

NATIONAL INVASIVE SPECIES COUNCIL (NISC)

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INVASIVE SPECIES ADVISORY COMMITTEE (ISAC)

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MEETING

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TUESDAY  
DECEMBER 1, 2009

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MINUTES

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The Committee convened at 8:00 am in the Washington Ballroom of the Westin Grand Hotel, 2350 M Street, NW, Washington, D.C., E. Ann Gibbs, ISAC Chair, presiding.

**COMMITTEE MEMBERS PRESENT:**

E. ANN GIBBS (Chair)  
JAMIE REASER, (Vice-Chair)  
AMY FRANKMANN (Secretary)

PETER ALBERT  
NANCY BALCOM  
LESLIE CAHILL  
EARL CHILTON, II  
JANET CLARK  
JOSEPH M. DITOMASO  
OTTO DOERING, III  
SUSAN ELLIS  
SCOTT HENDRICK  
PHYLLIS JOHNSON  
ERIC LANE  
KATHY METCALF  
ROBERT MCMAHON  
EDWARD MILLS  
STEPHEN PHILLIPS  
STEVEN JAY SANFORD

Maine Department of Agriculture  
Pet Industry Joint Advisory Council  
Michigan Nursery and Landscape  
Association  
University of Massachusetts  
Connecticut Sea Grant  
American Seed Trade Association  
Texas Parks and Wildlife Department  
Montana State University  
University of California, Davis  
Purdue University  
California Department of Fish and Game  
National Conference of State Legislatures  
University of North Dakota  
Colorado Department of Agriculture  
Chamber of Shipping of America  
University of Texas at Arlington  
Cornell University  
Pacific States Marine Fisheries Commission  
New York State Department of  
Environmental Conservation

KRISTINA SERBESOFF-KING  
CELIA SMITH  
NATHAN STONE  
DOUGLAS W. TALLAMY  
JOHN TORGAN  
JENNIFER VOLLMER  
DAMON E. WAITT  
ROBERT H. WILTSHIRE

The Nature Conservancy  
University of Hawaii  
University of Arkansas at Pine Bluff  
University of Delaware  
Save the Bay  
CPS Timberland  
University of Texas at Austin  
Center for Aquatic Nuisance Species

**COMMITTEE MEMBERS ABSENT:**

TIMOTHY MALE  
THOMAS REMINGTON  
DAVID E. STARLING

National Fish and Wildlife Foundation  
Colorado Department of Natural Resources  
Aqueterinary Services, P.C.

**NISC STAFF PRESENT:**

DELPHA ARNOLD  
KELSEY BRANTLEY  
CHRISTOPHER (CHRIS) DIONIGI

Office Manager  
Program Analyst and ISAC Coordinator  
Acting Executive Director

**NISC POLICY LIAISONS PRESENT:**

MARGARET (PEG) BRADY  
A. GORDON BROWN  
HILDA DIAZ-SOLTERO  
PETER EGAN  
BRUCE LEWKE  
ARNOLD KONHEIM  
A. DAVID MILLER

U.S. Department of Commerce (NOAA)  
U.S. Department of the Interior  
U.S. Department of Agriculture  
U.S. Department of Defense  
U.S. Department of Homeland Security  
U.S. Department of Transportation  
U.S. Department of State

**WELCOME / MEMBER INTRODUCTIOS**

Chair Gibbs called the Advisory Committee meeting to order at 8:02 a.m. Chair Gibbs made brief remarks about the meeting theme of climate change and invasive species and called for introductions.

**APPROVAL OF MINUTES FROM MAY 2009 MEETING**

Chair Gibbs called for the approval of the minutes from the May 2009 meeting. Vice-Chair Reaser had two corrections: 1) paragraph three of the third page under the heading NISC Staff Report, the last line should read, "she is also temporary chair of the Joint NISC ANSTF Prevention Committee." 2) on the final paragraph of the third page the name of the "Commission on Economic Cooperation (CEC)" should be changed to the "Commission on Environmental Cooperation." Dr. DiTomaso said that the second to last paragraph of the biofuels presentation on page nine of the minutes should read, "Such a plan should cover multiple years and will resemble an eradication program." Dr. DiTomaso noted that in the second to last page of the minutes under the heading, Scheduling of the Fall 2009 and Spring 2010 meetings, his name should be changed from Jeff to Joe.

Ms. Clark said that in the Members Forum the last line of her comments should read "...NGOs concerned with invasive species" instead of "endangered species." Ms. Diaz-Soltero said that the summary minutes should have page numbers.

Dr. Vollmer moved that the minutes be accepted with the corrections. Vice-Chair Reaser seconded. The minutes were approved unanimously.

## **NISC STAFF REPORT**

Dr. Dionigi, NISC Acting Director, gave the staff report and response to ISAC recommendations. He noted that largely through the work of Kelsey Brantley, NISC has been able to re-launch its website. NISC is continuing to make improvements to the website: [invasivespecies.gov](http://invasivespecies.gov).

In August ISAC had its first web-based meeting on biofuels. The web meeting format is a good mechanism for ISAC to address issues that are time urgent.

ISAC 6 is done. Dr. Dionigi said that the process was very difficult given the high quality of candidates that applied.

Phil Andreozzi is in Guam working on a biosecurity plan that will result from a planned military buildup on the island.

Dr. Dionigi thanked the ISAC Steering Committee for its yeoman effort in coordinating the agenda for the meeting, especially Vice-Chair Reaser.

Most of the recommendations referred to biofuels. Responses to recommendations from USDA were in the meeting binder. There has been progress under the Sentinel Plant Network and there are proposals before the Animal and Plant Health Inspection Service (APHIS) to start building the basic infrastructure behind the network.

NEPA (National Environmental Policy Act) guidance around invasive species continues to be a big issue and NISC has met with the Council on Environmental Quality (CEQ). Research on biological control using microorganisms is very interesting. Lloyd Gamble from the State Department is taking a look at some of the issues around the recommendation.

Dr. Dionigi was not sure about how to go about implementing Recommendation 14 regarding trying to parse out data on what is going on in the economy and its relationship to work that is going on with invasive species.

Dr. Dionigi said that NISC hopes to move forward with Recommendation 12 in the spring. Ms. Metcalf added that the Advisory Committee should have a discussion on how ISAC can come face-to-face with NISC on a regular basis. Ms. Diaz-Soltero said the agencies and NISC staff have been diligent in working on this process. Perhaps ISAC should send a letter from the Chair to CEQ detailing the urgency of meeting with NISC.

There has been talk of having a NISC meeting to approve the NEPA guidance in conjunction with National Invasive Species Awareness Week (NISAW).

## ISAC BIOFUELS PAPER

Dr. DiTomaso gave a brief update on the biofuels paper. After the Tucson meeting the biofuels group came up with nine (9) recommendations.

***Biofuels Recommendation 1:*** Review/strengthen existing authorities. Identify federal authorities relevant to biofuels. Determine their likely influence on biofuel invasiveness (i.e., prevention or facilitation). Identify gaps and inconsistencies in authorities within and among federal departments or agencies. As appropriate, develop policies and programs to minimize invasion risk.

***Biofuels Recommendation 2:*** Reduce escape risks. In order to determine potential biofuel benefits and risks, the invasive potential of each candidate biofuel crop needs to be evaluated in the context of each region proposed for its production. Use/promote species (including unique genotypes) that are not currently invasive and are unlikely to become invasive in the target region. Choose species or cultivars with a low potential for escape, establishment and negative impact. Where appropriate, implement mitigation strategies and plans to minimize escape and other risks.

***Biofuels Recommendation 3:*** Determine the most appropriate areas for cultivation. Ideally, biofuel crops should be propagated in containable systems (e.g., terrestrial or aquatic sites constructed specifically to cultivate biofuel crops) and be unable to survive outside of cultivation. Use research findings to identify the most appropriate sites (e.g., unlikely to impact sensitive habitat or create disturbances that will foster invasion) for cultivation of biofuel crops within landscapes. Support for biofuel research and demonstration projects will require site selection that minimizes the potential escape of plant species or cultivars to sensitive areas and the loss of wildlife habitat.

***Biofuels Recommendation 4:*** Identify plant traits that contribute to or avoid invasiveness. Incorporate desirable traits (e.g., sterility or reduced seed production, inability to regenerate by stem fragments) into biofuel varieties to minimize their potential for invasiveness. Use information from plant research, agronomic models, and risk analyses to guide breeding, genetic engineering, and variety selection programs.

***Biofuels Recommendation 5:*** Prevent dispersal. Develop and coordinate dispersion mitigation protocols prior to cultivation of biofuel plants in each region or ecosystem of consideration. Implement a comprehensive plan, appropriate to the specific crop, throughout the cultivation period. Examples of dispersal mitigation measures include the use of sterile cultivars, species not likely to genetically mix with other plants (different species or cultivars), harvesting prior to seed maturity, cleaning equipment, and minimizing propagule dispersal throughout the biofuel production cycle.

***Biofuels Recommendation 6:*** Establish eradication protocols for rotational systems or abandoned populations. Proactively develop multiple year eradication protocols to plan for the rapid removal of biofuel crops if they disperse into surrounding areas or become abandoned or unwanted populations (e.g., those which persist beyond desired crop rotation period).

Dr. Alpert thought that this recommendation was particularly novel. Not often do people think of a protocol for getting rid of something before the need arises.

***Biofuels Recommendation 7:*** Develop and implement early detection and rapid response (EDRR) plans and rapid response funding. Develop EDRR plans that cover multiple years to eliminate or prevent establishment and spread of escaped invasive populations. A flexible funding source needs to be in place to support EDRR.

***Biofuels Recommendation 8:*** Minimize harvest disturbance. Disturbed environments are especially prone invasion. Minimize the soil disturbance resulting from biofuel harvest by rapidly replanting, using cover crops, or employing other methods that will prevent the potential for future invasion of non-native plants from the surrounding area into the harvested site.

***Biofuels Recommendation 9:*** Engage stakeholders. Identify and employ cooperative networks (e.g., working groups and councils), communication forums, and consultation processes through which the federal agencies can work with state agencies, tribes, the private sector, and other stakeholders to reduce the risk of biological invasion via the biofuels pathway.

Dr. DiTomaso said that the subcommittee wrote a science policy paper. At the request of the editor of Environmental Science and Technology the group is preparing a feature article for the journal. Vice-Chair Reaser will be giving a presentation at NISAW on the paper. Dr. Dionigi said that the recommendations have been giving to the policy liaisons for distribution to their leads and have been posted on the website. NISC is also looking to engage the Department of Energy on this topic.

Dr. Doering noted that the process of putting the paper together was a good process.

## **NISC MEMBER DEPARTMENT REPORTS**

### ***Arnie Konheim, U.S. Department of Transportation (DOT)***

Mr. Konheim said that DOT has several activities that are important from the point of view of global warming. The Federal Highway Administration (FHWA) gives guidance to the states and shares information with neighboring countries (e.g., Weeds Across Borders). Bonnie Harper-Lore, the person who has been the driving force in the FHWA, retired yesterday.

FHWA has several activities related to global warming: 1) FHWA has set up two climate change pilot projects to learn the impacts to vegetation by climate change 2) FHWA explains climate change impacts in training sessions around the country 3) FHWA will not respond to public pressure with plantations of exotic trees on rights-of-way 4) FHWA underscores the importance the not planting known invasive plants.

The Federal Aviation Administration (FAA) has been assisting in the brown tree snake program and in developing biofuels. FAA is engaged in developing “drop in” alternative fuels. Drop in fuel is fuel that has the combustion characteristics of existing fuels.

The Maritime Administration, St. Lawrence Seaway Development Corporation, and the Office of the Secretary are involved in dealing with ballast water either through funding or through their own activities. The Office of the Secretary has been carrying out research on non-chemical aircraft disinsection. DOT is looking at air curtains and netting as alternatives to chemical disinsection.

Mr. Konheim has not seen what DOT’s response has been to the biofuels white paper.

Maritime Administration and St. Lawrence Seaway officials are on the board of directors overseeing the Great Ships Initiative. The Office of the Secretary has been providing funding to the University of Wisconsin at Superior for the development of a ballast water treatment facility.

Mr. Konheim said that in the highway area states have the primary role in determining what gets planted along highways. FHWA has been providing training, pamphlets, and conferences to states on species that may be of concern.

***Gordon Brown, U.S. Department of the Interior (DOI)***

Mr. Brown said that Secretarial Order 3289 is in the meeting binder. The climate change team is currently working separately from the invasive species team. Right now those on the NISC staff and liaison staff are working to develop a direct link at the political level to engage with the climate change group.

The United States Geological Survey has the lead in setting up the climate change response centers.

The Landscape Conservation Cooperatives represent an opportunity for DOI to work with a variety of stakeholders in the climate change arena and on the front of invasive species. There may be a position of deputy assistant for international and policy on the horizon in DOI that will allow the invasive species group to be more engaged with the climate change group at the political level.

With regard to biofuels, the ISAC recommendations were shared with DOI's bureaus. There has not been a formal adoption of the white paper by NISC. There have been discussions about how the paper may be utilized.

***Mike Slimak, U.S. Environmental Protection Agency (EPA)***

Mr. Slimak pointed out that the agency does not manage land but has a lot of regulations. EPA's biggest issue right now is an endangerment finding under the Clean Air Act and whether EPA can regulate carbon dioxide using the Clean Air Act (*Massachusetts v. EPA*). There is very little in that body of regulatory work that deals specifically with invasive species. The invasive species work at EPA is limited to a few offices (e.g., the Research Office, Office of Water, and the Pesticides Office).

Energy Independence and Security Act (EISA) 2007 promotes the use of biofuels. The biggest thing that EPA is working on under the Act is renewable fuel standards. The statute asks the agency to do an environmental analysis every three years looking at the environmental impacts of an increased reliance on biofuels.

Mr. Slimak discussed two regulatory updates. The first update was in regard to whether a discharge permit is necessary under the Clean Water Act if a pesticide is used over or near water. By April 9<sup>th</sup> 2011 a permit will be required. EPA hopes to issue a final rule by December 2010. The rule will cover mainly best management practices as opposed to a discrete discharge limit. The permit will impact over 365,000 applicators and nearly 6 million different applications.

As a result of a court ruling in the Northern District of California, EPA issued the Vessel General Permit (VGP) Rule (December 18, 2008). It includes all discharges incidental to the normal operation of a non-

recreational vessel that is 79ft or longer. The rule excludes recreational vessels and armed forces vessels. The Clean Boating Act of 2008 required the EPA to develop a rule establishing best management practices for discharges that are incidental to the normal operation of a recreational vessel.

Coast Guard had input into the VGP rule and EPA had input into the discharge rule. Different requirements are tending toward convergence. Mr. Slimak encouraged involvement in public hearings regarding the proposed rule.

Mr. Slimak said that states are allowed under the Clean Water Act do have the authority to write their own National Pollutant Discharge Elimination System (NPDES) permits. The pesticide statute is a national licensing statute and has not been delegated to the states.

A narrative limit to water quality would be a statement like, “Don’t discharge all of your water overboard,” as opposed to a specific number.

***Margaret Brady, Department of Commerce (DOC)***

Ms. Brady gave an update about what has been going on at NOAA over the last six months. NOAA is undertaking a strategic planning exercise, Next Generation Strategic Plan. The NOAA administration is in the process of soliciting input on climate adaptation and mitigation, weather resilience, sustainable coastal communities and economies, and sustainable/resilient fisheries, habitat and species. The administrator has proposed a new line office in NOAA called the Climate Service.

NOAA received 810 proposals for grants and contracts. American Recovery and Reinvestment Act (ARRA) highlights from 2009 include: 1) San Francisco Salt Pond Restoration. This project opens and restores more than 1,990 acres of 3 former salt ponds and removes spartina. 2) Maunalua Bay Reef Restoration in Hawaii – the project restores 23 acres of coral reefs through manual removal of invasive algae. 3) Delta Ponds Restoration in Oregon aims to restore and enhance 21 acres and 2 miles of the Willamette River to riparian and wetland habitat. There were 50 projects in total. NOAA is working with the projects that do not recognize invasive species as part of the project to identify invasives as an issue.

NOAA is in the process of releasing an integrated assessment on lionfish.

Another area of concern is the opening of the arctic to increased vessel traffic and industrial uses. NOAA is in the process of developing an arctic action plan. The action plan includes monitoring for invasives. The budget situation at NOAA in the area of invasives is rather dire. NOAA wants to invest more in supporting the state aquatic nonindigenous species (ANS) plans.

The Aquatic Nuisance Species Task Force (ANSTF) held its meeting in November at NOAA headquarters in Silver Spring, Maryland. At the meeting, the ANSTF conditionally approved the Quagga-Zebra Mussel Action Plan for Western U.S. Waters. The Lake Tahoe Region Aquatic Invasive Species Management Plan was approved. The Georgia Aquatic Nuisance Species Management Plan was conditionally approved. The Minnesota State Management Plan for Invasive Species was approved. The South Carolina Aquatic Invasive Species Management Plan was approved as well. The next meeting of the ANSTF is in May 2010 in Portland, Maine.

Ms. Brady said that she was dealing with developing guidelines to address the issue of planning and design for the restoration of wetlands. NOAA does consider the restoration approach in terms of climate adaptation.

NOAA is now putting requests for full funding in their budgets for state programs. Fish and Wildlife Service is also working to put funding requests for state programs in their budget write-ups.

***David Miller, U.S. Department of State***

David Miller from the Office of Ecology and Natural Resource Conversation gave the update from the State Department. The State Department can facilitate information and contacts with specialists and government officials in foreign countries.

Lloyd Gamble, an American Association for the Advancement of Science (AAAS) science fellow will be in the office for two years. Between Mr. Miller and Dr. Gamble, the office has the capacity to deal with any issues related to invasive species.

Mr. Miller said that State is engaged in an exercise in which the Department is being asked to make suggestions for a network of hub officers. Hub officers are 10 or 12 officers posted overseas but are by their nature regional in their scope. State is asking these officers to be alert to any invasive species that arise in their regions. Mr. Miller said that there has been more active development in recent years in bringing multiple stakeholders together.

***Bruce Lewke, U.S. Department of Homeland Security (DHS)***

Mr. Lewke said that since DHS has no specific climate change or invasive species responsibilities, he outlined the DHS's interceptions. At the ports of entry for fiscal year 2009 the Customs and Border Protection (CBP) agricultural specialists intercepted and prevented the entry of invasive pests (pests, diseases, and noxious weeds). In seven cases the Smithsonian special collection retained specimens (insects) sent to them from CBP – a highly unusual occurrence. On four occasions insects were intercepted that were not described. On 42 different occasions species were intercepted for the first time at particular ports of entry. In 67 instances it was the first time a species had been intercepted nationally (65 were insects and two were diseases).

Pineapples are a great pathway for noxious weeds. Most of the pineapples coming into the U.S. come into Los Angeles, Miami, and New York.

There is no such thing as a trusted-traveler program for agricultural products.

***Peter Egan, U.S. Department of Defense (DoD)***

Through the Legacy Program, DoD has been sponsoring training courses on invasive species. The courses are designed to instruct the DoD installation-level folks on a good ecosystem basis of invasive species management and to develop partnerships. DoD is trying to help the installations manage their invasive species issues.

*Hilda Diaz-Soltero, U.S. Department of Agriculture (USDA)*

Ms. Diaz-Soltero provided a substantial written report on the USDA's activities related to invasive species to the Advisory Council. APHIS has hosted a workshop to discuss the environmental impacts of bioenergy crops. The USDA report has all of the details of the individual research projects.

The Cooperative State Research, Education, and Extension Service (CSREES) has become the National Institute of Food and Agriculture (NIFA). NIFA along with the Interagency Committee on Terrestrial Animals and Pathogens (ITAP) will host a microbial biological controls symposium in late 2010.

The plant sentinel effort is under consideration to use Farm Bill funds.

Dr. Lewis Ziska wrote a paper on invasive weeds and climate change. Dr. Ziska discusses that with warmer winters kudzu is moving further north. The paper also looks at how cheatgrass is responding to increased carbon dioxide and fires.

ISAC requested a special report on climate change activities. The report was prepared by Ms. Diaz-Soltero in collaboration with USDA climate change coordinator. Climate change work is being incorporated as a priority in all of USDA's agencies.

A recent paper by the USDA Agricultural Research Service (ARS) scientists examines three things: 1) how are invasive species likely to impact agricultural activity; 2) determine whether the efficacy of the current pest management efforts are sufficient to control invasive pests in the future; 3) identify key scientific questions that remain to be addressed; and 4) provide recommendations for a strategic approach for scientists, land managers and policy makers. The paper will be published in a peer-reviewed journal.

Page 10 of Ms. Diaz-Soltero's report contains a list of what the United States Forest Service (USFS), APHIS, ARS, and NIFA would want the ISAC to provide advice on concerning invasive species and climate change.

**PRESENTATION: INVASIVE SPECIES IN A CHANGING CLIMATE: NEW CHALLENGES AHEAD**

*Jeff Dukes, Ph.D., Purdue University*

Burning fossil fuels adds carbon dioxide to the atmosphere. If one goes back 10,000 years, carbon dioxide concentrations were 280 parts per million and now they have gone up 40%. This is a huge increase in a critical resource available to plants. Dr. Dukes presented different scenarios for warming in different parts of the world by 2025 versus the end of the century. Increases in temperature are greater than average over land. Areas that are pretty wet are going to get wetter and areas that are pretty dry are generally going to get drier.

Burning fossil fuels also changes the nitrogen in the atmosphere into something that is reactive and can fertilize ecosystems. The elements of global change have the potential to increase the prevalence of biological invaders.

Invasive species have a lot of traits that might be associated with success in new conditions and in changing environments. Invasive species are more tolerant of different climates. Species with the largest home ranges are the species that are most likely to be the most invasive in other places.

When an invasive species gets to a new location it often tries to control the location by a relationship with a biocontrol species. Potentially, the ranges of biocontrol and invasive species could be shifted away from one another. The best tool for predicting range shifts of species is modeling, in particular niche-based modeling where one examines the environmental conditions that a species occurs in currently and assume that those are the conditions that the species can tolerate and then look at where those conditions will move in the future and assume that the species will move with those shifting conditions. Despite their limitations, these models are the best at predicting where invasive species might be in the future.

Most plants will not exist on just any soil type. It would be useful to know when soil type may restrict or change the picture just from looking at climate alone. Invasive species benefit from increases in resource supply (e.g., yellow starthistle responding to elevated levels of carbon dioxide and nitrogen). Other invasives like microstegium do not respond to elevated levels of elevated carbon dioxide.

Do to changing hardiness zones, people may be bringing ornamental species to different regions of the U.S.

Climate change can affect the size of an invasive species range, its abundance within that range, and has the potential to change the per capita effect. Climate change can also affect the abundance of a particular resource (e.g., tamarix may use more water resources than native plant communities in southwestern riparian ecosystems). Native communities may also become less well adapted to the climate that they find themselves in.

It would be good to have greater prediction of what might happen with invasive species, this could be done in several ways: 1) improving the niche-based models 2) better collaboration among neighbors 3) improve the early detection network 4) better mapping 5) better database integration

Dr. Dukes did not think that wind farms would have a great impact on invasive species.

## **PRESENTATION: INVASIVE SPECIES AND CLIMATE CHANGE IN THE CHESAPEAKE BAY**

*Court Stevenson, Ph.D., University of Maryland*

Dr. Stevenson's focused on Phragmites in the Chesapeake Bay area. From early sources, the impression is that Phragmites was not around very much until Agnes Chase maps it in her book Grasses of the U.S. Kristin Saltonstall's work showed that Phragmites australis has its origin in the M haplotype in Europe and it crossed over to North America. By 1960 the M haplotype could be found across the U.S., not just in the Northeast.

The introduced variety of Phragmites is characterized by leaf sheaths that stay on the plant, sometimes basal leaf sheaths fall off of the stem, and are difficult to remove. The native variety has leaf sheaths fall off after the growing season or are easily removed if they stay on.

Sea level rise in the Chesapeake has been among the highest along the Atlantic seaboard. The entire ocean volume is heating up. The “heat engine” of the ocean is probably what is storing most of the heat. The North Atlantic experiences a great deal of steric expansion – heat is causing the water to expand, resulting in sea level rise.

Dr. Stevenson said that his team collected six marshes worth of data and mapped the colonization of Phragmites. Trains along the East Coast may have become a factor in spreading invasive propagules. Usually, if left on its own, Phragmites will invade, although it has a problem with sulfide and salinity in marshes. Phragmites dies at approximately 700 micro molar sulfidic concentration.

Phragmites may create phytotoxins without any kind of flushing and the phytotoxins build up causing plugging of the roots and rhizomes, which prevents oxygenation. Phragmites is one of the few species that is able to keep up with sea level rise (sometimes where native species cannot). Phragmites also consolidates nearby sediments. Looking at populations of fish, crabs, and shrimp – there is very little difference between areas that are infested with Phragmites and native species.

Rising temperatures will cause a shift in Phragmites northward.

Chesapeake Bay is an area where there are a lot of nutrients flowing in, which will continue to encourage Phragmites propagation.

## **MEMBERS FORUM**

***Nancy Balcom – University of Connecticut:*** Local researchers found a new species of tunicate called clavelina in the mouth of the Thames and in Stonington Harbor.

***Phyllis Johnson – University of North Dakota:*** There is a plan in North Dakota to be on the look out for emerald ash borer (which is currently in St. Paul, Minnesota).

***Kathy Metcalf – Chamber of Shipping of America:*** The Chamber has been dealing with hull fouling issues. The International Maritime Organization (IMO) recently adopted an anti-fouling convention. The convention gets rid of some of the nasty toxins used on ships. However, with the EU Biocide Directive, shippers may lose one of the more powerful anti-foulants.

***Damon Waitt – University of Texas at Austin:*** Texas held its statewide invasive plant and pest conference in November, hosted by the Texas Invasive Plant and Pest Council.

***Peter Alpert – University of Massachusetts:*** Found that there are about 58 studies that have looked at the commonplaceness of carbon addition to control invasive species. Carbon addition tends to be successful at decreasing the abundance of introduced species but sometimes decreases the abundance of native species. It works least well in the habitats that are least invaded and works best in restoration of abandoned farm fields where nitrogen has been added.

***Nathan Stone – University of Arkansas at Pine Bluff:*** The USDA funded Regional Aquaculture Center has added another fact sheet on preventing hitchhiking of nonindigenous species in live shipments. Also, the National Aquaculture Association is holding a series of workshops around the country in the next year. ANS education will be a component of the workshops.

**Celia Smith – University of Hawaii:** Although the state closed the Anuenue Research Center they have realigned the fisheries research center to provide support for urchin cultivation with the intention of placing urchins on the reef to control algae.

**Douglas Tallamy – University of Delaware:** The Delaware Invasive Species Council has had an annual conference for 10 years. The Council is looking for new directions. Dr. Tallamy solicited ideas for what the Council (which has no funding and few people) could do next.

**Kristina Serbesoff-King – The Nature Conservancy:** The biggest topic in Florida is reptiles of concern. The Florida State and Wildlife Conservation Commission has convened a technical advisory group to look at the current rules addressing reptiles of concern.

**Amy Frankmann (ISAC Secretary) – Michigan Nursery and Landscape Association:** Michigan is working on an invasive plant curriculum for all segments of the nursery industry that could be incorporated into their certification program. Ms. Frankmann said that she will bring the curricula to the ISAC for its review.

**Jamie Reaser (ISAC Vice-Chair) – Pet Industry Joint Advisory Council (PIJAC):** Habitattitude is a partnership of DOI, NOAA, and PIJAC with more than 70 affiliates. The partnership tries to convey: 1) make a proper choice before bringing pets into your home 2) know how to care for your pet 3) if you no longer want your pet find alternatives to release. The Bd-Free Phibs Campaign is designed to educate those who work with amphibians in captivity to risks associated with batrachochytrium dendrobatidis, a highly infectious fungal disease. PIJAC, in collaboration with the global invasive species program, is working on a toolkit of best management practices to reduce the risk of invasion through the Pet Release and Pet Escape Pathway. The final version of the document regarding this product will be presented in 2010 in the fall at the Conference of Parties to the Convention on Biological Diversity (CBD). Two codes of conduct will be completed in January, one for water gardeners and one for water garden aspects of the industry focused on minimizing the risk of invasive species. The codes of conduct have been a joint project between the American Nursery and Landscape Association and PIJAC.

**Ann Gibbs (ISAC Chair) – Maine Department of Agriculture:** In 2008, Asian Longhorn Beetle was found in Massachusetts. Several states were given funding to do outreach and survey efforts with the goal of getting the public involved and looking for things. There is now a large cadre of enthusiastic and knowledgeable volunteers to help with this project. Chair Gibbs said that she was involved with establishing a National Firewood Task Force. Firewood is a major pathway for moving pests around the country.

**Scott Hendrick – National Conference of State Legislatures (NCSL):** NCSL is a bipartisan organization that represents all 50 state legislatures and the legislatures in the territories. The organization does have a broad aquatic invasive species policy and does training for legislators and legislative staff. Mr. Hendrick tracks invasive species policy as well as other agriculture/environmental health issues. NCSL has recently rolled out a publicly accessible internet database of state environmental health/agricultural health/ rural development legislation.

**Janet Clark – Montana State University:** Ms. Clark is working on continuing to build a national network of invasive plant centers. Ms. Clark made the Committee aware of the journal Invasive Plant Science and Management. The point of National Invasive Species Awareness Week (NISAW) in January 2010 is to raise awareness of the new folks in the administration and to provide more education

regarding the interaction of invasive species with climate change, energy/biofuels and the green economy.

**Eric Lane – Colorado Department of Agriculture:** It will be interesting to see how budget cuts across the country affects funding for invasive species work.

**Otto Doering, III – Purdue University:** Indiana has established an invasive species council. Dr. Doering is currently the director of Purdue's climate change research center.

**Susan Ellis – California Department of Fish and Game:** California will have a meeting of its invasive species advisory committee on the second week of December.

**Stephen Phillips – Pacific States Marine Fisheries Commission:** Two years ago the Commission put together a response plan for dreissenid, Quagga, and Zebra mussels for the Columbia River Basin. Labs are currently trying to determine whether Zebra mussels are indeed in the Snake River.

**Steven Jay Sanford – New York State Department of Environmental Conservation:** New York is defending its 401 clean water certificate under the Clean Water Act. New York has been working with other New England states on comment to the Coast Guard regulations regarding ballast water. Emerald ash borer has come to New York State. A couple of years ago New York started regulating the movement of firewood. There is quite a bit of money for invasive species in the Great Lakes Restoration Initiative.

**Edward L. Mills – Cornell University:** The Institute of Invasive Species Research was a coordinating effort to bring folks working invasive species together. On his visits to congressmen, he found that none of the members were aware of NISC or ISAC. The group needs to do a better job at advertising.

**Robert McMahon – University of Texas at Arlington:** Dr. McMahon's lab has been looking at the genetic diversity of Zebra and Quagga mussels across the U.S. using DNA fingerprint analysis. There is a large amount of diversity in all the populations. It takes a lot of Zebra mussels to establish a new population. Zebra mussels are in Lake Texoma.

**Earl Chilton, II – Texas Parks and Wildlife Department:** Texas was one of the first states to have giant salvinia. The Department is going to try to put together two rearing facilities for giant salvinia weevils. Raspberry ants have spread from eight counties to near Austin. The ants do not bite but attack electrical wiring. Water spinach has not been causing any trouble. Dr. Chilton said that he could not find one plant of water spinach growing outside of greenhouses. There is now a Texas invasive species coordinating committee. The state is going to be meeting with Exxon next week regarding the production of biofuel using algae and other means. There are 30-40,000 acres of *Arundo donax* along the shores of the Rio Grande. Even though *Arundo* is spreading so is the biocontrol (a wasp).

**Bob Wiltshire – Center for Aquatic Nuisance Species:** The Center is working on trying to develop specifically targeted outreach efforts designed to elicit behavior change. For example, recreational boaters need to change their behavior so that they clean their boats when they move from one water to another. The Center is trying to develop a tool that will allow prioritization of funds in order to achieve targeted response.

Mr. Wilshire is involved with working with companies from the fishing industry to try to encourage them to make changes to their product in order to make their product less capable of conveying invasive species (e.g., eliminating felt soles on waders).

**Joseph M. DiTomaso – University of California, Davis:** Dr. DiTomaso noted that there are a number of ex-ISAC members on the California Invasive Species Committee.

**Leslie Cahill – American Seed Trade Association:** The seed industry is making an effort to increase its awareness and participation on state advisory councils. There are a growing number of companies that are working to explore new issues in biomass specifically for switchgrass and miscanthus.

## **PRESENTATION: CLIMATE CHANGE AND INVASIVE SPECIES: INTERNATIONAL POLICY IMPLICATIONS AND OPPORTUNITIES**

*Stas Burgiel, Ph.D., Global Invasive Species Programme (GISP)*

GISP is an international partnership dedicated to tackling the global threats of invasive species through policy development, raising awareness (primarily among policy makers) & information exchange. The secretariat is now located in Nairobi.

Under the Climate Change Convention (CCC) much has focused on land use and land use change. The two major areas of discussion under this heading are 1) reducing emissions from deforestation and forest degradation 2) land use and land use change and forestry. Considerations include sustainable management, non-traditional forest types, and ecosystem integrity. With regard to national emission accounting, the mountain pine beetle is threatening to make Canada a carbon source as opposed to a carbon sink.

GISP has been hosting a lot of workshops looking at reducing emissions. Many of the recommendations are similar to the ones developed in the ISAC white paper. Dr. Burgiel especially liked the aspect of the ISAC recommendations that talked about post-production – will a species become invasive after being developed as a biofuel?

Looking at adaptation to climate change is the issue of ecosystem-based adaptation. Invasive species place stress on existing species and can impact ecosystem services (e.g., erosion control, freshwater availability, food security, and economic livelihoods).

Food security is a critical issue with regard to climate change: inter-annual survival, range changes of pests, and the impacts on pesticide and herbicide effectiveness. The Food and Agriculture Organization of the United Nations (FAO) has an emergency prevention system for transboundary animal and plant pests and diseases. Livestock and wildlife disease raise particular concerns. In response to the 2004 outbreak of avian influenza the World Animal Health Organization has established a global fund to try to build communication and response capacity for new outbreaks. The issue of emerging infectious diseases is going to be critical.

The Wildlife Conservation Society has released a paper looking at 12 emerging infectious diseases that could be problematic on a global scale.

Climate change will have vast impacts on trade. For example, there may be shifts in production and trade of commodities as well as changes in volume and origin/destination. The World Trade

Organization (WTO) along with the World Bank, and the FAO has a partnership called the Standards and Trade Development Facility that is looking at issues of climate change, trade, and the ability of developing countries to implement international standards.

Policy and definitional questions remain around human assisted migration, climate assisted migration, and resolving the issue of “alien versus native.” Going forward several areas need to be addressed: 1) risk and pathway assessment 2) early detection, warning and rapid response 3) awareness of invasive species and climate change impacts 4) capacity building at national and regional levels.

The U.S. does not have a formal seat at the table at the CBD, but the participation of U.S. experts is warmly welcomed by the CBD secretary and other parties. Dr. Burgiel said that he was going to bring the ISAC biofuel paper to the CBD process.

The APHIS center for plant health has a clear procedure to assess an invasive when it appears. APHIS management then decides whether to invest funds to deal with the invasive through an action plan. These issues are addressed species by species.

## **LEGISLATIVE AND REGULATORY UPDATES**

***Kathy Metcalf – Chamber of Shipping of America:*** The discussion item was the attempt to get national legislation to develop a ballast water program as well as address vessel discharge. Right now there is a standoff between several jurisdictions. After 12 years it is time to get something done. The Nature Conservancy and the Ocean Conservancy have been working along with the Chamber toward a national standard. Ideally there would be a measure tied to the risk that the measure intends to mitigate. The IMO Convention says that nations can implement more stringent standards. The base standard addresses organisms over 50 microns, organisms between 10 and 50 microns, and then three indicator organisms. The Phase Two standard has lower concentrations for the above 50s, the 10 to 50s, and the indicator microbes while adding a new category for organisms under 10 microns. The only methods that may plausibly get rid of the under-10 micron organisms would be chemical.

There needs to be a program that is achievable and provides an improved environment. A ratcheting-up type of program toward a national standard seems the most reasonable approach.

***Jamie Reaser (ISAC Vice-Chair) – Pet Industry Joint Advisory Council:*** H.R. 669 Nonnative Wildlife Invasion Prevention Act is intended to work with the Lacey Act and require risk assessments of virtually every animal moving through trade into the U.S. and within the U.S. PIJAC and others have put together a multi-stakeholder coalition focused on the process of improving the legislation.

Fish and Wildlife Service was petitioned to list Burmese python as injurious under the Lacey Act and sent out a notice of inquiry to look at risk associated with all the large constrictors. This process is still underway. Congress is also beginning to address the python issue. Crime, Terrorism, and Homeland Security is looking at one piece of legislation. If the legislation is not properly crafted, a situation could be created that facilitates invasion – i.e., a forced mass release. There are a lot of ecological unknowns surrounding pythons.

From the commercial side under the legislation, there would be limited sale within states. States like Florida have permit systems in place for large constrictors and venomous reptiles. The animals need to

have passive integrated transponder tags so that they can be tracked. One of the recommendations at the federal level is to give a period of grandfathering to any new federal regulations.

### **DAY 1 WRAP-UP**

Dr. Dionigi said that there is a mechanism through the designated federal official (DFO) that can submit comments to an agency that has an open comment period on behalf of the ISAC. Mr. Brown said that the option is there for the ISAC to make a consensus recommendation to the NISC that a comment be transmitted to another agency (e.g., providing a comment on ballast water to the Coast Guard).

### **PUBLIC COMMENT**

There were no public comments.

### **END OF DAY 1**

The Committee recessed for the day at 5:00 p.m.

NATIONAL INVASIVE SPECIES COUNCIL (NISC)

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INVASIVE SPECIES ADVISORY COMMITTEE (ISAC)

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MEETING

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WEDNESDAY  
DECEMBER 2, 2009

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MINUTES

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The Advisory Committee reconvened at 8:00 am in the Washington Ballroom of the Westin Grand Hotel, 2350 M Street, NW, Washington, D.C., E. Ann Gibbs, ISAC Chair, presiding.

**COMMITTEE MEMBERS PRESENT:**

E. ANN GIBBS (Chair)  
JAMIE REASER, (Vice-Chair)  
AMY FRANKMANN (Secretary)

PETER ALBERT  
NANCY BALCOM  
LESLIE CAHILL  
EARL CHILTON, II  
JANET CLARK  
JOSEPH M. DITOMASO  
OTTO DOERING, III  
SUSAN ELLIS  
SCOTT HENDRICK  
PHYLLIS JOHNSON  
ERIC LANE  
KATHY METCALF  
ROBERT MCMAHON  
EDWARD MILLS  
STEPHEN PHILLIPS  
STEVEN JAY SANFORD

Maine Department of Agriculture  
Pet Industry Joint Advisory Council  
Michigan Nursery and Landscape  
Association  
University of Massachusetts  
Connecticut Sea Grant  
American Seed Trade Association  
Texas Parks and Wildlife Department  
Montana State University  
University of California, Davis  
Purdue University  
California Department of Fish and Game  
National Conference of State Legislatures  
University of North Dakota  
Colorado Department of Agriculture  
Chamber of Shipping of America  
University of Texas at Arlington  
Cornell University  
Pacific States Marine Fisheries Commission  
New York State Department of  
Environmental Conservation

CELIA SMITH  
NATHAN STONE  
DOUGLAS W. TALLAMY  
JOHN TORGAN  
JENNIFER VOLLMER  
DAMON E. WAITT  
ROBERT H. WILTSHIRE

University of Hawaii  
University of Arkansas at Pine Bluff  
University of Delaware  
Save the Bay  
CPS Timberland  
University of Texas at Austin  
Center for Aquatic Nuisance Species

**COMMITTEE MEMBERS ABSENT:**

TIMOTHY MALE  
THOMAS REMINGTON  
KRISTINA SERBESOFF-KING  
DAVID E. STARLING

National Fish and Wildlife Foundation  
Colorado Department of Natural Resources  
The Nature Conservancy  
Aqueterinary Services, P.C.

**NISC STAFF PRESENT:**

DELPHA ARNOLD  
KELSEY BRANTLEY  
CHRISTOPHER (CHRIS) DIONIGI

Office Manager  
Program Analyst and ISAC Coordinator  
Acting Executive Director

**NISC POLICY LIAISONS PRESENT:**

MARGARET (PEG) BRADY  
A. GORDON BROWN  
HILDA DIAZ-SOLTERO  
PETER EGAN  
BRUCE LEWKE  
ARNOLD KONHEIM  
A. DAVID MILLER

U.S. Department of Commerce (NOAA)  
U.S. Department of the Interior  
U.S. Department of Agriculture  
U.S. Department of Defense  
U.S. Department of Homeland Security  
U.S. Department of Transportation  
U.S. Department of State

## **OPENING ANNOUNCEMENTS**

Chair Gibbs called the Advisory Committee meeting to order at 8:04 a.m. Chair Gibbs updated the Committee to changes in the agenda.

## **PRESENTATION: INVASIVE SPECIES AND CLIMATE CHANGE: IMPACTS AND ADAPTATION STRATEGIES**

*Holly Menninger, Ph.D., New York Invasive Species Research Institute*

Dr. Menninger spoke about her work regarding climate change and invasive species at the state level. Dr. Menninger is the coordinator of the New York Invasive Species Research Institute. The goals of the Institute are threefold: 1) improving the scientific basis of invasive species management 2) developing recommendations for research, funding, and management 3) promoting information-sharing among stakeholders.

New York could look a lot like Virginia under a low emissions scenario. The key questions in play are: 1) how will climate change affect invasive species; 2) what role will invasive species play in changing ecosystems; 3) what are the consequences of climate change on invasive species management; and 4) how do we adjust our management practices to moderate harm?

Stakeholders have expressed concerns regarding key vulnerabilities:

- 1) Overcoming environmental constraints - As invasive species move into areas that are climate stressed, what native species will be replaced? For example, the spruce forests in New York will disappear under the low emissions scenario.
- 2) Efficacy of management – Are the management tools now in use going to be effective in the future under climate change?
- 3) Changes in pathways and vectors – New invasions
- 4) Restoration – Are restored native communities adapted to changing climate conditions?

The Guiding principles for adaption are prioritization, ecosystem resilience, adaptive capacity, coordination, and data collection & management.

New York is divided into eight regional groups called Partnerships for Regional Invasive Species Management (PRISM). The partnerships are made up of a wide range of stakeholders from state agencies to local conservation groups. There needs to be a regionalized approach like the Northeast Climate Impact Assessment looking at adaptation strategies across the region.

The mitigation folks in New York may not be thinking directly about invasive species, but their report will be delivered to the Governor of New York.

Dr. Menninger noted that part of her job was to communicate science to the practitioners in the field.

The most vulnerable systems in New York are probably the rare habitats that are unable to move up (e.g., boreal, spruce fir habitats, and the alvar habitat along Lake Ontario).

Another important question for the prioritization process is deciding whether the community is interested in preserving the structure of ecosystems or ecosystem function.

## **PRESENTATION: THE DOI AGENDA ON CLIMATE CHANGE AND INVASIVE SPECIES**

*Kit Batten, Ph.D., DOI Science Director*

Dr. Batten discussed the DOI's agenda on climate change. Secretarial Order 3289 seeks to address the impacts of climate change on America's water, land, and other natural resources. This order established a Climate Change Response Council within the Office of the Secretary (with the Secretary acting as Chair). The Council has met many times since the promulgation of Order 3289. The reality of climate change behooves the DOI to change how it manages land, water, fish & wildlife, cultural heritage, and tribal lands.

DOI's Climate Change Response Council has three main objectives: 1) making sure climate change is being considered in all of DOI's planning requirements; 2) developing eight different regional climate change response centers; and 3) establishing landscape conservation cooperatives. Order 3289 also established the DOI carbon storage project and carbon footprint project.

DOI is working to prioritize restoration and other projects that achieve multiple ecosystem benefits at once. Dr. Batten presented an example of what DOI means by "adaptation-mitigation-ecosystem service linkage" by showing a slide outlining the plan to mitigate the loss of land due to sea level rise on North Carolina's Albemarle Peninsula and Alligator River National Wildlife Refuge. Some of the mitigation strategies include: restoring wetland hydrology from damage caused by artificial ditches, restoring existing natural coastal and inland habitat, oyster reef restoration in Pamlico Sound to protect shorelines from storms and rising seas, and measuring the effects of management on soil carbon. DOI is focused on implementing adaptation-mitigation strategies in other areas like the Sacramento-San Joaquin Delta, the Great Basin, and the Florida Everglades.

Dr. Batten said that DOI is in the midst of rolling out its first series of landscape cooperatives, which will be in FY 2010. The Department is on the verge of announcing where the climate response center regions will be. There will be a competitive RFP process to determine where the actual centers will be.

Dr. Batten assured the Committee that the Secretary and Deputy Secretary are highly concerned about invasive species. The Department is looking forward to a white paper and recommendations from ISAC on the issue of invasives and climate change.

DOI manages 35,000 miles of coastline and 1.7 billion acres in the outer continental shelf. The concept of landscape conservation cooperative can be applied to marine systems as well. Dr. Batten has been talking with the Fish and Wildlife Service in brainstorming ways to work with NOAA, DOI, and university partners to develop cooperatives for marine systems.

## **PRESENTATION: EFFECTS OF CLIMATE CHANGE ON THE PREDICTED SPREAD OF INVASIVE PLANTS IN CALIFORNIA**

*Joseph M. DiTomaso, Ph.D., University of California, Davis (ISAC Member)*

Dr. DiTomaso discussed how California is trying to develop an early detection and rapid response program looking at climate change. The California Invasive Plant Council (Cal-IPC) uses CLIMEX to model the potential range of invasive plants. Cal-IPC tried to determine the potential for change under a 3C climate increase scenario (this falls in the range of changes predicted for California, which include an increase of 1.5-4.5C). The goal is to develop an online decision-making tool to create prioritized watch lists of plants for early detection in specific locations and vulnerable habitats throughout the state.

In order to get a better feel for the invasives in the state, California is using Weed Management Areas (WMAs) to get information on where the species are. The WMAs are made up of federal agencies, state agencies, local land-management agencies, county agricultural commissioner's offices, California Native Plant Society chapters, and landowners. Most WMAs follow county boundaries, some cover particular watersheds. There are a total of 40 WMAs.

Each of the WMAs are asked specific questions like, "How widespread are the species?" and "Is the population of a particular plant increasing rapidly?" WMAs are mapped with the Jepson regions showing flora. The data from the maps are put into the CLIMEX model to determine predicted ranges. Usually the CLIMEX models are based on two parameters: temperature and moisture. The CLIMEX output is called an ecoclimatic index (EI) which is on a scale of 0-100. Values at 0 indicate no survival; values over 30 are considered excellent matches. Adjustments were made to the models when initial model runs failed to place a plant in its known existing range in California.

In California there are going to be differences in climate change based on region. The current model does not accommodate this consideration. Maps generated for the 36 target species under mapping and early detection are available on the Cal-IPC website.

Plants that are already widespread are likely to spread to the remainder of the state. Remaining goals for Cal-IPC are to complete the mapping and predictive climate matching for remaining invasive plants in California and to create prioritized watch lists of plants for early detection in specific locations and vulnerable habitats throughout the state.

Dr. DiTomaso was not aware of any other states pursuing the same type of early detection and rapid response program. The Cal-IPC grant was \$30,000 and the big grant to do all of the plant lists was for \$500,000.

The second part of the study was to determine what species Cal-IPC expects to be in California. The way this done was to scour the literature and compile a list of every invasive species from Mediterranean climates.

Dr. DiTomaso thought incorporating sociological data, like transportation into future models would be a good idea.

## SUBCOMMITTEE REPORTS

**Organizational Collaboration:** At the last ISAC meeting the subcommittee made a recommendation to get budget numbers from the federal agencies, these numbers were presented in Ms. Diaz-Soltero's report and an e-mail from Mr. Brown. The subcommittee discussed state invasive species councils and the need to aggregate information in one national place. Mr. Hendrick offered to be the point person on this effort. A staff status report from NISC would be helpful, particularly as it pertains to a state liaison. An action from the subcommittee was to investigate for next fall's meeting whether it is possible to have a joint meeting with the NISC.

**Research and Information:** The subcommittee finalized a recommendation on federal support on research on invasive species in natural ecosystems. The subcommittee recommended that NISC agencies develop strategic plans and implement mechanisms for sustained support of research on the management of invasive species in natural systems including prevention control and restoration. The subcommittee moved towards a proposal for an AAAS symposium – the topic would be, Invasive Species: What Harm Do They Do?

**Early Detection and Rapid Response:** The subcommittee discussed a fund for emergency response. The group is going to be working on guidelines for how the fund will be developed.

**Prevention:** The subcommittee had two action requests regarding Quagga and Zebra mussels. The first recommendation was that DOI, DOC, DOT, USDA, and DoD review the Quagga and Zebra mussel action plan. NISC member departments should work with the ISAC Quagga-Zebra Mussel Action Plan (Q-ZAP) to accomplish the recommendation. Dr. Smith and Dr. Johnson will work on a proposal for a presentation for the spring ISAC meeting on case studies that illustrate the critical need for raising systematic capacity.

**Communication, Education, and Outreach:** Over the last several meetings the subcommittee has been interested in the NISC website, and applauds NISC for getting the site back up and running. The subcommittee felt that the website was attractive, well designed, and comprehensive in content. NISC should identify at least five individuals within the federal agency partners who function in communication, education, and outreach to meet with the subcommittee.

**Control and Management:** The subcommittee tackled two topics – ballast water and a biocontrol issue. With regard to ballast water, the effort needs to be focused on prevention. The biggest hurdle in this area relates to finding organisms below 10 microns in ballast water. Secondly, the subcommittee decided to recommend that there is a need for a uniform statute on ballast water. Joe DiTomaso is now the chair of the Control and Management Subcommittee.

The subcommittee discussion on biocontrol revolved around tamarix biocontrol agents moving into willow flycatcher area. A preliminary request by the subcommittee was that biocontrol research include not only the development of the particular tool, but also discuss recommendations and monitoring.

## **ISAC ACTION ITEMS/RECOMMENDATIONS**

ISAC Secretary Amy Frankmann read the action items and recommendations into the record. The Committee finalized the language of the recommendations and action items.

### ***ACTION ITEMS***

#### ***Subcommittee on Communication, Education and Outreach***

1. We are requesting of the NISC staff that the recommendations made on October 16, 2009 to correct and update the NISC website be made by December 31, 2009 for announcement at the NISAW meeting in January, 2010.
2. We are requesting that NISC staff develop a plan to maintain the website on a monthly basis.
3. ISAC requests that the NISC Federal Agencies provide the names of at least five experts from the NISC agencies in communication/education/marketing/outreach by February 28, 2010, that will work with the ISAC Subcommittee on Communication, Education and Outreach to address our objectives.

#### ***Organizational Collaboration Subcommittee***

We are requesting that our Fall 2010 meeting be a joint meeting with NISC/ISAC.

#### ***Prevention Subcommittee related to Quagga-Zebra Mussels***

1. ISAC requests that DOI, DOC, DOT, USDA, and DOD review the Quagga-Zebra Mussel Action Plan to 1) Identify the following: a) gaps and inconsistencies in authorities, b) funding opportunities and mechanisms, and c) leadership and coordination roles; and 2) Report their findings at the Spring 2010 meeting of the ISAC.
2. ISAC requests the NISC member Departments work with the ISAC Q-ZAP Task Team to accomplish the above.

#### ***Control and Management Subcommittee***

With regard to performance element CM.1.2.1, ISAC identifies as a priority the development of accurate methods for detection, measurement and control of the microorganisms of less than 10 microns in large quantities of ballast water. Include Navy/EPA/Coast Guard/and MARAD of DOT or FHA.

### ***RECOMMENDATIONS (to be submitted to NISC Member Departments and Agencies)***

#### ***Recommendation 1 (from the Organizational Collaboration Subcommittee)***

ISAC recognizes the Department of Transportation/Federal Highway Administration for its commitment to planting and maintaining appropriate roadside vegetation. ISAC recommends that DOT/FHWA maintain its capacity to provide support and expertise to state DOTs and coordinate with other Agencies regarding invasive species management.

***Recommendation 2 (from the Research and Information Management Subcommittee):***

**Federal support for research on the management of invasive species in natural systems**

The spread of invasive species in natural terrestrial and aquatic ecosystems is widely recognized as a major environmental and economic problem in the U.S. It is also clear that our ability to manage this problem is limited by our insufficient understanding of invasions of natural systems in general as well as by our insufficient understanding of specific invasions.

One reason for this limitation is the lack of a focused, strategic, and sustained emphasis at the federal level on support for research on the management of invasive species in natural systems, including reservoirs. On-going programs support applied research on invasive species in agricultural systems on the one hand and transformative, basic research on the dynamics of natural systems on the other hand. However, research directed toward the management of invasions in nature falls in a gap in between. Current support for this research is largely opportunistic and piece-meal. The lack of a more strategic approach tends to leave out research on important ecosystems and invasive species, and to respond to management needs only after invasions have become emergencies.

*ISAC therefore recommends that NISC agencies develop strategic plans and implement mechanisms for sustained support of research on the management of invasive species in natural systems, including prevention, control, and restoration.* Agencies might approach this by broadening the scope of existing programs, reallocating resources between or within programs, or adopting policies for the consistent inclusion of management of invasive species in requests for proposals for research on natural ecosystems.

***Recommendation 3 (from the Control and Management Subcommittee)***

Currently ballast water regulation is directed by multiple entities including Coast Guard, EPA, and State Agencies. ISAC recognizes the need for a strong national program to regulate vessel discharge including, but not exclusive to, ballast water and hull fouling and thus producing a nationally consistent set of requirements, including performance standards, which provide the needed environmental protection and predictability to the regulated community thus ISAC urges NISC to assist Congress in the development of such a program.

***Recommendation 4 (from the Control and Management Subcommittee):***

ISAC recommends that federal biological control programs, as well as research performance measures, incorporate IPM principles with the goal of achieving the greatest potential for successful management of the target pest, while maximizing the desired ecosystem functions and other appropriate management objectives. This includes incorporating niche based modeling, monitoring procedures, efficient data access, and integration with other control options and/or active restoration efforts, where necessary.

**PRESENTATION: OVERVIEW OF FEDERAL PROGRAMS AND POLICIES ADDRESSING BALLAST WATER MANAGEMENT**

*CDR Gary Croot, United States Coast Guard*

*Mario Tamburri, Ph.D., University of Maryland*

### Part 1: CDR Croot

In August the Coast Guard released a notice of proposed rule making with regard to a ballast water discharge standard. The comment period closes on Friday, December 4.

CDR Croot reviewed the basics of ballast water for the Committee then discussed the proposed standard.

A discharge standard is needed because: 1) in U.S. waters over 60% of vessels cannot exchange ballast appropriately due to their routes; 2) effectiveness of ballast water exchange varies; 3) a standard provides a clearly defined benchmark for treatment technology development; and 4) a standard aids in verifying compliance with ballast water management (BWM) requirements.

The Coast Guard has chosen a two-phase process. Initially the IMO standard will be established followed by 1,000 times the IMO (the California Standard).

The Phase One standard demands less than 10 organisms per cubic meter for the larger organism class and less than 10 per milliliter in the smaller organism class (50 microns). The Phase One indicator bacteria standards are based on European Union recreational water use guidelines. Phase Two standards are based on EPA water use standards.

Why not establish the Phase Two standard immediately? The Coast Guard believes that it is better to establish a practical standard in the near term that vessels can meet.

Type approval is the lynchpin of the ballast regulations. Coast Guard is reviewing existing guidelines to determine statistical power of type approval volumes and techniques as well as working with the Naval Research Lab (NRL), EPA, and academia to develop Environmental Technology Verification (ETV) protocols. Independent labs will be doing the type approval testing. It is going to take between 4 and 7 million dollars in total for the labs to get up to speed.

Coast Guard regulations do not preempt the EPA's VGP. The Coast Guard cannot preempt state law. The federal government can establish the floor, but states can adopt standards that are higher.

The Coast Guard's proposed regulations would require all ballast water to be treated, so any ballast on board no ballast on board vessels would have been treated.

Coast Guard's proposed rule making has a requirement that systems have electronic record keeping built into the system so that every time the vessel conducts any kind of ballasting operation it is recorded.

### Part 2: Dr. Tamburri

Dr. Tamburri, director of the Maritime Environmental Resource Center spoke about implementing successful ballast water regulations. Dr. Tamburri listed eight keys to successful ballast water discharge regulations: 1) limits on concentrations of living organism 2) ability to measure regulations with confidence 3) availability of technologies to meet regulations 4) willingness of ship owners to install, maintain, and effectively use treatment technologies 5) certification of treatments 6) compliance monitoring 7) enforcement 8) penalties.

There are several operating ballast water treatment testing facilities around the world: the Norwegian Institute for Water Research (NIVA), the Royal Netherlands Institute for Sea Research (NIOZ), the Great Ships Initiative (GSI), and the Maritime Environmental Resource Center (MERC). MERC is in the process of building a dedicated platform for ballast testing in the form of a barge with test tanks built on deck. Dr. Tamburri said that at this point testing at the Phase One level is possible, while Phase Two is not (finding one copepod in 100 cubic meters of water). New innovation is needed for Phase Two. Dr. Tamburri did not think that any of the treatment systems from the past 15 years can be fine-tuned to be 1,000 better.

Most ballast water treatment programs are taken from drinking water and wastewater treatment approaches, including mechanical (e.g., filtration), biocides, and physical treatments (e.g., deoxygenation, heat, ultraviolet radiation). In a lot of the treatments much of the activity occurs during the hold time, even no ballast on board water would get chlorination treatment.

Currently, seven ballast water treatments have been certified by IMO.

Dr. Tamburri's lab has done an analysis of compliance monitoring. It is cost-prohibitive and not feasible to do the full biology every time a ship arrives in port. A better approach would be to use sensors in ballast tanks that would measure parameters that treatment should have altered, like chlorine levels and oxygen levels.

Guidelines for ETV and IMO testing require testing under multiple salinities and in some respect multiple temperatures.

The current regulations are end of pipe regulations, so if sediments (where organisms may avoid ballast treatment) are not discharged, vessels are still in compliance.

## **PRESENTATION: NEW THINKING FOR INVASIVE SPECIES CHALLENGES**

*Hon. A.G. Kawamura, California Secretary of Agriculture*

Secretary Kawamura thanked the Committee for all of the work it has done over the years. He thought the battle against invasives was getting tougher and suffers from a lack of attention. Secretary Kawamura emphasized the importance of predictability for farmers. Part of fostering predictability is having a robust system to keep out pests and disease. California has found itself inundated. Its emergency funds are depleted – exacerbated by the financial crisis.

California started to see that there was not a lot of support from the top down on invasive species, from the President down through the secretaries to address the challenges. Stasis is unacceptable; the invasive species community must make something happen.

At the Western regional meeting for the state departments of agriculture, a strongly worded action item was inserted into the invasive species policy. The policy talks about a new way of looking at creating a national response to invasive species. Parallel efforts need to converge and make something happen. Communication efforts need to be better at explaining why the activities of APHIS, DOI, USDA, etc., are beneficial. Attracting high-profile people to talk about invasive species would also be a great idea. The idea is, can the administration pick up the baton and go forward? ISAC has laid out a clear path toward a better spot.

Secretary Kawamura said that he will be attending NISAW. He suggested that ISAC reach out to the states. There are a lot of folks out there at the local level - they have just never been galvanized to work toward something that has an achievable end. Part of the problem, like with brown apple moth, is that there needs to be a higher level of preparation to fight battles in the face of a public that does not trust science or trust the government to do the right thing.

If states could organize themselves through their invasive species councils they could create lists of the worst invasives. Block grants allow states to determine what is best, as opposed to a mandate.

Secretary Kawamura reminded the Committee that an effective infrastructure for tackling the challenges posed by invasive species is just as important as any other national security infrastructure.

**PRESENTATION: UPDATE ON THE WESTERN REGIONAL PANEL'S (WRP) QUAGGA-ZEBRA MUSSEL ACTION PLAN FOR WESTERN U.S. WATERS (Q-ZAP)**

*Susan Ellis, California Department of Fish and Game (ISAC Member)*

Ms. Ellis presented the WRPs Quagga-Zebra Mussel Action Plan. The mussels were introduced in the Great Lakes. In 2007 Quagga mussels made their way to the Colorado River and then to Southern California. The mussels are very small and only a few people can be trusted to identify the mussels in their veliger stage.

In October 2008 the ANSTF was asked to develop an action plan with a conditional plan being adopted in November of 2009. The priority actions of the plan were as follows:

- 1) Coordination – State and Interstate ANS management plan funding and implementation.
- 2) Prevention – Mandatory inspection and decontamination at infested waters, development of watercraft inspection/decontamination protocols and standards, and development of standard and effective equipment inspection/decontamination protocols.
- 3) Adopt standard watercraft and equipment inspection/decontamination protocols in Western states - Implement strong & consistent law enforcement programs in each Western state, and develop a risk assessment model for Western waters.
- 4) Early detection monitoring – Expand early detection monitoring programs to all Western waters and develop standard field protocols for early detection monitoring.
- 5) Rapid response – Create and maintain a rapid response fund and maintain a notification database.
- 6) Containment and control of existing populations – Develop tools for preventing and minimizing mussel movement and settlement within water distribution systems.
- 7) Outreach and education – Adopt consistent outreach messaging and enhance coordination of efforts.

The cost of the priorities will be over \$60 million without including a rapid response fund.

The ANSTF member agencies have agreed to hold a conference call to discuss the implementation of priorities. An ANSTF committee is being established to help coordinate implementation and all agencies are encouraged to use Q-ZAP to display where needs exist.

## **FINAL ADOPTION OF RECOMMENDATIONS/ACTION ITEMS**

Dr. Doering moved to accept the recommendations as written with changes. Dr. Chilton seconded. The recommendations were accepted by general consent.

## **ISAC APPROVAL OF COMMITTEE OFFICERS**

The Advisory Committee approved the slate of officers by general consent following a motion by Dr. Alpert, seconded by Dr. Smith:

Chair	Ann Gibbs
Vice-Chair	Jamie Reaser
Secretary	Amy Frankmann

Kristina Serbesoff-King was appointed to the ISAC 6 Steering Committee on the same motion.

## **NEXT ISAC MEETING**

The next ISAC meeting will be held in San Francisco and the theme will be marine and aquatic invasions. Susan Ellis and Joe DiTomaso have offered to act as hosts for the meeting. June 21-25, 2010 was the first choice of dates among the Committee members and the second choice was June 14-18, 2010.

Dr. DiTomaso suggested that the meeting be held near the pier and that the group charter a boat. Dr. Dionigi noted that it would be cost effective if the group could find a federal facility with meeting space near the hotel.

Vice-Chair Reaser proposed a deadline of February 28<sup>th</sup> for templates for proposed talks.

## **PUBLIC COMMENT**

There were no public comments.

## **BRIEFING PAPER ON THE INTERFACE OF CLIMATE CHANGE AND INVASIVE SPECIES**

A briefing paper will be presented at NISAW, which could serve as the basis for a briefing paper by ISAC. The Committee approved of the idea of putting together a briefing paper. Dr. Smith and Dr. Doering will serve as co-chairs.

## **ADJOURNMENT**

The meeting adjourned at 4:57 p.m.