

NATIONAL INVASIVE SPECIES COUNCIL (NISC)

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INVASIVE SPECIES ADVISORY COMMITTEE (ISAC)

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MEETING

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TUESDAY
JUNE 22, 2010

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MINUTES

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The Committee convened at 8:00 a.m. at The Argonaut Hotel, 495 Jefferson Street, San Francisco, California, E. Ann Gibbs, ISAC Chair, presiding.

COMMITTEE MEMBERS PRESENT:

E. ANN GIBBS (Chair)	Maine Department of Agriculture
JAMIE REASER (Vice-Chair)	Pet Industry Joint Advisory Council
AMY FRANKMANN (Secretary)	Michigan Nursery and Landscape Association
NANCY BALCOM	University of Connecticut
LESLIE CAHILL	American Seed Trade Association
EARL CHILTON, II	Texas Parks and Wildlife Department
JANET CLARK	Sweetgrass Consulting
JOSEPH M. DiTOMASO	University of California, Davis
OTTO DOERING, III	Purdue University
SUSAN ELLIS	California Department of Fish and Game
SCOTT HENDRICK	National Conference of State Legislatures
PHYLLIS JOHNSON	University of North Dakota
ERIC LANE	Colorado Department of Agriculture
ROBERT McMAHON	University of Texas at Arlington
KATHY METCALF	Chamber of Shipping of America
EDWARD MILLS	Cornell University
STEPHEN PHILLIPS	Pacific States Marine Fisheries Commission

STEVEN JAY SANFORD	New York State Department of Environmental Conservation
KRISTINA SERBESOFF-KING	The Nature Conservancy
CELIA SMITH	University of Hawaii
DAVID E. STARLING	Aqueterinary Services, P.C.
NATHAN STONE	University of Arkansas at Pine Bluff
DOUGLAS W. TALLAMY	University of Delaware
JENNIFER VOLLMER	CPS Timberland
DAMON E. WAITT	University of Texas at Austin
ROBERT H. WILTSHIRE	Center for Aquatic Nuisance Species

COMMITTEE MEMBERS ABSENT:

PETER ALPERT	University of Massachusetts
TIMOTHY MALE	National Fish and Wildlife Foundation
THOMAS REMINGTON	Colorado Department of Natural Resources
JOHN TORGAN	Save the Bay

NISC STAFF PRESENT:

LORI WILLIAMS	Executive Director
CHRISTOPHER (CHRIS) DIONIGI	Assistant Director for National Policy and Programs
KELSEY BRANTLEY	Program Analyst and ISAC Coordinator
DELPHA ARNOLD	Office Manager

NISC POLICY LIAISONS PRESENT:

MARGARET (PEG) BRADY	U.S. Department of Commerce
A. GORDON BROWN	U.S. Department of the Interior
PETER EGAN	U.S. Department of Defense
BRUCE LEWKE	U.S. Department of Homeland Security
HUGH MAINZER	U.S. Department of Health and Human Services
HILDA DIAZ-SOLTERO	U.S. Department of Agriculture

WELCOME/MEMBER INTRODUCTIONS

Chair Gibbs called the advisory committee meeting to order at 8:05 a.m. She opined that San Francisco was an ideal place to hold the meeting given the theme, aquatic and marine invasive species. The attendees introduced themselves.

Lynn Cullivan welcomed everyone to the Maritime Historic National Park, and provided a historical background on the Argonaut Hotel and the San Francisco Bay area.

PRESENTATION: OVERVIEW OF BIOLOGICAL INVASION AND ONGOING EFFORTS IN THE SAN FRANCISCO BAY REGION

Andy Cohen, Ph.D., Ctr. For Research on Aquatic Bioinvasions

Dr. Cohen showed the committee a plastic boat fender taken from the Berkeley Marina at the lower, saltier end of the bay. It was covered in sea squirts from Asia, yellow sponges and bryozoans from the Atlantic and a mussel of a species that's either native, from the Mediterranean or a hybrid. From the docks of the more brackish waters in the northern part of the bay, one can find long, dangling strands of an Atlantic hydroid, the sedentary stage of jellyfish. Often coating this species is an Atlantic bryozoan. Asian isopods are also common. In quieter parts of the bay, such as the mouth of the Petaluma River, Dr. Cohen and his colleagues have found calcareous tubes left by an Indian Ocean worm. They have also found an Atlantic crab and a Chinese mitten crab. In the mud flats, an invasive grass species from the east coast is displacing the native species, dramatically affecting the entire ecosystem of the marsh. An effort is underway to eradicate this species from the bay, or at least part of it.

The most common clam species in San Francisco Bay today are the Japanese little neck (or Manila) clam, the Atlantic gem clam, and the overbite clam from Asia. The overbite clam was first collected in October 1986. By the following summer, it was the most abundant clam in the northern half of the bay. It was estimated that this clam was filtering the entire water column between two and nine times a day. The most common snail in the bay is the Atlantic mud snail. In the last decade, the Japanese bubble snail has also become prevalent. Trematode and schistosome flatworms have been found living in this snail. Schistosome flatworms have been known to cause an immune reaction in humans known as swimmer's itch. Dr. Cohen has recently published a paper on swimmer's itch in the journal *Emerging Infectious Diseases*.

Dr. Cohen and his colleague Jim Carlton have published descriptions of 234 exotic species in the San Francisco Bay region. In many of these habitats, invasive species comprise as much as 90 percent of individual organisms. It is difficult to find that level of dominance anywhere else. Since 1960, Dr. Cohen estimates that a new species is introduced to the bay once every 14 weeks.

There are two methods of combating the spread of zebra and quagga mussels. One is to intercept these species as they are moved overland from one water system to another. The other is to intercept boats as they leave infested waters. The latter approach is not as common because of the sense that these species are spreading too fast to contain them that way.

Mussels are coming primarily from the west, from the Colorado River region. Most of the mussels on boats coming the east are likely to be dead. There are 22 water bodies in California where quagga and/or zebra mussels have been identified. Fourteen of those water bodies are closed to outside boats. Most of them were already closed before the mussels showed up; a few were closed in response; some only allow day use of boats. One marina requires inspection on outgoing boats. Another method of combating the spread of zebra and quagga mussels involves heat stations that require professional decontamination. Dr. Cohen believes that leadership from the federal government would be helpful.

KEYNOTE ADDRESS

Olivia Barton Ferriter, Acting Director, Office of Policy Analysis, Director, Office of Partnerships, U.S. Department of the Interior

Trained as an environmental writer, Ms. Ferriter served as a congressional relations specialist for the U.S. Geological Survey (USGS) after it absorbed the National Biological Service. Much of her early work at USGS dealt with the growing zebra mussel problem. She also played a role in the interagency response to West Nile Virus. Since moving to her current position, she has been involved with addressing the spread of zebra and quagga mussels to the western U.S. and pythons to the Everglades. In this role, she enjoys good working relations with the NISC staff and departmental policy liaisons.

Ms. Ferriter said Secretary Salazar cares deeply about invasive species. He has been to the Everglades to examine the pythons, and has top people at the U.S. Fish and Wildlife Service focused on the Asian carp. An upcoming economics report for the secretary will include a section on invasive species.

The administration's climate change strategy calls for bringing more science into land management plans. The department is establishing a network of 21 landscape conservation cooperatives (LCCs) to manage climate change impacts as well as other challenges. The secretarial order establishing this network has a section that specifically addresses invasive species. In addition, the department is setting up eight regional climate change science centers through USGS in collaboration with colleges and universities.

The development of renewable energy sources creates a large footprint on the landscape. Ms. Ferriter expects to see the issue of invasive species bubble up as a result.

The growth in population has contributed to strains in the water supply, particularly in the west but also in the southeast. The department is looking at ways of improving water conservation, increasing water availability and restoring watersheds.

Ms. Ferriter says the department is always looking for ways to raise awareness on invasive species, and encouraged committee members to share any ideas they might have.

NISC MEMBER DEPARTMENT REPORTS

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

Mr. Egan works closely with the DoD Legacy Program. Last year, the program sponsored a workshop in Hawaii on threatened, endangered and at-risk species. As a result, there is widespread sentiment for the creation of a biosecurity workshop. DoD is interested in developing partnerships with federal, state and local agencies.

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

Asian carps represent a significant challenge. DOI is working closely with other agencies to address the problem. Region 3 of the U.S. Fish and Wildlife Service (FWS) has taken the lead for the department on this issue.

This year, DOI has funded four ballast water projects with \$2.5 million; 16 prevention and control projects with \$8 million; eight state aquatic nuisance species (ANS) plans with \$14 million; Lacey Act enforcement programs at Chicago and Detroit with \$400,000; a rapid screening program in the Great Lakes region with \$320,000; and a pathway risk assessment with \$320,000.

Constrictors are also an area of concern. The comment period on the proposed rule to list a number of constrictor species as injurious wildlife under Title II of the Lacey Act has been extended but will end soon.

FWS, the National Park Service (NPS) and the Bureau of Reclamation have worked with other federal and state agencies on the Q-ZAP, a plan to address the quagga and zebra mussel problem. The plan has been sent to Congress.

The *Diorhabda* beetles brought in to combat tamarisks have had an adverse effect on the habitat area for the southwestern willow flycatcher. DOI has been working with multiple partners on this issue.

A field testing plan was approved this spring for genetically engineered eucalyptus. DOI provided input to the Animal and Plant Health Inspection Service (APHIS) on potential impacts to hydrology, fire cycles and pollinators.

DOI is also working on providing comments regarding a national pollutant discharge elimination system (NPDES) proposed general permit. This will regulate pesticide application in aquatic systems over U.S. waters. The comment period will end shortly.

USGS, NPS and FWS are working on the Asian longhorn beetle issue. A new quarantine has been announced in Worcester, Massachusetts.

DOI is also concerned about the emerald ash borer. It appreciates the efforts of the U.S. Department of Agriculture to breed strengthened species of ash.

The U.S. continues to work with Canada and Mexico through the Commission for Environmental Cooperation (CEC). The CEC has recently issued a risk assessment on armored catfish and snakeheads. The CEC is working to foster international cooperation on climate change, and is looking at future information sharing and funding opportunities, with consideration to the local regulatory activities that can take place with the Landscape Conservation Cooperatives (LCC's).

Margaret (Peg) Brady, U.S. Department of Commerce (DOC)

Ms. Brady has become deeply involved in strategic planning on ecosystems for the National Oceanic and Atmospheric Administration (NOAA). Like other agencies, NOAA has had a major role dealing with the Deepwater Horizon oil spill in the Gulf.

NOAA is still extensively involved with the Ocean Policy Task Force. The Ocean Policy Task Force has identified priority objectives. All member agencies will be working together to create an action plan. Invasive species are an integral part of the task force's focus.

There are four elements to NOAA's strategic plan: climate adaptation and mitigation; a weather-ready nation; resilient coastal communities and economies; and healthy oceans. This plan will soon be subject to public comment.

NOAA is also part of the Great Lakes Restoration Initiative. The initiative's budget for fiscal year (FY) 2010 is \$475 million across its member agencies. NOAA has budgeted \$8.5 million for requests for proposals (RFPs). The top proposals will be announced in July.

The American Recovery and Reinvestment Act (ARRA) has been instrumental in funding NOAA's restoration initiatives. NOAA has selected 50 projects, 30 of which have broken ground. Many of these projects focus on invasive species.

The Aquatic Nuisance Species Task Force (ANSTF) met in Portland, Maine in May. More states have come on board, but ANSTF's budget has not increased. Regional panels continue to be strong advocates of the task force's work, and are interested in expanding committee structure. ANSTF's next meeting will be in November.

Along with other agencies, NOAA has created a package of options for dealing with lionfish. The Office of Management and Budget (OMB) is reviewing the package.

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

Ms. Diaz-Soltero directed the committee to three reports in the meeting materials: a response to ISAC recommendations; a Do No Harm report; and a report compiling all grants and programs that could address invasive species.

USDA would like ISAC to provide some input on climate change issues.

The Agricultural Research Service (ARS) has over \$21 million in its budget for FY 2010, with an increase of \$6.9 million for FY 2011. ISAC member Phyllis Johnson was instrumental in securing that increase.

USDA's response to ISAC recommendations includes a section detailing what each member agency is doing with respect to biofuels.

The U.S. Forest Service (USFS) has \$89 million budgeted for invasive species for FY 2010; APHIS, \$955 million; ARS, \$269 million; the National Resources Conservation Service (NRCS), \$204 million; and the National Institute of Food and Agriculture (NIFA), \$52 million.

Hugh Mainzer, U.S. Department of Health and Human Services (HHS)

While HHS does not currently have any official policy directly related to invasive species, it is involved in some activities which may be of interest to ISAC. One program studies the effects of climate change on human health. HHS is working with the U.S. Department of State on pandemic threats. The Centers for Disease Control (CDC) have assigned individuals to the World Animal Health Organization and the Food and Agricultural Organization (FAO). HHS is part of the response to the oil spill, particularly with respect to food safety and occupational health. CDC has a program dealing with harmful algal blooms. The department has a stake in the Ocean Policy Task Force. The U.S. Public Health Service has several liaisons assigned to different federal agencies. The One Health Initiative promotes the interaction of human and animal health improvement. The Select Agents program identifies potential biologic threats. Dr. Mainzer also requested that ISAC members review the recently completed HHS report entitled “*A Human Health Perspective on Climate Change*”, and provide comments.

TOPIC DISCUSSION: CONSIDERING INVASIVE SPECIES IN THE CONTEXT OF CLIMATE CHANGE

Otto Doering, Ph.D., ISAC Member

Dr. Doering referred the committee to two papers on climate change from National Invasive Species Awareness Week (NISAW). Dr. Doering thought the longer paper was pretty good and largely complete, except for aquatic environments. The recommendations listed in both papers are the same.

The recommendations called on NISC and its member agencies to:

- Formalize the commitment to address invasive species by codifying the National Invasive Species Council in legislation and the Executive Order (EO) 13112 definition of invasive species.
- Streamline agency programs to address invasive species effectively and efficiently.
- Assess new invasion pathways and strengthen prevention programs to address invasives.
- Support monitoring and adaptive management programs for invasive species at the regional scale.
- Use the Global Change Research Act of 1990 (GCRA) to aggregate information about the implications of a changing climate for invasive species.
- Foster networks of existing organizations to address the broad geographic nature and altered management of invasive species issues in a time of climate change.
- Increase research and development targeted at climate change and invasive species.

There was one recommendation calling on Congress to:

- Build incentives into climate change legislation that require the use of non-invasive plant species for carbon sequestration and certain other activities.

Dr. Doering suggested that Dr. Smith and others produce a draft to add to the big paper with respect to aquatic environments. He allowed that the short paper could stand alone (or as is) with some additions. Vice-Chair Reaser had several comments on the short paper: the ecological impacts section needs more discussion on the potential for the range of some species to expand and others to contract; the focus seems to be on plant species and not enough on animals; there doesn't seem to be anything on pathogenicity and how it relates to climate change; there is no explicit focus on mutualism decoupling; no explicit discussion on climate matching and other tools to look at invasive species; some of the recommendations are not clearly linked to climate change; the final recommendation should be removed as ISAC advises NISC, not Congress. Finally, Vice-Chair Reaser suggested that the short paper be linked to the LCCs and other relevant initiatives underway.

Ms. Metcalf thought most of the recommendations were equally applicable to aquatic species, at least in concept. Chair Gibbs replied that she thought Dr. Smith would make sure they would be expanded to aquatics. Dr. Smith said they would. Ms. Brady pointed out that there are recommendations in the marine bioinvasions paper as well, and that Dr. Smith would discuss them on Thursday.

TOPIC DISCUSSION: GREEN ECONOMY/JOB OPPORTUNITIES RELATED TO INVASIVE SPECIES PREVENTION AND CONTROL

Jamie Reaser, Ph.D., ISAC Member

Vice-Chair Reaser gave the committee an overview of the briefing paper from the steering committee's task team on invasives and the green economy. Her intent was to get members to think about the appropriateness of follow-up actions by ISAC on these recommendations.

There were several options going forward: adopt the paper unchanged; modify the paper and transmit it to NISC as an ISAC product; use the paper as a basis for drafting a longer white paper; or take no further action on this item.

The recommendations called on NISC and its member agencies to:

- Establish a national survey of invasive species, to be administered at the state level.
- Capitalize on invasive species prevention and management needs to create social development programs for youth and persons at risk.
- Substantially increase federal agency staffing in the areas of import/border inspection for agriculture and wildlife, specimen identification, pest risk analysis and invasive species program management.
- Supplement the federal workforce by creating contract jobs in the private sector and offering grants to encourage business innovation and entrepreneurship.
- Establish/strengthen internships in invasive species identification, control/eradication, mapping and monitoring for high school and college students.
- Develop stronger relationships between the federal government and green industries potentially impacted by and/or managing invasive species.
- Mandate that, prior to receiving federal support: 1) renewable energy products have adequate invasive species mitigation plans in place and 2) biofuel developers/producers demonstrate that non-native species are of low invasion risk.

Dr. Johnson felt that unless there was a recommendation that strengthened the ability of higher education to train experts on systematic taxonomy, the recommendations to hire more inspectors at ports of entry and elsewhere would collapse. She also believed that the final recommendation should explicitly refer to wind and solar, instead of just renewable energy.

Dr. Tallamy commented that the first recommendation seemed daunting. He told the committee of a survey in his home state of Delaware on one species of plant. The survey failed because the species expanded faster than it could be tracked. He liked the idea of a survey, but felt it should be targeted a little more.

Mr. Wiltshire said that the recommendations explicitly called for the creation of federal and private sector jobs. He pointed out that there was an opportunity to create jobs at the state level as well.

Ms. Serbesoff-King felt the surveys were feasible, but they have to be smartly coordinated in a sampling approach. Such an approach is currently underway in Florida.

NISC MEMBER DEPARTMENT REPORTS (CONT.)

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

Mr. Lewke is a senior program manager in agricultural programs for the Bureau of Customs and Border Protection (CBP). He supports an increase in federal employees, especially in agricultural programs. There are 350 ports of entry, and not all of them have ag specialists. In FY 2010 to date, there have been approximately 100 first national interceptions and about as many first in port interceptions.

MEMBERS FORUM

Kathy Metcalf, Chamber of Shipping of America - In August of last year, the Coast Guard issued a request for comments on a numerical ballast water standard. There was a large volume of lengthy comments on this issue. Much of Congress' attention is focused on the oil spill, so legislation on ballast water is unlikely for the near term. The Environmental Protection Agency (EPA) is hard at work on the next iteration of the vessel general permit. In accordance with the Clean Water Act, states submit 401 certification letters in which they agree to adopt standards of EPA's vessel general permit and add any more stringent standards they deem necessary. Some Chamber members are concerned they will not be able to meet the standards adopted by some states.

Otto Doering, Purdue University - USDA's Program of Research on the Economics of Invasive Species Management (PREISM) has effectively run out of money for new research. Dr. Doering would like the program to be able to continue meeting annually in Washington for a few more years. He now heads the climate center at Purdue University. He is involved in committees on the Mississippi River and the Gulf of Mexico.

Nancy Balcom, Connecticut Sea Grant - Federal and state agencies are teaming up with sea grant programs and academia in the development of a sentinel site monitoring program on Long Island Sound.

Damon Waitt, University of Texas at Austin - Texas has launched a new statewide campaign, Hello, Invasive Species; Goodbye, Texas. The campaign encourages citizens to report invasive species to the proper authorities. Over 800 master gardeners and naturalists have been trained to detect and report invasive plants. The state continues its battle against giant salvinia. The Austin city council recently passed a resolution directing all city departments to develop an invasive species management plan.

Eric Lane, Colorado Department of Agriculture - Mr. Lane is working with the Healthy Habitats Coalition, which identifies ways to engage government in increasing awareness of invasive species issues. The coalition is pursuing the Western Governors Association with a resolution to address invasive species. It is also planning an activity in Washington in February or March to advocate for additional resources from the federal government. Colorado is in the process of hiring a new state weed coordinator.

David Starling, Aqueterinary Services, P.C. - Aqueterinary Services has conducted viral hemorrhagic septicemia (VHS) surveillance in Iowa. Results so far are negative. Emerald ash borer has been reported in northeastern Iowa.

Nathan Stone, University of Arkansas at Pine Bluff - The National Aquaculture Association has finished the second of ten workshops on biosecurity measures for disease and ANS. An effort to eradicate snakehead has been unsuccessful.

Stephen Phillips, Pacific States Marine Fisheries Commission - Due to the presence of quagga mussels, Lake Mead National Recreation Area has a policy of decontaminating boats moored for five days or longer, but there appears to be noncompliance as watercraft with attached mussels have been intercepted in states north of Lake Mead. Several western states have asked for the boat, trailer and ID numbers of boats leaving Lake Mead that are travelling to their state. The recreation area authorities have not provided this information to date, citing Privacy Act concerns that are under review by their solicitor's office. The states are currently reviewing their options.

Susan Ellis, California Department of Fish and Game - Ms. Ellis had nothing to report.

Earl Chilton, Texas Parks and Wildlife Department - The Texas legislature has directed the parks and wildlife department to develop an approved list of exotic aquatic plants. Zebra mussels have been detected in Lake Texoma, as well as a small creek, where they could infect the entire Trinity River basin.

Kristina Serbesoff-King, The Nature Conservancy - Ms. Serbesoff-King encouraged members to visit floridainvasives.org. The website contains a map of the cooperative invasive species management areas (CISMAs) in Florida. The Nature Conservancy has collaborated with the University of Georgia on an early detection training program for the CISMAs. It also has an ID deck for non-native reptiles, and pocket cards on how to report invasive species online.

Jennifer Vollmer, CPS Timberland - Dr. Vollmer has been working on a vegetation management decision support tool. If all goes well, she hopes to bring it before ISAC at a future meeting.

Amy Frankmann (ISAC Secretary), Michigan Nursery and Landscape Association - The horticultural industry in Michigan is closely involved with invasive species. It is collaborating on a white paper-type program which state nursery and landscape associations could incorporate into their individual certification programs.

Ann Gibbs (ISAC Chair), Maine Department of Agriculture - APHIS is currently implementing the recommendations of a national firewood task force. The recommendations deal with outreach, voluntary methods and regulatory actions. The Northeast Forest Pest Survey and Outreach Project has expanded to include 11 states. The survey focuses on Asian longhorn beetle and emerald ash borer. This year, Maine is regulating the importation of firewood. Enforcement of the regulation has proved daunting.

Jamie Reaser (ISAC Vice-Chair), Pet Industry Joint Advisory Council (PIJAC) - PIJAC has been asked to work with the Global Invasive Species Program to develop a toolkit of best management practices for minimizing the risk of introduction of former pets, either through intentional releases or escapes. It is due to deliver the toolkit to the Convention on Biological Diversity in October. Instead of a hard copy, PIJAC has opted to create a website.

Robert Wiltshire, Center for Aquatic Nuisance Species - Mr. Wiltshire stressed the importance of achieving voluntary compliance from the boating industry. Felt soles on the bottom of fishing boots have been banned in several jurisdictions. A study is nearly complete on when it's appropriate to send potentially contaminated boats to a private car wash. Another study seeks to determine if the permit process on permitted rivers affects behavior. Last month, DOI kicked off the Great America Outdoors Listening Session.

Joseph DiTomaso, University of California, Davis - The California Invasive Species Advisory Committee has developed a comprehensive list of taxa in the state, which includes potential problems as well as current ones. It is also at work on a strategic plan, which will be complete by the end of the year. The California Division of Natural Resources has created four initiatives, one of which deals with endemic and invasive pests.

Janet Clark, Sweetgrass Consulting - There has been talk of another national conference on cooperative weed management areas, in 2011. The Midwest Invasive Plant Network is attempting to procure funds. The Northwest Invasive Plant Council is trying to reactivate itself. The Northern Rockies Invasive Plant Council is holding its second conference on invasive species in natural areas at the end of October in Coeur d'Alene, Idaho. The Great Northern Landscape Conservation Cooperative (LCC) has an implementation plan.

Scott Hendrick, National Conference of State Legislatures (NCSL) - Virtually every state has had to deal with massive budget issues. Several hundred bills in approximately 35 states address invasive species. Over 50 bills in 25 states have passed. NCSL will hold its annual meeting at the end of July. Its invasive species policy will be up for renewal.

Leslie Cahill, American Seed Trade Association - The U.S. seed industry is closely following the NPDES issue. The American Seed Trade Association will hold its annual meeting in San Antonio in a week or so. It has been working with USDA and the Department of the Navy on a memorandum of understanding on renewable fuels. It is also weighing in on the farm bill. In *Monsanto v. Geertson Seed Farms*, the Supreme Court ruled in favor of the industry.

Douglas Tallamy, University of Delaware - Dr. Tallamy has just received new data from long-term common garden experiments. The results basically confirm the predictions that insects won't be able to eat plants that evolved someplace else very well, unless the invasive plant is closely related to a native plant, and even then, it significantly reduces insect diversity.

Phyllis Johnson, University of North Dakota - North Dakota has seen a lot of growth in the wind energy sector. Devils Lake in North Dakota is at its highest level in at least 200 years. The U.S. Army Corps of Engineers is working on a means to prevent overflow, which would have a catastrophic effect on streams in the Red River basin in both the US and Canada.

Celia Smith, University of Hawaii - Farmers on Maui have been replacing sugarcane, which protects against harmful algal blooms, with biofuels, including the potentially invasive jatropha. The stimulus is helping to fund the cleanup of alien algae in Maunalua Bay.

Robert McMahon, University of Texas at Arlington - The Q-ZAP program has received \$2 million in federal funding. The program has received 24 proposals. ANSTF is in the process of creating a Q-ZAP coordinating committee. Dr. McMahon is working with NPS on examining the population dynamics of quagga mussels in shallow water in Lake Mead.

Edward Mills, Cornell University - There is a Great Lakes fellowship program for newspaper editors. Dr. Mills has been part of a conference on Lake Superior, focusing largely on the effective control of the sea lamprey population there.

Steven Jay Sanford, New York State Department of Environmental Conservation - The Department of Environmental Conservation has recently submitted a report asking the state legislature for the authority to generate lists of prohibited, regulated and unregulated species. Mr. Sanford is seeking legislation in New York prohibiting the movement of invasives on boats. His department is close to sending a draft to the legislature, but any legislation will likely not have any fees or revenues attached. There is a move to build a system of cooperative invasive species management areas across the state of New York.

NISC STAFF REPORT

Lori Williams, NISC Executive Director

Ms. Williams recently completed the Senior Executive Service Career Development Program. She thanked the NISC staff for its hard work, which enabled her to focus on this program.

Phil Andreozzi is still working on the Guam biosecurity plan with USDA, NOAA, DoD and many other agencies. The plan examines the risks of invasive species arising from the military buildup on the island. Mr. Andreozzi will be at the next ISAC meeting. NISC is interviewing

actively for the position of assistant director for prevention and budgetary coordination. Ms. Williams hopes to have a candidate selected by the end of the summer.

Much of DOI's attention is focused on the oil spill. It is possible that some NISC staff members could be asked to serve in the Gulf.

There is a staff of five economists in DOI. Ms. Williams sees a great opportunity to perform economic impact studies on invasive species.

The first National Invasive Species Awareness Week (NISAW) was a big success. NISC would like the next NISAW to focus more on outreach in an attempt to draw in more constituencies.

NISC is assembling a report on its activities, including its success so far in implementing the National Invasive Species Management Plan. Ms. Williams hopes the report will be complete by early fall.

NISC staff have been discussing with ISAC officers ways to make ISAC more effective. Regarding further engaging ISAC, Ms. Williams discussed how to make ISAC a more effecting body, by looking at areas where there has been success in the past when initiating future projects; looking for more synergy with agencies on our work. Some ideas on how to achieve this are to have more subcommittee meetings, examining Best Management Practices, further engagement of State invasive species councils, more effective recommendations and action items, and better follow-up.

Dr. Dionigi added that the Government Accountability Office (GAO) is reviewing grants.gov, the principal means by which people find discretionary funding opportunities in the federal government. He and Ms. Brantley are leading an ongoing effort to use the GAO review to make grants.gov more functional.

NISC RESPONSE TO ISAC RECOMMENDATIONS (December 2009 meeting)

Chris Dionigi, NISC Assistant Director for National Policy and Programs

ISAC Recommendation 1: ISAC recommends that the Department of Transportation (DOT) Federal Highway Administration (FHWA) maintains its capacity to provide support and expertise to state departments of transportation and coordinate with other agencies regarding invasive species management.

NISC Response: *DOT is in the process of hiring an individual in FHWA who will be specifically responsible for working on this.*

ISAC Recommendation 2: ISAC recommends that NISC agencies develop strategic plans and implement mechanisms for the sustained support of research on management of invasive species in natural systems, including prevention, control and restoration.

NISC Response: *Within the White House Office of Science and Technology Policy (OSTP), there is a National Science and Technology Council. There is also the Committee on Environment and Natural Resources (CENR); however, its charter sunset in 2009. Recently, the President's Council on Advisors on Science and Technology (PCAST) was established.*

Dr. Dionigi is working through PCAST to determine the status of CENR. The National Science Foundation (NSF) has the National Environmental Observatory Network (NEON), whose focus includes invasive species. Engaging NEON might be a way to implement this recommendation.

ISAC Recommendation 3: ISAC urges NISC to assist Congress in the development of a strong national program to regulate vessel discharge.

NISC Response: Dr. Dionigi reminded ISAC members that NISC staff, as career federal employees, cannot directly engage Congress on such matters. However, if there is a specific request, there is a formal mechanism by which NISC can provide technical assistance. EPA and the Coast Guard are jointly sponsoring a National Academy of Sciences (NAS) study assessing the numeric limits of living organisms in ballast water. The EPA Science Advisory Board is conducting a review of data on the effectiveness of ballast water treatment systems in July. The Coast Guard and EPA are also working together on the Great Lakes Restoration Initiative.

ISAC Recommendation 4: 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.

NISC Response: Dr. Dionigi said he would get back to ISAC on this recommendation.

APPROVAL OF MINUTES FROM DECEMBER 2009 MEETING

Chair Gibbs called for the approval of minutes from the December 2009 meeting. Mr. Wiltshire moved approval. Ms. Serbesoff-King seconded. The minutes were approved unanimously.

PRESENTATION: CALIFORNIA MARINE INVASIVE SPECIES PROGRAM

Maurya Falkner, California State Lands Commission

A recent study by Carlton et al. indicates that ballast water transports approximately 7,000 species per day. Hull fouling has also become a big issue in California, especially on slow-moving vessels. Work by the California Department of Fish and Game show that nearly 80 percent of species identified as non-native are coming from the commercial shipping vector, whether through ballast water or hull fouling.

In 1999, legislation was passed in California creating the first statewide mandatory ballast water management program. The program dealt only with vessels coming from outside the economic exclusive zone. The Marine Invasive Species Act (2003) reauthorized the original law, expanding the program was expanded to include vessels from inside the economic exclusive zone.

The laws in California are similar to those of the Coast Guard. They cover commercial vessels weighing 300 gross registered tons or larger that are capable of carrying ballast water and are operating within California waters. The only exemptions are for armed forces vessels and vessels in innocent passage. In addition to Coast Guard requirements, California requires a

mandatory date for fouling removal, hull husbandry reporting and a fee. While the fee was contentious when it was first implemented, its compliance rate is now over 98 percent.

The California state legislature mandates that the State Lands Commission (SLC), in conjunction with a technical advisory group, look at beneficial uses of effective water bodies and available technologies and come up with a performance or discharge standard. SLC invited 41 different entities to participate on the advisory panel. The Coast Guard was in the midst of a rulemaking and unable to take part, but most others accepted. The panel held five meetings, which generated two primary recommendations and two reports. SLC has an agreement with the maritime industry to conduct technology assessments 18 months in advance of each implementation date.

The industry wanted SLC to officially approve technologies. It does not really have that authority under the law. However, SLC did want to have some oversight in evaluation of treatment technologies. It will be conducting dockside inspections and verifying compliance with performance standards.

In its new technology assessment report, SLC looked at 46 different systems. Based on the limited data available, SLC concluded that there are eight systems with the potential to meet California standards. There are another three that appear to meet California standards over 50 percent of the time.

SLC's policy has always been to work with industry to solve problems, not to beat industry up. In its 11 years of operation, SLC has taken enforcement action twice, and in both cases, the offending party was not responding to e-mails, legal letters or anything else.

SLC has been mandated to identify the risk of hull fouling, and come up with management guidelines by January 1, 2012. Over the last three years, it has collected hull husbandry and voyage characteristic data from all vessels that visit California ports. Out-of-water hull cleaning is required every 60 months, but SLC is unsure if that is often enough. The risk of hull fouling also increases with port residency time.

LEGISLATIVE AND REGULATORY UPDATES

Kristina Serbesoff-King, The Nature Conservancy

ISAC was running behind schedule, so Chair Gibbs directed the committee to Tab 3 of the meeting materials, which contained a summary of some of the bills pending.

Ms. Serbesoff-King said she had checked the status of what used to be the 100th meridian bill. Many on the east coast would like to see it expanded, because it currently only covers the western states plus Alaska and Hawaii. There has been no movement on this bill recently, nor is there likely to be any time soon because of the Gulf oil spill.

There has been significant discussion through the National Environmental Coalition on Invasive Species to try to strengthen HR 669, the Non-Native Wildlife Invasion Prevention Act, possibly through a Senate companion.

There is a new law in Florida banning the personal possession of nine reptile species. The final rulemaking will be established in a commission meeting.

SUBCOMMITTEE AND TASK TEAM MEETINGS (GROUP 1)

ISAC recessed so that subcommittees could meet. The subcommittees that met at this time were prevention; communication, education and outreach; and control and management.

REVIEW OF DAY 1 ACTION ITEMS

Secretary Frankmann reviewed the day's action items. The first came from NISC staff regarding NPDES. Anyone submitting comments should forward them to Ms. Williams. The other two, dealing with the green economy and climate change, would be discussed further on Thursday.

PUBLIC COMMENT

Walt Vance, Recreational Boaters of California - Mr. Vance thanked ISAC for the opportunity to attend this meeting.

Hon. A.G. Kawamura, California Secretary of Agriculture: Mr. Kawamura welcomed ISAC to California. He reminded the committee of the budget cuts the state has had to make and their effect on the state's infrastructure. He stressed the importance of investing in infrastructure now more than ever.

Bob Schutzki, Michigan State University - Dr. Schutzki directed the committee's attention to the executive order on invasive species and the green economy where it says, "the federal agencies do not authorize funds or carry out any action," and reminded members that the last part of that sentence is, "unless the benefits of the species clearly outweigh the negative impact that the species has." He added that if a national survey is adopted, there should be additional information outlining the criteria and how the criteria should be documented. Finally, he advocated reviewing issues of importance to green industries as a means of developing stronger relations with them.

END OF DAY 1

The committee recessed for the day at 4:57 p.m.

NATIONAL INVASIVE SPECIES COUNCIL (NISC)

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INVASIVE SPECIES ADVISORY COMMITTEE (ISAC)

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MEETING

+ + + + +

THURSDAY
JUNE 24, 2010

+ + + + +

MINUTES

+ + + + +

The Committee convened at 8:00 a.m. at The Argonaut Hotel, 495 Jefferson Street, San Francisco, California, E. Ann Gibbs, ISAC Chair, presiding.

COMMITTEE MEMBERS PRESENT:

E. ANN GIBBS (Chair)	Maine Department of Agriculture
JAMIE REASER (Vice-Chair)	Pet Industry Joint Advisory Council
AMY FRANKMANN (Secretary)	Michigan Nursery and Landscape Association
PETER ALPERT	University of Massachusetts
NANCY BALCOM	University of Connecticut
LESLIE CAHILL	American Seed Trade Association
EARL CHILTON, II	Texas Parks and Wildlife Department
JANET CLARK	Sweetgrass Consulting
JOSEPH M. DiTOMASO	University of California, Davis
OTTO DOERING, III	Purdue University
SUSAN ELLIS	California Department of Fish and Game
SCOTT HENDRICK	National Conference of State Legislatures
PHYLLIS JOHNSON	University of North Dakota
ERIC LANE	Colorado Department of Agriculture
ROBERT McMAHON	University of Texas at Arlington
KATHY METCALF	Chamber of Shipping of America
EDWARD MILLS	Cornell University
STEPHEN PHILLIPS	Pacific States Marine Fisheries Commission

STEVEN JAY SANFORD	New York State Department of Environmental Conservation
KRISTINA SERBESOFF-KING	The Nature Conservancy
CELIA SMITH	University of Hawaii
DAVID E. STARLING	Aqueterinary Services, P.C.
NATHAN STONE	University of Arkansas at Pine Bluff
DOUGLAS W. TALLAMY	University of Delaware
JENNIFER VOLLMER	CPS Timberland
DAMON E. WAITT	University of Texas at Austin
ROBERT H. WILTSHIRE	Center for Aquatic Nuisance Species

COMMITTEE MEMBERS ABSENT:

TIMOTHY MALE	National Fish and Wildlife Foundation
THOMAS REMINGTON	Colorado Department of Natural Resources
JOHN TORGAN	Save the Bay

NISC STAFF PRESENT:

LORI WILLIAMS	Executive Director
CHRISTOPHER (CHRIS) DIONIGI	Assistant Director for National Policy and Programs
KELSEY BRANTLEY	Program Analyst and ISAC Coordinator
DELPHA ARNOLD	Office Manager

NISC POLICY LIAISONS PRESENT:

MARGARET (PEG) BRADY	U.S. Department of Commerce
A. GORDON BROWN	U.S. Department of the Interior
PETER EGAN	U.S. Department of Defense
BRUCE LEWKE	U.S. Department of Homeland Security
HUGH MAINZER	U.S. Department of Health and Human Services
HILDA DIAZ-SOLTERO	U.S. Department of Agriculture

OPENING ANNOUNCEMENTS

Chair Gibbs called the advisory committee meeting to order at 8:00 a.m. She reminded members to provide any action items or recommendations in written form and that the committee must come to a decision on the white papers by the end of the day.

SUBCOMMITTEE AND TASK TEAM MEETINGS (GROUP 2)

ISAC recessed so that subcommittees could meet. The subcommittees that met at this time were research and information management; early detection, rapid response; and organizational collaboration.

TOPIC DISCUSSION: MARINE INVASIVE SPECIES IN THE CONTEXT OF CLIMATE CHANGE

Celia Smith, Ph.D., ISAC Member

A 2007 report by the Intergovernmental Panel on Climate Change (IPCC) finds that climate change will lead to a rise in sea levels, ocean temperatures and ocean acidification.

Sea levels may rise by two or even three feet, inundating 10,000 square miles of land in the US, an area the size of roughly 43 percent of the country's wetlands. The predicted effects on the coastal and ocean ecosystems include increased turbidity of the water, increased pollution from runoff, submergence of wetlands, less diversity of species, disruption of groundwater flow and increased salt in agricultural fields. The altered habitats will likely be favorable to invasive species.

A temperature increase of as little as one degree over the mean monthly temperature could lead to coral bleaching in tropical environments, decimating framework species and allowing non-native, potentially invasive species to move in. As oceans warm, there will be a decline in cold-affinity species and an increase in warm-affinity species. Regional extinctions will be more common.

The rapid equilibration of increased carbon dioxide from the atmosphere into the water leads to the formation of a carbonic acid, which lowers the pH of seawater. This will lead to a decrease in integrity of carbonate structures, threatening many of the native species in coral reefs.

The effects of climate change on marine environments is already underway. Species from lower latitudes have spread into higher latitudes. The invasion of overseas species that were previously excluded has already occurred. Failed earlier invasions are more likely to be successful now because of habitat homogenization due to climate change.

Managing the human impact on oceans will be a major challenge going forward. The rate of global shipping is expected to keep growing. There is no part of the planet's marine environments that have not been affected by human activity. Climate change is only one part of the puzzle. It interacts with other major factors to impact marine ecosystems.

Dr. Smith offered ISAC the following recommendations for comment:

- Develop a national strategy for monitoring.
- Fund dedicated research programs.
- Increased coordination among federal, state and local agencies and academic institutions.
- Develop rapid response plans.
- Enhance vector management policies.
- Expand educational and outreach programs.

Dr. Chilton pointed out there had been fluctuations in ocean temperature over time, and asked if there were similar fluctuations in pH. Dr. Smith replied she was pretty sure there had been, but she didn't have those details with her. She added that unless climate change is mitigated, changes in pH could be substantial, profoundly impacting marine ecosystems.

Dr. Mills asked if there were any plans to expand monitoring on an international level, given the global significance of climate change. Dr. Smith answered that if a national program were put in place, there are a number of international programs with which it could collaborate.

Dr. Dionigi asked if it was possible to conclude that the carbon released as coral systems erode is feeding back into atmospheric carbon. Dr. Smith said it was an excellent question she could not answer. Dr. Doering added there are people working on this issue, but the answers at this stage are only tentative.

Dr. Alpert cited the National Park Service's (NPS) inventory and monitoring program as an example of national monitoring.

Ms. Clark said she liked these recommendations, and asked the other ISAC members if they wanted to make any changes. Ms. Williams remarked that given the budget climate, it might be prudent to prioritize the recommendations.

PRESENTATION: LAKE TAHOE INVASIVE SPECIES AND CLIMATE INTEGRATION

Lars Anderson, Ph.D., U.S. Department of Agriculture, Agricultural Research Service (USDA/ARS)

As a deep alpine lake, Lake Tahoe is a very unique environment. It hosts millions of seasonal boaters, which makes it vulnerable to invasive species. About 40 years ago, a large marsh at the south end of the lake was replaced by the Tahoe Keys, a housing development, removing a major biofilter. Several aquatic invasive species have entered the lake. The emphasis used to be on keeping Lake Tahoe clean and blue. Now the focus is on ecosystem, science and service-based research. Up until now, the "basin plan" prohibited the use of any toxic pesticide in the lake. Starting in the next eight to twelve months, it will be possible to use aquatic herbicides there.

Fallen Leaf Lake was the first lake in California to implement a mandatory boat inspection plan, about four and a half years ago. Lake Tahoe followed suit a year and a half later. Sentiment at the local level drove the implementation of these plans. The cost of inspecting all boats at Lake Tahoe is about \$1 million each year. A fee has been put in place to help pay for that service. Two or three dozen boats with quagga and/or zebra mussel populations have been interdicted to date.

In the 1880s, non-native fish species were introduced for game fish purposes, extirpating the cutthroat trout. The native daphnia shrimp were displaced by the mysid species, altering the entire food chain in that system. Plant surveys begun in 1995 indicated the presence of Eurasian watermilfoil, probably when the Tahoe Keys were built. Curly leaf pondweed was found in Lake Tahoe in 2003.

In the last four years, the Tahoe Research Conservation District (TRCD) helped put together a workshop that led to the creation of a coordinating committee. Last year, an ARS plan for aquatic invasive species responses was approved. The Southern Nevada Public Land Management Act (SNPLMA) is a major source of funding. ARS has requested \$3.2 million under the act for the fiscal year.

Curly leaf pondweed produces small turions which fall off the plant and spread rapidly around the lake. The only mechanism to control curly leaf pondweed is to physically remove it by harvesting and cutting. This process makes it easy for turions to fall off and spread.

There is currently no regulation on keeping equipment clean when it is used to work on docks. ARS recently found two spots of Eurasian watermilfoil. A dock was replaced two years ago, and the equipment, which came from the Keys, was allowed to just sit there. New standards are being put in place to make sure this doesn't repeat itself.

A new regulation requires someone wanting to dredge to conduct a complete survey for all invasive aquatic plants. If invasive aquatic plants are found, the applicant must at least have a plan to remove them.

Asian clam was discovered four years ago in Lake Tahoe. This species creates very large beds. The only ways to remove it are physical removal or diver-assisted suction dredge. There is evidence that the Asian clam is able to cycle nitrogen, allowing algae to grow more profusely. Asian clam may also facilitate the spread of quagga and zebra mussels.

Warm water, non-native fish species in Lake Tahoe are another concern. There is a plan to address these species by removing aquatic plants that provide habitats for them, and to restore the native fish habitats.

ARS has been asked to do some dye studies in Lake Tahoe before it starts using herbicides. It received approval from the water board to conduct a rhodamine WT survey over the summer and fall.

Over the past 100 years, Lake Tahoe's maximum temperature has risen from 55 to 57 degrees. The minimum temperature has increased as well. The number of days below freezing has fallen from around 80 to around 55. Surface water temperatures are expected to continue to increase dramatically. The effects of climate change on Lake Tahoe include propagules sprouting earlier, more rapid phosphorus cycling, propagation of invasive clam species, establishment of species not previously seen in the lake, rapid senescence, dissolved oxygen, more algal blooms and altered runoff and nutrient loading.

PRESENTATION: THE INVASIVE SPECIES CHALLENGE IN ESTUARINE AND COASTAL ENVIRONMENTS: MARRYING MANAGEMENT AND SCIENCE

Ted Grosholz, Ph.D., University of California - Davis

There are numerous stressors on coastal environments; which raises the question: Why spend limited resources on invasives? Dr. Grosholz believes it is necessary to examine how these other factors relate to invasives, and what is possible over the short and long terms.

Eradication and control are important priorities in estuarine and marine systems. These environments are often viewed as open places where eradication efforts are not likely to succeed. It has become clear that tools are needed to deal with invasive species once they become established. Rapid response is important, but it is also important to determine how to respond. Several programs have shown that eradication is possible if done early enough.

Dr. Grosholz showed the committee a graph of the area affected by an invasive species versus the cost of eradicating it. He would like to be able to do that with many more species worldwide to remind people that it is cost-effective to catch invasive species early.

Spartina is a species that covers open mudflats, resulting in a loss of habitat for shorebirds. The eradication process, begun about six years ago, involves aerial spraying and digging. Spartina has proven amenable to chemical and herbicide control. Eradication efforts have been highly successful in both San Francisco Bay and Washington state.

Caulerpa covered enormous areas of southern California in high densities. It was removed over a two-year period. The eradication involved the use of chlorine pumped into tarped areas. The effort was successful, and the species has not returned.

Both eradication efforts had similar goals and outcomes. In the case of spartina, significant study went in to the different methods of herbicide application. It is now possible to research ways to restore native species. With caulerpa, there was not much coordination between academic scientists and agencies. Consequently, opportunities to explore other methods of caulerpa eradication and native species restoration were lost. Agencies and academic scientists can each bring to the table information that is critical to the decision process.

SUBCOMMITTEE REPORTS

Communication, Education and Outreach (Dr. Waitt reporting): At past meetings, this subcommittee had recommended small changes to the NISC website that had still not been implemented. Ms. Williams promised to work on getting those changes up in the next couple months. The subcommittee thought it would be worthwhile to recraft white papers for a more public audience. It considered developing its own white paper on the best ways to communicate information on invasive species to the general public. It recommends that NISC's federal partners get their reports in so that NISC staff can compile its annual report. Ms. Balcom will be the new chair of the subcommittee. The subcommittee will develop a communication plan, possibly based on one developed in the past.

Prevention (Dr. Reaser reporting): This subcommittee entertained a presentation from Christiana Conser, who talked about California's plant listing and certification program. It elected Dr. Smith as its new chair. Thirdly, it identified hull fouling as a topic of concern. Ms. Metcalf will draft a briefing paper on the subject. Other subcommittee members will contribute to the paper. The subcommittee discussed opportunities for committee members to review the Ocean Policy Task Force and NOAA's strategic plan documents. Ms. Brady will circulate those documents to the committee. The subcommittee recognized that there had been little emphasis in ISAC on the effect of invasive species on human health, and suggested this as a theme for a future meeting. Another topic of discussion was the potential for internet and postal trade as a pathway for invasive species movement. The subcommittee will review a paper by the Global Invasive Species Program.

Control and Management (Dr. DiTomaso reporting): Dr. DiTomaso is also chair of the control and management subcommittee of the California invasive species advisory committee. In that capacity, he has reviewed several states' strategic plans. He put together topics that he thought were of importance: expanding biological control efforts; developing statewide public education and professional training programs using integrated pest management (IPM) principles; developing a centralized database to serve as a clearinghouse for information on management options; coordinating eradication programs, management programs that were occurring; increasing the support for management areas; increasing the number of biologists for early detection; developing and implementing a prioritization eradication model; streamlining the regulatory process for facilitating rapid response and eradication of newly discovered invasive species; establishing robust mapping and monitoring programs; supporting funding to develop more effective management tools and restoration programs; evaluating the economic and ecological impacts of management and restoration efforts, and of no action; and developing a process for responding to outbreaks of invasive species in a coordinated approach among agencies of stakeholders. The subcommittee will then decide which topic(s) it would like to write a white paper on, and develop a strategic management plan.

Research and Information Management (Dr. Alpert reporting): This subcommittee is still waiting to hear from the American Association for the Advancement of Science (AAAS) whether the subcommittee's proposal for a symposium on "Invasive Species: What Harm Do They Do?" will be approved for inclusion in the 2011 meeting of AAAS [Note: the symposium was approved following the ISAC meeting]. The subcommittee will propose two presentations for the fall ISAC meeting, one by Dr. Laura Meyerson of the University of Rhode Island on invasive genotypes within species and one by an official from USDA on advance warnings of potential, new, invasive species. The subcommittee hopes that the first presentation will lead to a recommendation that federal policy recognize that the introduction of new genotypes of species that are already present can result in biological invasions, and that the second presentation will lead to greater acceptance of advance warning as an essential precursor to early detection and rapid response. Following communications from Dr. Diana Padilla and Dr. Andy Cohen, the subcommittee approved for consideration by ISAC a recommendation that NPS not approve new

introductions of *Crassostrea gigas* without thorough assessments of the risks of negative effects on ecological functions or native species.

Early Detection, Rapid Response (Mr. Phillips reporting): For the next ISAC meeting, this subcommittee would like to develop an outline of a white paper on early detection monitoring, specifically on polymerase chain reaction (PCR) techniques. It talked about bringing in a speaker to discuss this issue. A subcommittee within the subcommittee is looking at the legal hurdles involved with EDRR. The EDRR subcommittee briefly discussed S 3063, Senator Reid's 100th meridian bill. Many interested groups are tracking the bill, but the chances of it passing are slim. Another topic of discussion was infested boats from Lake Mead. Mr. Phillips plans to continue working with Gordon Brown and others at the Department of the Interior (DOI) on this issue.

Organizational Collaboration (Ms. Ellis reporting): The subcommittee discussed the upcoming National Invasive Species Awareness Week (NISAW) meeting and what the committee can do to assist NISC staff. NISAW will be held the week of February 28, 2011. Conference calls are planned for early July. This subcommittee came up with a couple action items: it would like an update on the National Environmental Policy Act (NEPA) process; it also wanted to renew efforts to engage the Department of Energy (DOE) as part of NISC; finally, it would like to see budget numbers from all NISC member agencies. Mr. Hendrick has developed a list of state councils; the subcommittee is going to look at what constitutes a working definition of a state council. Another possible action would be to set up a listserv for ISAC to communicate with these state councils. Stas Burgiel volunteered to help with a yearly calendar of international events. There was also some discussion about the Centre for Agriculture and Biosciences International (CABI).

PRESENTATION: WEST COAST SPARTINA ERADICATION PLAN

Mark Sytsma, Ph.D., Portland State University

There are four non-native species of spartina on the west coast: *alterniflora*, *anglica*, *patens* and *densiflora*. There is also a hybrid of *alterniflora* and the native *foliosa*. *Densiflora* and *patens* grow in the upper marshes, where they are interspersed with native vegetation, making early detection difficult. *Anglica* grows in the lower marsh on open mud flats.

Aquatic invasive weed species tend to have a larger economic impact than their terrestrial counterparts. The cost of spartina per acre is especially high. One of the major effects of spartina is sediment accretion in plant beds, which converts low elevation mud flats into higher elevation spartina meadows. This impacts the hydrology of the estuary, creating deep, rapidly flushing channels. Consequently, these habitats become less ideal for juvenile salmonid. Spartina also have an adverse effect on the habitats of food species for shorebirds.

Drift card data have shown that materials can move from one estuary to another along the coast. Some drift cards released in places like California's Humboldt Bay have been found as far away

as Kodiak Island in Alaska. It is possible that spartina is moving in a similar manner. Because of spartina's mobility, individual states cannot manage it alone; a coast-wide plan is necessary.

One means of combating spartina is a weed-whacker with a blade attached. This method, practiced in Humboldt Bay, has been pretty successful where applied, but spartina covers thousands of acres in the bay, so this solution is not particularly practical.

Herbicides are another option but public opinion in the Humboldt Bay area and elsewhere largely opposes their use. The owner of Cox Island in Oregon's Siuslaw Estuary is using a landscape fabric instead of herbicides to counter the spread of spartina patens. Dr. Sytsma and his colleagues estimate that one pint of the herbicide imazapyr would take care of this problem. The landscape fabric, while effective, covers 15 percent of the island, and takes a long time to eradicate spartina. Meanwhile, spartina has spread off the island to other habitats. The Oregon department of agriculture has warned the owner that it will take over the eradication effort if spartina is not under control in two years.

A 2001 NPDES lawsuit temporarily resulted in the prohibition of spraying in Washington's Willapa Bay. A snowcat was employed as a stopgap measure to crush spartina. This method has worked in Willapa Bay, but has not consistently worked at each site. Dr. Sytsma touts imazapyr as the chemical that saved Willapa Bay. In 2002, there were 15,000 acres of spartina in the bay. Thanks to imazapyr, that number is down to 25.

Spartina species leave a large rhizome mat in the sediment. Anaerobic sediment does not decompose rapidly, so the increased elevation due to sediment accretion does not simply go away after treatment. In places like Willapa Bay, high marsh species rather than the native low marsh ones have colonized treated areas.

The governors of west coast states have come to an agreement on ocean health. They have developed a series of priorities, including protecting and restoring coastal habitats. Within this section, there are various goals, one of which calls for the prevention of future establishment of non-native species by reducing or impeding pathways of introduction. A specific objective is the eradication of non-native spartina, or cordgrasses, on the west coast.

The ocean health agreement has led to the formation of a series of action coordinating teams (ACTs), one of which deals with spartina. The plan the spartina ACT has formulated contains many of the typical elements of a weed management plan: prevention; early detection, rapid response; eradication; and communication and outreach. It also addresses restoration, which one does not often see in such a plan.

ISAC RECOMMENDATIONS/ACTION ITEMS

Paper on Green Economy/Job Opportunities Related to Invasive Species Prevention and Control

Since virtually all comments provided on the invasives and green economy paper were minor, NISC staff and ISAC officers decided to try to incorporate the comments now in the hope that ISAC could adopt a version of the paper as a product from this meeting. Vice-Chair Reaser listed the following changes:

- Modifying the title to Invasive Species and Public Investment in the Green Economy.
- Putting it under the framework of an ISAC, rather than a NISAW, paper.
- In the footnote section, removing a reference to NISAW members involved in the paper and switching a NISAW document as reference for an ISAC document as reference.
- Adding a new paragraph on commercial uses of invasive plants, recognizing that there's green market potential through the harvest of invasive species.

The revised recommendations of this paper called on NISC and its member agencies to:

1. Establish a national survey of invasive species, to be administered at the state level. Support this program by substantially increasing federal and state jobs at all technical levels to survey, identify, map, catalog and model patterns/trends of invasive plants and animals. Include the existing state and regional invasive species committees/councils in the development and implementation process. Place priority on invasive species known or predicted to have substantial impact.
2. Supplement the federal and state workforce by creating contract jobs in the private sector offering grants to encourage business innovation and entrepreneurship (e.g., native plant and seed companies, ecosystem restoration, invasive plant mapping and control services, education and outreach programs.)
3. In order to counter the dramatic decline in taxonomic capacity, provide grants to support research, education and training of taxonomy as well as job creation for taxonomists and peri-taxonomists.
4. Substantially increase federal and state agency staffing in the areas of import/border inspection for agriculture and wildlife, specimen identification, pest risk analysis (including pre-import screening), and invasive species program management (especially public education/outreach, regulatory enforcement and early detection, rapid response).
5. Establish/strengthen internships in invasive species identification, control/eradication, mapping and monitoring for high school and college students. Support comparable federal, state, tribal and non-profit initiatives.
6. Establish a multi-stakeholder process, for example, a conference or conference session, for a focused discussion on the efficacy and as appropriate, best management practices that require the responsible harvest and use, including commercial use, of currently established invasive species.
7. Mandate that, prior to receiving federal support: a) renewable energy projects,

especially solar, wind and biofuels, have adequate invasive species mitigation plans in place and, b) biofuel developers/producers demonstrate that non-native species are of low invasion risk (to the propagation site, area of potential dispersal and along transport pathways) based on a competent invasive species risk analysis.

Dr. Tallamy moved adoption of the paper as written, except for Recommendation 6, which was removed. Ms. Clark seconded. The motion passed unanimously.

Dr. Waitt made a motion to reconsider adoption of the paper. Dr. Johnson seconded. The motion passed. Dr. Waitt then made a motion to remove the paragraph describing commercial uses of invasive plants and re-adopt the paper. Dr. Johnson seconded. This motion passed, with Dr. Starling, Dr. Stone, Dr. Vollmer and Ms. Balcom opposing.

Action Items

Secretary Frankmann reviewed the action items before ISAC.

1. Continue working on the paper regarding climate change and invasives and revisit the paper at the next ISAC meeting.
2. Circulate the marine bioinvasions and climate change white paper among ISAC members. Members may submit substantive comments to Celia Smith by August 1 of this year. The paper will be revised with comments and resubmitted to ISAC for endorsement and submission to NISC agencies at the fall 2010 meeting.
3. In an effort to aid NISC staff to understand stakeholder issues, ISAC encourages members to copy comments on the proposed NPDES permitting process to NISC staff.

Recommendations

Recommendation 1. ISAC recommends that NISC support a communication network, in collaboration with the National Conference of State Legislatures, among state invasive species councils.

Dr. Doering moved adoption of this recommendation. Mr. Sanford seconded. The motion passed unanimously.

Recommendation 2. ISAC recommends that NISC incorporate state invasive species councils into the 2011 National Invasive Species Awareness Week program, possibly via a summit involving state-based invasive species council members.

Vice-Chair Reaser pointed out that ISAC recommendations are normally directed at federal agencies, not NISC staff. She suggested this recommendation be reclassified as an action item. Mr. Hendrick concurred. There was no objection to the reclassification.

Recommendation 3. *Crassostrea gigas*, shown to be able to escape from aquaculture, may have negative effects on native species and change ecological systems. ISAC recommends that federal agencies should submit all proposals for new introductions of *C. gigas* to a risk assessment process, such as the invasive species risk assessment program of NOAA. In particular, NPS should do so before approving new introductions of *C. gigas* into estuaries on the Pacific coast.

Dr. Stone proposed leaving this recommendation alone, saying there was more to this issue than could be addressed at this meeting. Mr. Phillips agreed. Ms. Williams suggested this recommendation be made an action item in order to get more information on the topic. Vice-Chair Reaser commented that it seemed like there was much the committee didn't know on this issue and reminded the group that being off the mark on a recommendation would adversely impact ISAC's credibility. **The consensus among ISAC members was that this should be changed to an action item on the understanding that Mr. Brown would research the issue and report back to the committee.**

Recommendation 4. *ISAC recommends that USDA National Institute of Food and Agriculture (NIFA) add opportunities for training in systematics to their national needs fellowship program.*

Mr. Wiltshire moved adoption of this recommendation. Dr. Smith seconded. The motion passed unanimously.

Recommendation 5. *ISAC recommends that the appropriate federal agencies fully implement the quagga and zebra mussel action plan (Q-ZAP).*

Dr. Doering moved adoption of this recommendation. Dr. McMahon seconded. The motion passed unanimously.

Recommendation 6. *ISAC requests that agency partners submit their annual reports according to the deadlines specified in the National Invasive Species Management Plan objective 7.1.1.*

Ms. Metcalf suggested Recommendation 6 include the text of objective 7.1.1. Dr. McMahon moved adoption of this recommendation. Mr. Phillips seconded. The motion passed unanimously.

PANEL DISCUSSION: INVASIVE SPECIES COUNCILS – EXAMPLES FROM THE FIELD – STATUS AND NEEDS

Hon. A.G. Kawamura, California Secretary of Food and Agriculture
Doug Johnson, California Invasive Plant Council (Cal-IPC)
Stas Burgiel, Ph.D., Global Invasive Species Programme

Remarks from A.G. Kawamura

About two years ago, an island off Alameda was the focal point for an invasion of light brown apple moth. Eradication efforts involved aerial application of a pheromone, triggering widespread public opposition. The California Department of Food and Agriculture (CDFA) realized that it needed to do much more to raise public awareness and understanding of the invasive species issue. Since that time, California has assembled an invasive species council.

California is closely monitoring the spread of Asian citrus psyllid, which has severely impacted the citrus industries in Florida and Mexico. Since 60 percent of households in southern California have citrus trees in their back yard, it is vital that the public be educated on the dangers of this species.

Other invasive species in California include the gypsy moth. Small incursions have been successful, but CDFA continues to struggle with public opposition to aerial spraying. Therefore, early detection of this species is very important.

California is trying to combat quagga and zebra mussels in the Colorado River system. It hopes to keep these species from spreading to other river systems. There are efforts in place to improve border surveillance of commercial and pleasure boat craft. Partnerships across state agencies have proven helpful.

The California invasive species council serves as a coordinator for state agency efforts. The state invasive species advisory committee has done a tremendous job so far. More people wanted to be on the committee than could fit. As a result, the council has formed work groups to explore specific issues in greater depth.

The advisory committee has assembled a comprehensive list of over 1,700 invasive and potentially invasive species. An invasive species action plan is currently in the draft stages and is expected to come out in the next few months. The plan is intended to be a working, dynamic blueprint.

California's Environmental Quality Act requires CDFA and other agencies to submit an environmental impact report for virtually all its eradication efforts. The process can get tied up in the judicial system and take over a year. Mr. Kawamura said CDFA is trying to align the regulatory procedure.

Remarks from Doug Johnson

The last few years have seen an incredible diversification of networks at the state level and beyond, including a county weed management area network, the new state invasive species advisory committee, an environmental coalition on invasive species, the National Association of Exotic Pest Plant Councils and the National Network of Invasive Plant Centers.

Coordination is essential to effective implementation. Early detection, rapid response and strategic management are largely happening in the county weed management areas. Over 40 such areas formed between 2000 and 2005; they now cover the entire state. Regional EDRR networks have also formed in the past few years. At the state level, the invasive species council and the advisory committee were formed in 2009. Similar coordination efforts are ongoing in other states.

Putting structure in place leads to increased participation. The council and advisory committee do not have a lot of funding at present, but do have a lot of energy and participation. The same thing holds true for the weed management areas. In this organizational landscape, it is important to have connections across levels.

States can work to assess local priorities in terms of species and projects, set spatial strategy on a regional basis through mapping, coordinate early detection and outreach efforts and support management. Cross-fertilization of myriad interests brings a lot of good ideas to the table and gives invasive species management efforts more credibility.

The California invasive species council has been talking with its counterparts in other states in an effort to coordinate multi-state, regional efforts. Ideas discussed have included don't move firewood campaigns, clean your recreational boat before moving it campaigns and a unified EDRR system.

Remarks from Stas Burgiel

The chief executives of the Commonwealth of the Northern Mariana Islands (CNMI), Guam, Palau and Yap created the first iteration of a regional invasive species council (RISC) in 2005. Three years later, the council was extended to include the other jurisdictions of Micronesia.

The islands of Micronesia are small in size but cover an expansive area. The remoteness makes communication among the different groups a challenge. Invasive species are particularly problematic in the island context. Micronesian governments often lack the technical knowledge, personnel and/or funding for dealing with these threats. Travel and trade among the islands is an easy way to spread invasive species. Forming RISC was seen as a way to capitalize on the islands' cultural and political similarities, develop coordinated policy initiatives and focus on combining resources.

CNMI and Guam are affiliated with the U.S., and have access to congress and federal agencies, as well as federal funding. Palau, the Marshall Islands and the Federated States of Micronesia are independent countries with access to international funding. Having multiple types of jurisdiction in this group is an asset.

RISC's mission is first to prevent, then to eradicate and control. Its goals are 1) public

awareness; 2) increased cooperation and communication; 3) providing policy management recommendations; 4) secure human and financial resources; and 5) expanded membership. Dr. Burgiel considers the third goal particularly important because RISC has a direct line to the chief executives of its member jurisdictions.

RISC's accomplishments to date include an invasive species guide for the region, joint actions, quarantine efforts, rapid response efforts and the development of training exercises. It has also played a key role in initiating and prompting the expansion of the biosecurity plan. The plan looks at invasive species threats associated with the military buildup on Guam, which presents the potential to affect other islands within Micronesia.

The islands of Yap, Chuuk and Kosrae all have dedicated invasive species coordinators. Palau and Guam have space on the books for similar positions. NISC's Phil Andreozzi continues his work in Guam on invasive species.

ADDITIONAL ISAC ACTION ITEMS

Secretary Frankmann reviewed additional action items before ISAC (list continues from above):

4. The ISAC steering committee will consider an opportunity for further discussion on invasive species harvest as an eradication control approach in the context of green economic development.
5. Engage the Department of Energy as a member of NISC.
6. See the invasive species budget numbers from all agencies, not just USDA.
7. Invasive species should be a theme for a future ISAC meeting.
8. DOI Policy Liaison (G. Brown) to conduct further research into NPS introductions of *Crassostrea gigas* into estuaries on the Pacific coast
(Recommendation #3 downgraded to action item pending further research on this issue)

PLANNING FOR THE NEXT ISAC MEETING

The next ISAC meeting will be held in Washington, D.C. in the fall. ISAC hopes to hold it in conjunction with NISC. Possible themes include human health issues and EDRR. A poll of ISAC members indicated the best times to hold the meeting in order of priority are the weeks of December 6-10, November 15-19 or November 29-December 3. The members favored extending the meeting to two and a half days to create more time for subcommittee meetings. Chair Gibbs asked members to submit templates by the end of September.

The location for the spring 2011 remains to be determined. Members suggested possible venues, including the High Plains, Colorado, Atlanta, Baltimore, Chicago, New Orleans, somewhere in New England, or Washington, D.C. They agreed to conduct a doodle poll for various dates in May-June 2011.

PUBLIC COMMENT

Mark Sytsma, Portland State University - Dr. Sytsma is working on the aquatic weed aspects of the Micronesian biosecurity plan. He opined that one could learn a lot from the islanders. A landowner had allowed his property to be overrun by the invasive micrantha vine. The islanders figured they would go to the chief, who would seize the land.

ADJOURNMENT

The meeting adjourned at 4:45 p.m.