key predator impacts, identifying key geographic locations where impacts are greatest, and considering potential shifts in abundance and distribution with climate change and population growth. Case studies have been conducted on key taxa such as American shad (*Alosa sapidissima*), largemouth and smallmouth bass (*Micropterus salmoides* and *M. dolomieu*), walleye, and brook trout. Brook trout may be displacing Chinook salmon (*Oncorhynchus tshawytscha*) from important habitat due purely to their size. Diet analysis may elucidate potential competition from nonnative species. Nonnative species are abundant, can have substantial effects on salmonids, and have been overshadowed by other impacts to these species. Sanderson hopes new momentum for this issue will lead to greater funding.

During the discussion, Sanderson commented on the continual process of biological opinions on salmon issues. She could see about having the issue of nonnatives included if a new biological opinion is developed. The group also discussed the impact of popular game fish. Sanderson would like to see more mention of nonnative predation in all the recovery plans being generated.

Clean Boating Act

John Lishman, U.S. Environmental Protection Agency (EPA), gave the ANSTF an overview of the Clean Boating Act of 2008 (PL 110-288). The law was enacted July 29, 2008, and amends two sections of the Clean Water Act (CWA §§ 402 and 312). It was developed in light of the decision in the Northwest Environmental Advocates suit against the EPA and amends the CWA to provide incidental discharges from recreational vessels that do not need CWA permits. Instead, it directs the EPA to develop regulations to control such discharges. The first two phases of regulation will be conducted by the EPA, in consultation with the U.S. Coast Guard, NOAA, and states. The agency was directed to determine (by regulation) recreational vessels for which it is "reasonable and practicable" to require best management practices and develop those practices. In the second phase, the EPA will promulgate regulation establishing "performance standards" for those best management practices.

For the third phase, the U.S. Coast Guard will develop regulations governing design, construction, installation, and use of the best management practices. After the effective date of regulations, affected recreational vessels with incidental discharges into water of the United States or contiguous zone must use best management practices that meet the performance standards. These regulations will not preempt more stringent state requirements.

There are approximately 18 million recreational vessels that will be affected, not all of them in private ownership. Of these, 15 million are registered, and 3 million are not. Unregistered vessels typically include such vessels as kayaks and canoes. Some of the vessels agencies use for research or other purposes may be considered recreational if they were manufactured for recreational use. Discharges that are implicated in the law include any discharge other than sewage that is incidental to normal operation and exempted from permitting by CWA § 402(r), such as graywater, bilge water, cooling water, weather deck runoff, and discharges that may contain ANS, among others.

Currently, the EPA is reviewing and summarizing existing best management practices in use at the state, local, international, and organizational levels. Those involved in the project are also compiling existing state and local regulations and coordinating with the U.S. Coast Guard. Next steps include outreach to interested state and federal agencies, development of supporting documentation, and drafting of the proposed rule.

ANSTF Member Updates

ANS members were asked to provide brief updates from their organizations.

- **National Oceanic and Atmospheric Administration**—Pat Montanio reported that Mary Glackin, Deputy Under Secretary for Oceans and Atmosphere, is acting co-chair of the ANSTF until political appointments are made.
- **U.S. Geological Survey**—Sharon Gross said that the budget for fiscal year 2010 looks static, but funding opportunities for ANS may increase if the issue is recast as a climate change issue. The Nonindigenous Aquatic Species (NAS) database funding is static, but programming changes are needed to make the database more responsive. The agency is supporting research on nutria (*Myocaster coypus*), Asian carps, and genetic characterization of several invasives to see what they have in common that makes them well-suited to invasion.
- **Association of Fish and Wildlife Agencies**—Kim Bogenschutz, Iowa Department of Natural Resources, reported as new vice-chair of AFWA's Invasive Species Committee. The new chair is Tom Remington, Colorado Division of Wildlife. Remington now represents AFWA on the Invasive Species Advisory Council, and Bogenschutz on the Task Force. AFWA is developing a better contact network for state invasive species coordinators, distributing quarterly newsletters to the states, incorporating invasive species (as stressors) into state wildlife action plans, and coordinating with the working group studying invasives that could serve as biofuel. Larry Riley, Arizona Game and Fish Department and former representative to the ANSTF, is busy on HR 669, the Nonnative Wildlife Invasion Prevention Act.
- **Mississippi Interstate Cooperative Resources Association**—Greg Conover, MICRA Coordinator, stood in for the chair, Chris O'Bara, West Virginia Division of Natural Resources. MICRA is the host agency for the MRBP and continues to provide support for coordination, administration, and projects. MICRA formally adopted the MRBP as its ANS committee, so most ANS accomplishments and activities were addressed earlier. (See p. 10.) Like the MRBP, MICRA is concerned about the USFWS's Triploid Grass Carp Inspection and Certification Program, including standard operating procedures used on farms for handling and keeping diploid and triploid stocks separate before and after inspections. The organization is also concerned about how the program is supported by receiving states with inspections and enforcement of state regulations. Many states within the basin rely on the program. At least one state has reported diploid grass carp in certified triploid shipments entering the state.

The Asian carps national management plan recommends that a regional management approach be used for grass carp, that stocking diploid grass carp be discontinued, and that states either prohibit stocking of grass carp or only allow the stocking of certified triploids. It also recommends an independent scientific review of the triploid program, and some diploid states within the basin

have expressed a need for such a review before further considering a change from diploid to triploid regulations. MICRA wants the recommended review completed soon and has requested that the MRBP take a lead role in initiating the review. MICRA would like to see federal funding for implementing the Asian carps plan used to fund the recommended review in 2010.

MICRA helped the panel organize and host a mock rapid response exercise to an AIS introduction in the Mississippi River Basin. As a follow-up to that training exercise, MICRA has encouraged the panel to move forward with developing a model AIS rapid response plan for the basin. Thanks to NOAA for considering funding to help complete this plan.

MICRA and the MRBP are participating on the Chicago Sanitary and Shipping Canal AIS Dispersal Barrier Rapid Response Planning Team to prevent introduction of Asian carps into the Great Lakes. In addition, the MICRA Executive Board meets in July and will discuss the possibility of developing a strategic plan for restoring the basin, along the lines of the Great Lakes Regional Collaboration. Habitat and AIS will be key focal areas in the plan.

- **U.S. Army Corps of Engineers**—Linda Nelson delivered the update in Al Cofrancesco's absence. Of stimulus money to the agency, \$6 million will go for invasive species management programs, although Nelson wasn't sure how much of that was dedicated to aquatic resources. Funding for the two research programs for aquatic invasives remains stable.
- **National Association of State Aquaculture Coordinators**—Scott Leach, filling in for Paul Zajac, reported that NASAC is involved in a number of projects he heard about here, including the Nonnative Wildlife Screening Working Group and paylake issue. The association is also looking forward to participating in the implementation committee for the Asian carps management plan.
- **San Francisco Estuary Partnership**—The SFEP sits on the ANSTF, WRP, and advisory committees in California for ballast water issues. The partnership also attends boat shows and other events for outreach, although not all of its work is related to ANS. Of a \$5 million EPA grant recently awarded to the organization, \$175,000 will go to projects for *Spartina* and \$25,000 will go to research on *Littorina saxatilis*, an invasive estuarine snail.
- **U.S. Bureau of Reclamation**—Craig Albertson filled in for Michael Gabaldon to report that the USBR is becoming more involved in ANS given the 348 dams and reservoirs in 17 western states that could be damaged by quagga and zebra mussels. The agency has developed a regional focus for outreach and education, prevention and monitoring, control, and research. In 2008, \$1 million was spent on early detection, and a similar amount is anticipated for 2009. The USBR is conducting field demonstrations and research on infrastructure coatings to repel dreissenids, as well as developing long-term engineering solutions. The agency is working with the U.S. Army Corps of Engineers on a manual for inspecting and cleaning equipment. With Recovery Act funding of \$4.5 million, the USBR is identifying over 60 at-risk reservoirs to monitor. The main concern is that results of monitoring are communicated properly.
- **American Water Works Association**—American Water Works Association-John DeKam, Bay Metro Water Treatment Plant, has represented the AWWA on the Task Force almost since its inception. AWWA was created to serve the drinking water communities and has 60,000 dues-paying members and 47,000 utility members. Surface water is regulated by state agencies, although most regulations come through the EPA. He commented on the need for good communication between ANSTF member agencies treating reservoirs and other surface water sources for ANS and the drinking water suppliers. Because of high volumes of surface water processed every day the water suppliers may often detect ANS at an early stage of introduction, but they often do not recognize the threat. Likewise, when ANS management agencies make plans to treat a body of water, the drinking water treatment plants should be made aware of those plans well in advance. AWWA can certainly help with this communication. DeKam agreed to

email a document about quagga and zebra mussels to Executive Secretary Mangin to make available to interested parties.

- **U.S. Environmental Protection Agency**—John Lishman had already reported on the Clean Boating Act. (See p. 17.)
- **U.S. Coast Guard**—Commander Croot commented that the ballast water discharge standard was submitted to the Office of Management and Budget on May 18. In accordance with the Administrative Procedures Act and Executive Order 12688, the Office of Management and Budget has distributed the notice of proposed rulemaking to interested agencies for their review, during which time the U.S. Coast Guard will consult with other federal agencies on it. Following this 90-day consultation, the notice of proposed rulemaking will be posted in the Federal Register, and the general public will have an opportunity to provide comments. Public meetings will also be held this fall in Seattle, New Orleans, Chicago, and Washington, DC. The 59th session of the Marine Environment Protection Committee will meet in July, while the Subcommittee on Bulk Liquids and Gases met in March. The International Maritime Organization’s Ballast Water Convention has not yet entered into force; approximately half the countries with the requisite tonnage have deposited their instruments of ratification. Regarding the best management practices for recreational vessels mentioned earlier by John Lishman, EPA, any best management practices that are developed to reduce the introduction and/or spread of ANS—such as those for live bait wells—could be incorporated into regulations. He encouraged the ANSTF to develop such products that could quickly and easily be included in regulations.
- **U.S. Maritime Administration**—Michael Carter reported on MARAD’s relationship with academies and its plan to provide ANS training. Although the organization has challenges with funding, two ships in Baltimore are being used as technology platforms, with two or three technologies scheduled for this summer. MARAD is also finishing four years of hull-fouling studies and will share results soon.
- **U.S. Bureau of Land Management**—Tom Mendenhall informed the Task Force that the BLM manages more land than any other federal land management agency and has a strong threatened and endangered species program. The aquatic program receives approximately \$13 million a year, administered from the Washington office. The ANS program is new but gaining importance within the BLM. Several new initiatives requesting congressional increases in funding include the Renewable Energy, Climate Change, and Healthy Landscapes initiatives. Projects such as the Crowley Lake access closure for quagga mussels containment in California demonstrate that the BLM is actively pursuing management options in certain areas. He plans to have all BLM offices aware of ANS issues and addressed through BLM leadership, as well as a dedicated ANS funding stream (starting in 2011) from the Washington office to state offices with identified needs.
- **National Park Service**—Filling in for Bert Frost, John Wullschleger said that numerous activities relating to ANS prevention and removal are happening in the NPS’s 178 management units. He listed a nonnative fish restoration project, nonnative vegetation and fish removal efforts, and containment and prevention programs in three Colorado River parks. This year, veligers were detected visually in a sample, but nothing was detected in subsequent samples. Unfortunately, resources are insufficient for a group of other at-risk parks.
- **Great Lakes Commission**—Per Kathe Glassner-Shwayder, the GLC project work focused on organisms in trade in the region to characterize different pathways, identify the point at which the risk is highest for introduction, and determine tools to help reduce that risk. The commission is building stronger communication with industry to identify areas with potential for working together to reduce AIS risks associated with organisms-in-trade operations. Results of this work should lead to opportunities to collaborate with other entities on risk assessment, Internet monitoring, best management practices for aquaculture, and others. Coordination of ballast water

regulatory programs in the Great Lakes remains a priority to be addressed at the GLP's spring meeting in New York state. The GLC has maintained advocacy efforts on AIS prevention and control, lobbying for comprehensive legislation to address all vectors of AIS introduction and spread, as well as increased funding for the regional panels and state ANS management plans. In May, commission staff participated in a national AIS screening fly-in supporting the Nonnative Wildlife Invasion Prevention Act (HR 669), which provides for a proactive, scientifically based approach to screening to prevent importation of high-risk nonnative wildlife species into the United States. Glassner-Shwayder emphasized the importance of advocating for AIS screening through HR 669. Recently, President Obama announced \$475 million in funding for the most urgent threats to the Great Lakes, and a portion will be directed to AIS prevention.

- **U.S. Fish and Wildlife Service**—Per Co-Chair Gary Frazer, USFWS funding for ANS is flat, although there was an increase associated with the Great Lakes Initiative. He agreed with others that ANS issues should be framed within the context of climate change and stressors of protected species. He is involved in an effort to establish a new federal program addressing importation and interstate transport of invasives. In the meantime, existing authorities under the Lacey Act are being used.

Northern Snakehead in Arkansas

Michael Armstrong, Arkansas Game and Fish Commission, described the bold actions taken toward northern snakehead (*Channa argus*) eradication from the Piney Creek watershed in eastern Arkansas. This project, a cooperative endeavor among the USFWS, state fish and game agency, and others, was based on an incident command system (ICS), with training from the Arkansas Forestry Commission, the enforcement division of the Arkansas Game and Fish Commission, and the Federal Emergency Management Agency.

The northern snakehead has been in the United States for almost a decade, and the Piney Creek population is the only self-sustaining population known to occur in the Mississippi River Basin. A fish farmer brought an unknown species to his ponds, and then he had the species identified by local authorities as northern snakehead. He eradicated the fish from his ponds but may have inadvertently released some to the Piney Creek watershed. This 50,000-acre watershed includes 39 miles of creek channel, 2,000 acres of backwater, and 400 miles of ditches; the land is flooded from July through September for rice farming.

Eradicating the species involved aerial and ground applications of liquid and powdered rotenone. As a result of these efforts, successful fish kills were achieved in all treatment areas. Post-treatment assessment will begin in the summer of 2009 to determine the presence of any remaining snakeheads. A long-term monitoring program is anticipated. Over 120 people were involved in the project, with a total project cost of \$572,500.

The group discussed the planning process of the project, which was among the first ANS efforts using ICS. California also used an ICS when quagga mussels were found in Lake Mead. Afterward, California rewrote its rapid response plan based on lessons learned. Armstrong wished that they had had a reconnaissance team preceding the strike teams to identify waters not on the map or impediments (such as locked gates) that might pose a problem the next day. Armstrong also recommended training management staff because an ICS uses specific terminology. He agreed to distribute the planning document ahead of the upcoming final report.

Closing Business and Adjournment

The ANSTF reviewed decisions and action items, revising or clarifying as necessary. Executive Secretary Mangin and Co-Chair Frazer thanked the WRP and Montana FWP for hosting the meeting.

Eileen Ryce also thanked those who helped plan the meeting and hoped that participants left with a better understanding of western issues. The meeting was adjourned at approximately 4:36 P.M.