GULF & SOUTH ATLANTIC REGIONAL PANEL
ON AQUATIC INVASIVE SPECIES
MINUTES
Wednesday, October 27 – Thursday, October 28, 2010

On Wednesday, October 27, 2010, Chairman **Ron Lukens** called the meeting to order at 8:30 a.m. The meeting began with introductions of the Panel members and guests. The following were in attendance:

Members & Proxies
James Ballard, GSMFC, Ocean Springs, MS
Mike Brainard, MDMR, Biloxi, MS
Paul Carangelo, Port of Corpus Christi Authority, Corpus Christi, TX
Earl Chilton, TPWD, Austin, TX
Pam Fuller, USGS, Gainesville, FL
Chris Furqueron, National Park Service, Atlanta, GA
Scott Hardin, FL Fish and Wildlife Conservation Commission, Tallahassee, FL
Leslie Hartman, TPWD, Palacios, TX
Jeffrey Herod, FWS, Atlanta, GA
Rebecca Hillebrant, LA Dept. of Wildlife & Fisheries, Baton Rouge, LA
Dewayne Hollin, Texas Sea Grant, College Station, TX
Tom Jackson, NOAA-NMFS, Miami, FL
Chuck Jacoby, University of Florida/Florida Sea Grant, Gainesville, FL
David Knott, SCDNR, Charleston, SC
Herb Kumpf, At-Large Member, Panama City, FL
Susan McCarthy, FDA, Dauphin Island, AL
Don MacLean, U.S. Fish and Wildlife Services
Ron Lukens, At-Large Member, High Springs, FL
Chris Page, SC Department of Natural Resources, Social Circle, SC
Steve Rider, AL Wildlife and Freshwater Fisheries Division, Montgomery, AL
Dennis Riecke, MDWFP, Jackson, FL
Don Schmitz, FDEP, Tallahassee, FL
John Teem, FL Dept. of Agriculture and Consumer Services, Tallahassee, FL
Keith Weaver, GDNR, Social Circle, GA

Staff
Alyce R. Catchot, GSMFC, Ocean Springs, MS

Others
Pamela Schofield, U.S. Geological Survey, Gainesville, FL
Tonya Shearer, Georgia Institute of Technology

Public Comment

Chairman **Ron Lukens** provided the opportunity for public comment. No public comments were received.

Review & Adoption of Agenda

E. Chilton asked that his presentation scheduled for Thursday, October 28th at 8:40 a.m. to be switched with **L. Hartman's** presentation, which was scheduled for Wednesday, October 27th at 1:30 p.m. **Chairman Lukens moved to adopt the modified agenda and the motion carried unanimously.**

Review & Approval of Minutes

P. Carangelo made a motion to approve the minutes from the November 10-11, 2009 meeting held in Raleigh, NC and also the minutes from the April 27-28, 2010 meeting held in Gulfport, MS. **R. Lukens seconded the motion and both sets of the minutes were approved.**

Overview of the Orange Cup Coral Invasion

T. Shearer gave a PowerPoint presentation entitled "Orange Cup Coral in Florida and the Gulf of Mexico". **Shearer** reported that *Tubastraea coccinea* was introduced from the Indo-Pacific into the Caribbean via probable human-mediation. *T. Coccinea* was first documented at Caribbean reefs in Curacao and Puerto Rico in 1943. The introduced range has expanded to reefs throughout the Caribbean and, more recently, into the Flower Garden Banks National Marine Sanctuary (FGBNMS) and the Florida Keys National Marine Sanctuary (FKNMS), most likely via episodic events of natural larval dispersal in surface currents. **Shearer** stated that this has been happening for decades and no one has noticed. **D. Knott** asked if the coral could be found in oyster beds. **Shearer** stated that it is possible, but no one has looked. **Knott** also asked if the coral has a preference for artificial substrate. **Shearer** stated that tests do not show that *Tubastraea* sp. prefer artificial substrate. **Shearer** explained that the coral is hardy and can survive a variety of environmental conditions, including periods of desiccation, salinity fluctuations and high temperatures. It is also capable of inhabiting both shallow and deep habitats. **Shearer** reported that corals in the genus *Tubastraea* are not native to the Caribbean region, and two other sympatric Indo-Pacific *Tubatraea* species have been introduced into Brazil (*T. tagusensis*) and the Gulf of Mexico (*T. micranthus*). *T. micranthus* was identified on an oil platform in the Gulf of Mexico.

Shearer reported that in some areas of its extended range, *T. coccinea* is locally abundant, accounting for >80%m² coverage of some habitats. It readily settles on newly available artificial substrates where it is often one of the most abundant species, exhibiting high survivorship and growth rates. In Florida, *T. coccinea* is commonly abundant on steel vessels, including unintentionally wrecked vessels and those deployed as artificial reef habitats or mitigation reefs. In South Florida, Florida Keys and Dry Tortugas, artificial reef sites were surveyed for the coral between August 2006 and December 2009. Hundreds to thousands of colonies were observed at a majority of these sites. Other investigators and recreational divers have made additional observations. **Shearer** reported that plans have been made to confirm these observations in

2010-2011. In total, 20 *T. coccinea* populations have been confirmed and 11 are likely but unconfirmed. This species also inhabits at least two limestone mitigation reefs in Florida (Port of Miami and Bal Harbor), but it has not yet been observed on natural reef substrate in Florida. This species did not inhabit five artificial habitats that were investigated in the lower Florida Keys and Dry Tortugas. In the Gulf of Mexico, *T. coccinea* has been documented on the East Flower Garden Bank, Geyer Bank and various oil platforms in the area. *T. coccinea* thrives on oil platforms in the Gulf of Mexico, where it was first identified in 1991. These platforms are likely to facilitate the spread of this species throughout the Gulf of Mexico which has lead to the colonization of natural substrate of nearby banks.

T. coccinea and its congener *T. tagusensis* are highly toxic and produce allelopathic chemicals that are toxic to neighboring native corals. Extracts from *Tubastraea* species inhibit settlement of non-conspecific coral larvae and other fouling organisms. A recent study suggests crude extracts from *Tubastaea* in Brazil also deter predation from generalist fish predators.

These species are increasing in abundance while all other corals in the Caribbean have suffered significant declines. Population sizes and geographic range has expanded since 2002. These fouling species competes with other sessile organisms for space, and their natural predator, the gastropod *Asperiscala (Epitonium) billeeanum*, has not been documented in the Caribbean or Gulf of Mexico. Natural reef communities may be negatively impacted if this invader thrives and outcompetes native Caribbean species. **Shearer** reported that their observations on several wrecks in South Florida and the Florida Keys indicate that this species frequently colonizes bivalve shells. In April 2010, the sandy ocean floor surrounding the Ancient Mariner wreck (Broward County, Florida) was littered with *T. coccinea* colonies growing on bivalve shells. One concern regarding growth of the coral on bivalve shells is the potential transported to natural reef habitats during storm activity once the shell has become detached.

Shearer reported that to their knowledge, there are no existing efforts to prevent or control *T. coccinea* in its introduced range, aside from those at the Flower Garden Banks National Marine Sanctuary (FGBNMS) and along the Brazilian coastline. Sanctuary personnel have actively removed *T. coccinea* colonies inhabiting natural substrate on Geyer Bank in the northwestern Gulf of Mexico in an effort to protect the native communities within the FGBNMS. In Brazil, a program to control and eradicate this species was implemented: (http://www.biologiauerj.com/noticias/50-noticias/191-centro-de-visitantes-do-projeto-coral-sol-inaugurado-na-vila-do-abraao-ilha-grande). The success of each effort is unknown. The Florida Fish and Wildlife Conservation Commission Artificial Reefs program has observed *T. coccinea* populations on artificial reef habitats in Florida. Program staff members are considering whether certain substrates, such as steel-hulled ships, are indeed facilitating the spread of this species and whether this type of artificial substrate should be used for future reef construction.

Shearer reported that *T. taguensis* was introduced through the Panama Canal and is endemic to Galapogos. It is also present in the Gulf of Mexico and is abundant on oil platforms. The population sizes have significantly increased since 2002 and are dominated by a single clone. In October 2010, the first observations on natural substrates were found on the West and East Flower Garden Banks. *T. taguensis* was observed at 7 out of 8 dive sites at the FGBNMS, but

was never encountered during a rapid coral survey simultaneously on the same reefs. **Shearer** reported that it could be present on natural substrate in Florida, but common survey methods do not detect these species. **Shearer** also reported that *T. micranthus* which is a sympatric Indo-Pacific *Tubatraea* species that has been introduced into Brazil has also been identified on an oil platform in the Gulf of Mexico.

Ad Hoc Orange Cup Coral Work Group Activities

T. Shearer presented a report on *Tubastraea coccinea*. **T. Jackson** asked if the paper could be made electronically available as a PDF. **R. Lukens** asked that the paper also be made available to the Gulf Counsel for their records. **D. Knott** asked that it be included in the paper that the coral is also endemic to the Galapagos Islands. **Shearer** also stated that she would include her observations on natural substrates in the Gulf of Mexico. **Shearer** reported that the coral species could now be off the coast of Georgia as well, and they plan to investigate. **Jackson** asked if there was possible hybridization in Florida. **Shearer** stated that their genetic information suggested that there is and that they will look more intently at the findings. Brazil has a project for removing the coral species from their reefs wherein the villagers collect them, make crafts from them, and sell the crafts.

R. Lukens asked **Shearer** how far up the Atlantic the coral might go. **Shearer** stated that she could not say, but if the coral is spotted she will be informed of their presence and then add it to the site list. **Lukens** asked Shearer for a time frame on when she would have the revised document available. **Shearer** stated that she would work on it that week. **Lukens** stated that he would draft a transmittal letter to send out for approval by the counsel. **Lukens** thanked **Shearer** for sharing her expertise and that her presentation has certainly raised the general coral issue.

How the GSARP Fits in with Marine Spatial Planning

P. Carangelo gave a PowerPoint presentation entitled "What, Who, Where, How, Why and When – Marine Spatial Planning aka CMSP". **Carangelo** compared two ocean policy approaches; President Bush's Ocean Action Plan and President Obama's new Ocean Policy. **Carangelo** reported that when President Obama instituted a national ocean policy for the United States this year, his administration described it as the first comprehensive, integrated policy for stewardship of the country's coasts and oceans. However, it is not the first presidential initiative to try to coordinate US ocean policy. In December of 2004, former President George W. Bush instituted an Ocean action Plan, consisting of 88 action items that responded to recommendations from a national commission on ocean policy. The action items were diverse, pertaining to fisheries, MPAs, invasive species, watershed management, marine transportation, research, and more. The first item on the list was the creation of a Cabinet-level committee on ocean policy to coordinate the activities of federal departments on ocean-related matters. In 2008, at the end of his second and final term in office, President Bush announced that 87 of the 88 action items had been achieved (all except Congressional approval of the UN Law of the Sea Treaty). **Carangelo** stated that the respective efforts of Presidents Bush and Obama offer a contrast in how ocean policy can be crafted. President Bush said his Ocean Action Plan was about "setting clear goals and meeting those goals", and his policy amounted to the sum of its discrete parts (e.g., "Establish mandatory

ballast water management program", "Promote international sea turtle conservation"). The Bush Ocean Action Plan can be found online at: http://depts.washington.edu/meam/BushOAP.pdf. In comparison, the Obama policy aims to provide an overarching framework within which future planning of US ocean use and conservation may occur.

The Obama Executive Order establishing the New National Ocean Policy can be found online at: www.whitehouse.gov/administration/eop/ceq/initiatives/oceans.

New National Ocean Policy

Carangelo reported that the White House has issued an Executive Order on Stewardship of the Ocean, Our Coasts and the Great Lakes, adopting many of the recommendations viewed online at: http://www.whitehouse.gov/files/documents/OPTF_FinalResc.pdf. The order was published on July 19, 2010 and establishes a national policy to:

- Ensure protection, maintenance and restoration of the health of ocean, coastal and Great Lakes ecosystems and resources
- Enhance sustainability of ocean and coastal economies
- Preserve maritime heritage and support sustainable uses and access
- Provide for adaptive management to enhance understanding of and capacity to respond to climate change and ocean acidification
- Coordinate actions with national security and foreign policy interests
- Develop spatial plans to assist decision-making and planning processes at all government levels
- Establish a National Ocean Council, to be co-chaired by the director of the Office of Science and Technology Policy and the chairman of the Council on environmental Quality

The Executive Order can be viewed online at:
www.whitehouse.gov/administration/eop/ceq/initiatives/oceans. The Executive Order states that "The term 'coastal and marine spatial planning' means a comprehensive, adaptive, integrated, ecosystem-based, and transparent spatial planning process, based on sound science, for analyzing current and anticipated uses of ocean, coastal, and Great Lakes areas."

Carangelo stated that invasive species are a part of Coastal Marine Spatial Planning (CMSP). In the *Task Force Recommendations* publication on page 12, it states that "The introduction of non-invasive species can carry significant ecological and economic cost". On page 38 of Areas of Special Interest, non-invasive species are listed. **Carangelo** reported that The Plan should address impacts of invasive species on ocean, coastal, and Great Lakes ecosystems, and range of methodologies for control and prevention of these species. Section 8 states that "Regional Advisory Committees shall be established for each regional planning body". Two of the nine regional planning areas encompass the GSARP the Gulf of Mexico Region (Texas, Louisiana, Mississippi, Alabama & Florida) and the South Atlantic Region (Florida, Georgia, South North Carolina & North Carolina).

Carangelo reported that there are lots of ways for ANS and Regional entities to be included into CMSP activities. He presented the following questions for consideration:

- Is CMSP directly relevant to your day-to-day responsibilities?

- Are you in the CMSP loop?
- Are you directly in your "state coastal management" loop?
- Who is/would be your CMSP "lead"?
- Is anything active in your region or state on CMSP?
- Is GCARP the appropriate regional entity for consideration, or is this the member State or Agency or Member initiative?

USFWS Southeast Regional Office ANS Program/ANS Hotline & Lionfish

J. Herod gave a PowerPoint Presentation entitled, "USFWS Fisheries Program Southeast Region 2010 Update on *Aquatic Invasive Species Program*. **Herod** explained that the objectives for the ANS Program are Communication, Cooperation, Collaboration, Opportunities and Partnerships. He reported that Invasive Species, and specifically Aquatic Invasive Species, continue to impact economies, ecology, and human health. There is a need for continued support. The Region has partnerships to deal with aspects of invasive species. Four state ANS plans received support and eight states in the Southeastern US received project support.

Universities, Federal Partners and States are working on the following projects:

- Detection and Prevention
  - -Monitor/Inspect watercraft and boat trailers
  - -Informed surveillance
  - -Communicate detections (ANS Hotline: 877-STOP-ANS)
  - **Herod** stated that they are working to promote the hotline. They have operators 24/7 who take the reports, then send out emails. The response turnaround time is usually 24 hours.
  - -Safeguard priority pathways through risk management (e.g., HACCP)
  - -eDNA (Early detection)
  - -ROVs (Remotely Operated Vehicles)
  - **Herod** reported that the ROVs are not only looking for known invasive species, but also unidentified species. The ROVs are beneficial in the fight against invasive species.
- Specific Species/Risk Assessments/Physiological Tolerances
  - -Species tolerances
  - -Test all bio-security elements on a suite of species (e.g., Lionfish)
  - -Pathway/Vector assessment
- Economics
- Control strategies
  - -State ANS Coordinators and Invasive Species Plans/Strategies
- Outreach/Education
  - -Watercraft Inspection Training: http://www.dnr.sc.gov/regs/images/boattrailer.gif

Herod reported that there are many values of HACCP:

- HACCP is a tool that can help reduce the risk of moving invasive species unintentionally
- HACCP is pathway focused
- The HACCP process can be useful for many activities such as field sampling, site visits, road and trail maintenance

- There are future opportunities for implementing HACCP within Natural Resource Agency programs

Lionfish Update

P. Schofield reported that Lionfish expansion in the Gulf of Mexico is massive. In January, 2009, there was only one Lionfish spotted in the Florida Keys, one off the coast of St. Petersburg, Florida and none in the Gulf of Mexico. By December, 2009, the Florida Keys were inundated with Lionfish. There were also two fish found in one location off of the Yucatan coast. In July, 2010, three fish were photographed and collected North of Tortugas. Three more fish in three different locations were collected off of the North Yucatan coast. Most of these were collected by fishermen. In August, 2010, two fish in two different locations were found off the Manatee County Coast, and one fish found off of the Pinellas county coast. There was an unsubstantiated report of Lionfish off a South Timbalier oil/gas platform. In September, 2010, two more fish were found off the Coast of Pinellas County and eleven more fish off the North side of the Yucatan coast. Eight fish were found in the Northern Gulf of Mexico; One on reef balls off of Pensacola, FL; one on Army tank SSE Dauphin Island, AL; four off of an oil/gas platform South of Louisiana; two off of Sonnier Bank. In October, 2010, there were even more Lionfish in the Gulf of Mexico and one off Apalachicola, Florida. **Schofield** stated that there will be a lot more Lionfish sightings in the future.

Schofield reported on the Florida Keys Lionfish Derbies that were held in 2010. In September, 2010, the Key Largo Lionfish Rodeo was held. There were 21 teams that collected a total of 534 Lionfish. The winning team collected 111 Lionfish. In October, 2010, the Marathon Lionfish Rodeo was held. There were 3 teams that collected a total of 30 Lionfish. The Lionfish were measured and weighed at each of the Rodeos. **Schofield** stated that the boat Captains were given maps and asked to circle on the maps the locations where the Lionfish were found. In November, 2010, there is a Key West Lionfish Rodeo scheduled. For more information on the derbies, go to www.reef.otg/lionfish/derbies .

Schofield presented news from **J. Morris** and NOAA. A Lionfish Working Group was formed in September, 2010 by NOAA that has representatives from all line offices. **Morris** is working closely with the State Department on international issues on Lionfish. The first international workshop on Lionfish took place in August, 2010 in Cancun, Mexico and established a framework for Lionfish best management practices. The creation of a manual is in progress and is being coordinated by **J. Morris**. The "NOAA - Eat Lionfish Campaign" is bringing increased attention to the issue domestically.

Schofield reported on two new species that have been documented off Boca Raton in Southeast Florida. The White-streaked Grouper (*Epinephelus ongus*) was found in August, 2010. The Clown Triggerfish (*Balistoided conspicillum*) was found in September, 2010.

Update on New Introductions

P. Fuller reported that Asian Tiger Shrimp are back. Five were found in Louisiana, one in South Carolina and one in Florida. **Fuller** reported that the origin of the Tiger Shrimp was not known, but it is speculated that they are from the West Coast of Africa. Hydrilla (*Hydrilla verticillata*) was found in April, 2010 in Marshall County, Mississippi in the Little Tallahatchie River and also in Coastal Harrison County, Mississippi. Black Carp (*Mylopharyngodon piceus*) was found in July, 2010 in the Lower Mississippi River in Baton Rouge, LA. Clown Triggerfish (*Balistoides conspicillum*) and White-streaked Grouper (*Epinephelus ongus*) were found in September in Southeast Florida. Bighead Carp (*Hypophthalmichthys noblis*) was found in September in Marion County, Texas in Caddo Lake. In other areas of the United States, Zebra Mussels (*Dreissena polymorpha*) were found in October, 2010 to be in numerous locations in Connecticut. Redtail Catfish (*Phractocephalus hemioliopterus*) was found in October, 2010 in Stewart County, Tennessee in the Lower Cumberland River. An Octopus (*Octopus sp.*) was found in October, 2010 in Garfield County, Colorado in the Colorado Headwaters-Plateau. Chinese Pond Mussels (*Sinanodonta Woodiana*) were found in September, 2010 in Hunterdon County, New Jersey in the Middle Delaware-Musconetcong River.

Aquatic Nuisance Species Task Force Update

D. McLean reported that the Task Force has an online guideline that can be opened as a PDF. An organization's logo can be put on the guideline for field work purposes. **McLean** stated that there is an upcoming Task Force meeting November 3-4, 2010 in Arlington Virginia that is open to anyone. **McLean** stated that the Task Force Strategic Plan will be discussed. The Plan was developed but not too much was done with it, so the Task Force wants to revamp it. Also to be discussed is the Risk Analysis Protocol, which will have new protocols in 2010. **McLea**n reported that the Recreational Guidelines, created in 1999, also needs updating and revamping. These guidelines evolved into the *Stop Aquatic Hitchhikers* Program. The guidelines are posted on the website.

Invasive Species Advisory Committee Update

E. Chilton reported that the Committee is continuing in their plans for management of Invasive Species and made a new recommendation that the National Invasive Species Council support a communication network in collaboration with the National Conference of State Legislators among the states' Invasive Species Councils.

Texas's White-List and Associated Regulations

E. Chilton gave a PowerPoint presentation entitled "Implementation of Revisions to Exotic Aquatic Plant Regulations". **Chilton** explained that the Texas Parks & Wildlife Department has regulatory authority over the importation, possession, sale or placement into water of the state of exotic harmful or potentially harmful aquatic plants. Some exotic aquatic plants have been identified as harmful or potentially harmful. The sale, purchase or possession of these plants is prohibited. Prohibited plants may be possessed with a permit (such as water spinach). Permits have conditions to minimize environmental risk. **Chilton** reported that there are disadvantages

of the current system. Adding new plants is a lengthy process which makes it difficult to respond to new threats, and non-listed species may become established before they can be listed. This can lead to environmental damage and economic costs.

Chilton discussed the risk assessments, which include a history of the species in Texas, a history of invasiveness and length of time since first introduced, control techniques and efficacy, the economic benefits, environmental and agricultural impact if invasive species are established, and the native range and climate. **Chilton** defined an Aquatic Plant as any member of the Kingdom Plantae that is typically found in either aquatic or riparian habitats. This was documented using the most recent posting of the Integrated Taxonomic Information System.

Chilton reported that currently there is an approved list of 200 invasive species, a list of 107 native and naturalized species (exempt), a list of 6 primarily terrestrial species (exempt), a list of 38 invalid names, a list of 19 species for which they lack sufficient information, a list of 58 species that have been reviewed and rejected, 69 species still pending, and a list of ineligible species. **Chilton** reported that there are issues regarding some vascular plants (*Colocasia esculenta, Nelumbo nucifera, Nymphaea spp.,*and *Oryza sativa)* such as economic importance.

Chilton reported that the Texas Parks & Wildlife Department will continue development of a draft list and risk analyses, continue to solicit input from individuals and industry, begin review of exotic species permit applications when new rules are adopted, and modify draft regulations as necessary. On January 26-27, 2011, Commission meetings will be held to discuss public input and vote on proposed rules.

Chilton reported that all plants on the draft list (with the exception of microalgae) are being evaluated for potential risk to aquatic environments using a scientific risk analysis based on Pheloung et al. (1999). If a plant has a low risk of invasiveness, it will be placed on the approved list. Permits for possession of some plants will be maintained. **Chilton** explained the definitions of some earlier discussed items. Exotic aquatic plants are defined as non-indigenous aquatic plants not normally found in Texas and include vascular plants, macroalgae, microalgae, genetically-modified organisms, and hybrids of exotics. Approved list is defined as exotic plants that can be possessed without a permit. Ineligible species list is defined as rejected and previously prohibited species which will be maintained by Texas Parks & Wildlife Department and not part of the rule.

How to Regulate the Use of Exotic/Genetically Modified Alga for Biofuels

Chilton reported on microalgae and the escalating interest for its use in bio-fuels. **Chilton** stated that at a recent meeting he attended, the Admiral of the Navy said that by the year 2020, they want at least 8 million barrels of bio-fuel produced. **Chilton** reported that the Air Force and Army also want bio-fuel. However, there are many special concerns with microalgae, such as its toxicity to humans, animals and other plants; its propensity to bloom, and its competition with native species. There is also the requirement for separate treatment and the fact that there are thousands of species and strains, many of which are poorly described.

Chilton stated that there are no permits needed for possession and use for species that are known to be native, are naturalized (typically found in Texas waters), known to be a low risk to Texas waters, and are maintained by educational institutions, museums, etc. for education or small-scale, non-commercial research. **D. McLean** asked what types of situations are envisioned for handing out permits. **Chilton** explained that a permit will be required when identification is not provided below the genus level (organism will be assumed to be exotic); if the species is toxic or has the propensity for dangerous blooms; genetically modified organisms will be considered exotic species. Permits may be issued for research, aquaculture, vegetation management, wastewater treatment, or industrial/commercial purposes. The transition period is a three-month period after implementation. It allows possession of exotic species pending permit issuance. Currently, 10-year permits are offered, but fees are paid annually. There are also provisions for disposal of illegal species.

Discussion of Projects for Funding in 2011

R. Lukens reported that $50,000.00 was available as a one-time source for funding a project that the Panel would vote on. **Lukens** stated that there were 5 proposals received and each proposal author would give a quick overview of their project. The selection of the project chosen to receive the award would be voted on by a number system assigned to each project. The following projects were presented for selection. Project #1: "GSARP Invasive Species Traveling Trunk" **H. Kumpf**. Project #2: "Advancing Early Detection and Rapid Response in the Gulf and South Atlantic Region" **C. Jacoby**. Project #3: "Reproductive Sterility as Tool for Prevention and Control of Invasive Aquatics" **J. Teem**. Project #4: "Production of Salvinia Weevils for Biocontrol of *Salvinia Molesta* in Louisiana" **J. Teem**. Project #5: "Trojan Y Chromosome Eradication of Invasive Fish-Development of Sex-specific DNA Markers" **J. Teem**.

Project #1: "GSARP Invasive Species Traveling Trunk"

H. Kumpf stated that the project would develop and produce a "traveling trunk" of hands-on invasive species examples. The collection will consist of 14 different species. He informed the panel that the specimens would not be real; they will be replicates. Also included will be an annotated outline of talking points for presentation to secondary school students and laymen. The trunk can also be available for legislators to offer to government officials. The material will cover definitions, sources, ecological impacts, economic costs (when available), suggested public actions, and websites for additional information. The invasive flora and fauna material will contain bullets covering native origin, purpose of introduction (if intentional), route, and brief life history with ecological and economic impacts. A CD of the talking points and species will be included for visual presentation. The updated listing of invasive species under preparation will be included for reference. The "Traveling Trunk" will be produced in a mailable container. The GSARP office at the GSMFC will be requested to house the "Traveling Trunk" and a $200 allowance is part of the budget to cover shipping costs. Return will be at the borrower's expense. Notice of availability is intended to be posted on the GSARP website. No viable materials/specimens will be in the final project. **Kumpf** explained that the invasive species "Traveling Trunk" will provide a number of essential purposes. It will not only serve as an academic educational tool (at least one state has made invasive species a unit in their standards) but will be effective when addressing conservation groups, administrators or legislators. This

self-contained program will stand alone or can be augmented with local examples. The "Traveling Trunk" would provide both tactile and visual input for maximum impact. Such a product will apply equally across the Gulf of Mexico and the South Atlantic.

S. Hardin stated that they do something similar and he was concerned that the trunk will "collect dust" after awhile because there really might not be anyone responsible for making sure it gets sent out and sent back. He also asked if one trunk was enough or if there are plans to create a second trunk. **Kumpf** explained that the original budget was for 3 trunks. **Lukens** stated that his concern was not just to make sure the trunk gets sent out, but to make sure it is also monitored and updated periodically. The panel needs to make sure that what they are offering the public is something that is current. There also needs to be a strategy developed for distribution of the trunk.

Project #2: "Advancing Early Detection and Rapid Response in the Gulf and South Atlantic Region":

C. Jacoby stated that the Panel is revising its rapid response plan. The plan contains as overview of existing sampling programs. **Jacoby** explained that the objectives of the project will be to assess the capacity of existing programs to facilitate rapid responses and recommend improvements, changes and new programs, to identify hotspots of risk or potential impact, to assess and improve sampling protocols and to use or develop an integrated network for detection, verification and reporting of invasions. The proposed project would further progress toward these objectives by developing and implementing a process for gathering, collating and displaying metadata for relevant sampling in a geographic information system (GIS). Initially, this project will capture metadata detailing who, what, when, where and how for sampling undertaken by panel members and affiliated groups. The current list varies in its level of detail, and it could be augmented by information regarding the capacity to document unusual species. The initial goal is to evaluate existing capacity to detect introductions and range expansions. The resulting framework could ultimately guide allocation of existing or new resources such as identifying priority sites and times by modeling risks associated with spatiotemporal gaps in monitoring. Targeted training could be designed to increase the capacity to identify unusual species. The project will help standardize metadata for monitoring programs; collate metadata to highlight unnecessary redundancy, key gaps, and valuable opportunities for coordinated, cooperative and collaborative efforts; make metadata accessible via database and maps. **Jacoby** explained that GIS has been used to document and assess the distribution of ocean monitoring equipment in the Southeast, and lessons learned by GIS can be drawn on. The project would yield similar results for existing sampling that might detect non-native species. Issues regarding response rate and objections to submitting metadata would be addressed by getting buy-in from the Panel so that the project was viewed as helpful rather than a nuisance or a threat. Dedicated staff would minimize redundant requests, ensure follow-up to obtain and clarify submissions, and continually improve the submission process. Allocating one year for the project would provide time for respondents to submit metadata and time for staff to wear down reluctant groups. Requests to standardize precision and accuracy would accompany requests for metadata, but logistics may dictate that this project highlights desirable improvements.

Project #3: "Reproductive Sterility as Tool for Prevention and Control of Invasive Aquatics"
J. Teem reported that non-indigenous Apple Snails present two problems in the GSARP region. First, the species, *P. insularum*, is widespread through the region and no method currently exists for eradication. Currently, standard methods for producing reproductively sterile snails by irradiation result in low yields of sterile snails. There is a need for methods to produce reproductively sterile Apple Snails in high yields. Second, aquarium dumping remains a potential route for new introductions of Apple Snails into watersheds in the region. If aquarium snails were made available as a sterile product, the risk of new snail introductions via aquarium release could greatly be reduced. **Teem** explained that there are two specific aims to the project. Specific Aim 1: will be to investigate two alternative approaches to irradiation for the purpose of generating sterile snails in high yields. Scope- Triploidy and chromosomal translocations in *P. insularum* will be investigated as new methods for producing sterile Apple Snails for sterile release. Standard methods for generating triploidy in aquatic organisms will be applied towards Apple Snails to generate polyploids. Flow cytometry will be used to assay changes in ploidy. Chromosomal translocations will be generated through gamma-irradiation of Apple Snail eggs. Translocations will be detected using genetic crosses to assay for loss of fertility in translocation heterozygotes. **Teem** reported that he will be the one conducting DNA analysis of ploidy and chromosomal variants at the FDACS laboratory in Tallahassee, Florida. Specific Aim 2: will be to produce reproductively sterile Apple Snails for two species in demand as ornamentals in the aquarium trade; *P. bridgesi* and *A. spixi*. Scope- Eggs of these species will be irradiated to determine a dose that confers adult sterility without compromising viability. Irradiation of eggs will occur at the FDACS facility in Gainesville, Florida. Mating tests will be conducted at Rawlins Tropical Fish Farm in Lithia, Florida.

Teem stated that the project's benefits to GSARP are numerous. The project will contribute to island Apple Snail eradication work that is currently in progress within the region and supported by USFWS. The practical utility of the approach for Apple Snail eradication will improve if sterile triploid snails can be produced for sterile release. The project will additionally investigate a new means of prevention that has great potential for reducing the risk of snail establishment following introductions through the aquarium trade. By producing a sterile snail product, the concept of sterile animals in the aquarium trade can be introduced as a regulatory concept to the USDA. One problem is that there is currently no demand for sterile Apple Snails. **D. McLean** asked if sterile Apple Snails are being developed for the aquarium trade and if the industry was interested in partnering with him to develop them. **Teem** replied that they were, and he has spoken to an Apple Snail producer in Florida who believes that it is an important item for the aquarium industry. **Teem** stated that the aquarium trade is well aware that they are partly responsible for the introduction of many non-native species into the environment and this would be their opportunity to help produce an environmentally safe species that would not become invasive in the future. **T. Jackson** pointed out that "novelty sells" and that perhaps snails can be produced with brightly colored shells to make them more attractive for consumer purchases.

Project #4: "Production of Salvinia Weevils for Biocontrol of *Salvinia Molesta* in Louisiana"
J. Teem reported that the use of Salvinia Weevils for biocontrol of *Salvinia molesta* is becoming an increasingly important aspect of *Salvinia molesta* management in Texas and Louisiana. Due

to unfavorably cold weather in Texas and Louisiana until June, local production of weevils is usually limited. Therefore, a need for weevil production during winter months in order to have sufficient numbers available in April and May is vital. This can be achieved by growing weevils in Florida where the climate is suitable for growth, and then transporting them to Louisiana in the spring when they are needed. **Teem** explained that Salvinia Weevils (*Cyrtobagous salviniae)* are highly specific bio-control insects introduced by the USDA into Texas and Louisiana for *Salvinia molesta* control. There are two varieties of the insect available; one that was obtained from Brazil and the other a variety that is established in Florida. Both varieties will attack *S. molesta* and have been used in bio-control efforts in Louisiana. **Teem** explained that the goal of this project will be to produce 10,000 Salvinia Weevils (Florida variety) at the University of Florida Tropical Aquaculture Laboratory for transportation to Louisiana in the spring of 2011. Florida weevils will be propagated on *S. minima* grown in burial vaults. Harvested weevils will be shipped by FedEx to Alexander Peret of Louisiana Department of Wildlife and Fisheries for distribution to sites in Louisiana.

Teem explained that the project will provide many benefits to GSARP. Salvinia weevil bio-control for *Salvinia molesta* is a high priority for Texas and Louisiana, and may become a high priority for other GSARP states in the future. By providing weevils in the spring at a time when local production is limited, this project increases the likelihood that subsequent weevil bio-control efforts throughout the summer will succeed at target areas. If early application of weevils improves the efficacy of *S. molesta* bio-control as anticipated, the project will provide a means to supply weevils in the spring period for future years in accordance with market demand. **E. Chilton** stated that the smaller Florida weevils did not work on *Salvinia molesta* in Texas. Moreover, with the larger Brazilian weevils, they were able to gather 60-70,000 weevils at a time instead of 50-100 of the Florida weevils, and actually saw results.

Project #5: "Trojan Y Chromosome Eradication of Invasive Fish-Development of Sex-specific DNA Markers"

J. Teem reported that the methodology available for the eradication of invasive fish species is currently extremely limited. It has never been tested, except on his computer. Unfortunately, chemical treatment for the eradication of fish is limited to small water systems and has the undesirable effect of targeting native species in addition to the target species. Genetic approaches may offer an alternative which is both specific to the target species and not limited to small water bodies. In the proposed strategy, a "Trojan YY fish" consisting of sex-reversed fish containing two Y chromosomes are introduced into a normal fish population. These YY fish result in the production of a disproportionate number of male fish in the population in subsequent generations. Mathematical modeling of the system following introduction at a constant and small rate of the YY fish reveals that female fish decline in numbers over time, leading to eventual extinction.

Teem explained that several requirements must be met in order for the YY eradication strategy to be successful. First, the target fish must have an XY sex-determination system. It must also be possible to sex-reverse juveniles of the target species so that phenotypic females are produced which contain Y chromosomes instead of X chromosomes (Fyy). Further, the Fyy fish that are

produced must be viable and able to mate as normal (Fxx) females within a population. Lastly, the target fish must be amenable to production within an aquaculture context so that Trojan fish may be produced in sufficient quantities needed for consistent introduction to the target population over time. Nile Tilapia (*O. niloticus*) is an invasive fish that meets these criteria. They reproduce very quickly. Nile Tilapia has an XY sex-determination system and both male (Myy) and female (Fyy) YY fish have previously been made in this species using hormone induced sex-reversal combined with selective breeding. Since eradication through chemical treatment cannot be applied to large areas where Nile Tilapia have become established, a Trojan Y chromosome approach to eradication could offer an alternative genetic bio-control approach to eliminate them from these areas. **Teem** stated that in order to test the feasibility of a Trojan Y chromosome eradication strategy for Nile Tilapia, YY brood stock must first be developed. Correctly identifying the sex chromosome genotype of fish used in the breeding program is the primary difficulty in developing YY brood stock. If DNA probes specific to the *O. niloticus* sex chromosomes were available, sex-chromosome genotyping of fish could be greatly facilitated. The reason the experiment hasn't already been done on Tilapia is because the fish are not available due to the fact that they are owned by a company that produces the fish for food consumption.

Teem explained that the goal of this project will be to identify sex-specific DNA markers for Nile Tilapia. Randomly amplified polymorphic DNA (RAPD) fingerprinting techniques that have been successfully applied to other species will be applied to Nile Tilapia. Novel sex-specific PCR products will be identified that are specific to either male or female fish. Markers will then be tested on sex-reversed fish to determine their utility in YY brood stock development.

The benefit to the GSARP will be the genetic bio-control for eliminating invasive fish. The recent Genetic Bio-control Symposium held in Minneapolis, Minnesota last year identified field-testing of the Trojan Y Chromosome Strategy (TYC) as one of the highest priorities for future research in this area. However, field-testing cannot take place until YY brood stocks are developed and available. Sex-specific chromosome markers for Nile Tilapia identified in this project will significantly advance the status of the TYC method towards a field test on a fish species that is currently the subject of management efforts in the GSARP region.

D. McLean stated that he wanted to make it clear to the panel that the $50,000.00 is not extra money. It is money that belongs to the panel that didn't get spent out of $300,000.00 the Fish & Wildlife Service had available. The year **Lukens** left, all of the panel's money had not been spent, so the $50,000.00 is the remainder of that money.

After tabulating the votes, **Ballard** announced that the top three choices were: First Place: Project #5: "Trojan Y Chromosome Eradication of Invasive Fish-Development of Sex-specific DNA Markers", which will receive $18,000.00. Second Place: Project #3: "Reproductive Sterility as Tool for Prevention and Control of Invasive Aquatics", which will receive $20,000.00. Third Place: Project #1: "GSARP Invasive Species Traveling Trunk", which will receive $12,000.00.

Discussion of Species of Concern Tables

J. Teem distributed copies of the Species of Concern Table which shows current and potential future management priorities in the Gulf and South Atlantic Region of aquatic invasive species and invasive aquatic/semi-aquatic plant species. **Teem** stated that he wants the panel to decide what species should be put on the list and how to go about deciding what species goes on the list, and what will be the criteria for adding and deleting species. **Teem** also wants the panel to decide who has the authority to make those decisions. He stated that there needs to be a representative from each state who is responsible for the content of their state's table. **Kumpf** suggested that one person from each state agency be designated to make those decisions. **Lukens** stated that the panel would select representatives for each of the 8 eight states. Those selected were: Steve Rider - Alabama, John Teem - Florida, Keith Weaver - Georgia, Rebecca Hillebrant - Louisiana, Dennis Riecke - Mississippi, Trish Murphey - North Carolina, Chris Page - South Carolina, and Earl Chilton - Texas.

D. McLean asked what exactly the purpose of the list was and what type of impact the panel wanted to make with it. **Teem** stated that there is a good use for the list, when NOAA has an invasive species grant competition, they ask the FL Dept. of Agriculture's Division of Aquaculture for their research priorities. The species that are listed on their table are the ones that, if a grant is being proposed and the species research priorities go in front of the grant reviewers, the reviewers give them extra consideration because it matches the panel list. **S. Hardin** suggested that the table needs to have categories to which the species of concern fit in - a category of Concern, a category of Management, and a category of Research Needs. **D. Riecke** stated that he thought the list should primarily be a list of general Species of Concern that in the future will be dealt with in some way. **C. Furqueron** agreed and stated that he sees it as a quick list for someone to look at as a reference, and it would also show a state's contact person. **D. Schmidt** stated that the purpose of the list should be defined first and who the target audience is. **R. Luken's** opinion was that the target audience is everybody. Several of the panel members objected to the word "management" being used, as the connotation is not clear. **Fuller** suggested that the wording be "List of Species of Concern to Management Agencies" and the Panel agreed.

E. Chilton brought up the concern that in Texas, they have run into the problem that some of their volunteers were prematurely publishing their species of concern, before the state's official list of species of concern had actually been released. There were potential political and legal ramifications because dealers were getting ready to take people to court because species were prematurely being placed on the list and it was causing dealers to lose business. **Chilton** cautioned the panel that if the species are not officially listed by the state, there is a concern that placing them on the panel's list could cause potential lawsuits. **Lukens** stated that a disclaimer should be displayed that states, "This list is not regulatory and does not represent species that exist on the state's prohibited list". He suggested listing the contact person's name for each state, along with a message stating, "For more information about the status of this species, contact X, Y, Z". **Riecke** stated that he feels the purpose of the list is to keep the public aware of invasive species that are of concern. While he understands what **Chilton** pointed out, the mission is to conserve, manage and protect natural resources; regardless of how the pet trade and plant growers think the published list will affect them.

Public Comment
R. Lukens provided the opportunity for public comment. No comments were received.

The meeting recessed at 5:20p.m.

Thursday, October 28, 2010
The meeting reconvened at 8:30 a.m. The Chairman again provided the opportunity for public comment. No comments were received.

Revised Rapid Response Plan Overview
L. Hartman gave a PowerPoint presentation entitled "Rapid Response Plan for the Gulf and South Atlantic- aka: Invasives Know no Boundaries". **Hartman** reported on the activities that have been done by the rapid response group. In December of 2004, there was a synthesis of each state's invasive sampling, regulations and planning. In Fall of 2009, the group suggested an Incident Command System format. The objectives of the ICS are to have a "first on scene" structure, to have personnel from diverse agencies and backgrounds, and to reduce miscommunication and problems. In April of 2010, the Regional Rapid Response Plan was put into ICS format. In July of 2010, the workgroup met to write a definitive Rapid Response Plan. **Hartman** reported that when the group met in New Orleans, it was decided that 80% of the Florida Early Detection groups plan would be merged with the GSARP Regional Rapid Response Plan, to make an integrated whole. Any mention of "control" would be removed and an overview of "pathways" was to be added. **Hartman** also stated that ICS was pared down. **Hartman** also gave a presentation of the revision of the Early Detection Rapid Response Plan and the Panel all made suggestions for making further revisions. She stated that if the Panel has any objections to or changes for the Plan, to please let the group know within the next month and it can be discussed as a group. **R. Lukens** reminded the panel not just to read the documents themselves, but to share them amongst their agency's hierarchy so that they don't get pushed aside by the rather intricate and involved situation that has to do with invasive species.

Members Forum
Alabama – **S. Rider** reported that, after numerous delays, the Alabama Aquatic Nuisance Species Management Plan has been submitted to the National ANS Task Force for approval at the next meeting on November 3-4, 2010 and that they hope for approval or at least conditional approval. **Rider** also provided an update on island Apple Snails. He reported that for the past fiscal year 2010, consecutive applications across two days using copper sulfate were conducted in Langan Municipal Lake. Two applications of EPA-approved aquatic herbicides have been sprayed on emergent plants (e.g., giant cutgrass, cattails, water primrose, water hyacinth, etc.) across the entire lake margin (upper and lower pool) to eliminate egg laying habitat. The plan is to eliminate or reduce egg laying habitat and thus, reduce reproduction rates. Copper-based paint normally used for wooden boat hulls was applied to the concrete wall near a walkway at the "park" side of the lake. Snails have completely avoided laying eggs where the paint was applied, though due to the late summer drought and the subsequent lowered lake level, the snails have

now laid eggs below the paint line. Egg scraping was also done. **Rider** reported that they assisted the city of Mobile with keeping the Langan Lake Dam drain ports clean, as it allows more water to flow through the dam and draw the water away from many of the shallow wetted banks where emergent plant beds are thick. Limited trapping of snails has continued to be done to monitor abundance. On October 13, 2009, 32 snails were captured in 20 traps (1.6 snails/7-day trip). On October 13, 2010, 4 snails were trapped in 15 traps (0.27 snails/7-day trap). There were no snails found in 15 traps that were recently checked. On August 19, 2010, Island Apple Snails were discovered in a subdivision pond in Spanish Fort. No snails have been found below the pond dam. Approximately 250 adult snails have been trapped and a treatment plan is being developed. **Rider** also reported that Oriental Weatherfish have been collected nearly 10 miles south of the original collection site in Logan Martin Reservoir.

Florida – **D. Schmitz** reported that a new exotic aquatic plant species from South America, Red Root Floater (*Phyllanthus fluitans*), has recently been found in the Peace River. *Phyllanthus fluitans* is a small floating plant with very short internodes and a well-developed root system. The species is a popular aquarium plant and one of very few aquatic representatives of the large family of Euphorbiaceae, which mostly inhabit much different habitats like the succulent desert plants. According to aquarium literature, the plant prefers nutrient-rich, soft and slightly acidic water. Eradication efforts are underway. The Southwest Florida Water Management District, in cooperation with the Florida Fish and Wildlife Conservation Commission, has treated some small, scattered populations of this plant on the Peace River in an attempt to contain or eliminate this infestation. The first treatment of a diquat-based herbicide was conducted on October 6, 2010. According to a New Zealand Risk Assessment published in 2000, Red River Floater has not been recorded to be a weed in other parts of the world. However, based on a limited survey of Mexican scientific reports published during the past 5 years, it does appear to be a weed in some Mexico locations. **Schmitz** stated that at this point, it is unknown if the species is a threat to the Gulf States. He will keep the panel informed of updates via emails.

S. Hardin provided the Florida Fish and Wildlife Conservation Commission (FWC) report. He reported on the 2008-2009 feeding trials of introduced Applesnails (*P. insularum* and *P. canaliculata*). The trial results revealed that the snails preferred submerged plant species over emergents. Cattails (*Typha sp.*) and Bulrush (*Scirpus californicus*) were not eaten by the snails. It is believed that *P. insularum* are more selective in their diets than *P. canaliculata*. Before consuming less palatable macrophyte, *P. insularum* revert to periphyton. As juveniles, *P. insularum* are capable of consuming up to 0.5 g hydrilla/g body weight in 24-hours time and 0.2 g/g body weight as adults. In 2008-2009, manual removal of *P. canaliculata* and egg clutches from a 5-acre retention pond was done. Weekly from May 29, 2008-June 23, 2009, a total of 49 retrieval trips occurred. The number of snails removed per visit declined from 2,948 to 58. The number of egg clutches removed declined from 1,737 to 54. The total number of live snails removed was 20,959 and the total number of egg clutches removed was 18,934. **Hardin** reported on a 2009-2010 study that is underway on the impacts of exotic Apple snails on native Apple snails. In Lake Okeechobee, 32-1m² enclosures containing *P. insularum*, *P. canaliculata*, *P. paludosa*, and native and exotic snails are monitored every 2 weeks for changes in vegetation and depth preferences. Efforts are underway to eradicate *P. canaliculata* via snail and egg mass removal. As of August 26, 2010, no snails were found and 4 egg masses were removed. Also,

early efforts with copper sulfate application were probably counter-productive and it is believed that it causes the snails to locate elsewhere and spread. **Hardin** provided a preliminary database table of non-native species records by major group as of June 30, 2010.

Group:	Number:
Marine Algae	2
Bivalves	8
Snails	16
Other Invertebrates	30
Fish	127
Amphibians	4
Reptiles	80
Birds	240
Mammals	36

Hardin reported that in October, 2009, they received an angler-caught Red-belly Piranha from a homeowner's pond in West Palm Beach. Another Piranha was collected form a renovated pond in November. A dead Piranha was brought to the laboratory in Palm Beach County in January, 2010. Three follow-up samplings turned up no additional Piranhas. A photograph was received of a Piranha that was collected from a homeowner's association pond in Lee County in April, 2010. Ponds sampled in April, May and June produced no additional Piranhas.

Hardin gave an update on the Non-Native Pet Amnesty Program. During 2009-2010, two amnesty events were sponsored by the FWC. They are producing a "playbook" so local communities can conduct their own events. The procedure for holding the event consists of advertising and promotion, logistical details, and turn-key data entry and management software to maintain an inventory of surrendered and adopted animals. A grant was received from the Everglades National Park to hold 5 amnesty events over the next 3 years. A mobile trailer will be obtained to carry supplies and hold surrendered pets. A hotline to find homes for unwanted pets will be created.

Hardin reported on Tilapia (*Oreochromis*) risk analysis for 2010-2011. A U.S FWS grant was received, with the Florida Department of Agriculture/Consumer Services and the University of Florida as partners. Two *Oreochromis* species, Blue Tilapia (*O. aureus*) and Mozambique Tilapia (*O. mossambicus*) and their hybrids are now established. Nile Tilapia (*O. niloticus*) are reproducing in several areas in Central and North Florida. Tilapia are regulated as "conditional species" with no personal possession allowed. They are in commercial culture with bio-security. The exception is the Blue Tilapia, which does not require a permit to possess. However, they cannot be stocked in public waters in the Florida Peninsula. There are requests for Tilapias for pond culture and stocking for algae control. A risk analysis is being done for relaxed stocking and aquaculture rules for the Tilapia species.

Hardin reported on the Marine Ornamental Outreach for 2010-2011. A U.S FWS grant was received, with the Florida Department of Agriculture/Consumer Services and the University of Florida as partners. A follow-up is being done on the previous marine ornamental pathway risk analysis. The primary risk is the release by consumers and unlicensed consumer-to-consumer sales. Ten public outreach and education activities were recommended to mitigate the risk of

release. A project is underway to form an advisory committee with members representing pet retailers, the U.S FWS, the Pet Industry Joint Advisory Council, the Florida Aquarium, wholesalers, the Tampa Bay Aquarium Society and hobbyists. The recommendations from the advisory committee will be prioritized. Outreach activities to reinforce the "do not release" message will be implemented.

Georgia – **K. Weaver** provided the Panel with the following report on Georgia's AIS activities. The current results for the Satilla River Flathead Removal Project are as follows:
For the 2010 sampling season (May-October), 6,289 flathead catfish totaling 11,101 pounds were removed from the river. Since the implementation of the full-time flathead management program in 2007, more than 19,761 fish totaling 53,671 pounds have been removed. The size structure of the flathead population has been affected, with the weight of the average-size fish dropping from 5.8 ponds in 2007, to 2.9 pounds in 2008, to 1.4 pounds in 2009. In 2010, there was a slight weight increase to 1.8 ponds. Biomass per effort showed a similar trend and had also declined from 57.1 kg/hr in 2007, to 23.6 kg/hr in 2008, to 19.9 kg/hr in 2009. In 2010, there was an increase to 31.1 kg/hr.

Maintenance control of flathead catfish in the Satilla River may be possible, given the reported changes in the size structure and biomass of the population. However, intensive harvest needs to be maintained to prevent the flathead population from rebuilding, especially during high water years, where strong recruitment has been demonstrated by the introduced flathead population.

The Satilla River is the typical floodplain-driven ecosystem. Large amounts of beneficial nutrients enter the system during high water periods. Anecdotal fishing reports suggest that the Redbreast Sunfish has begun to make a comeback in the Satilla River, but there simply has not been enough time for the population to rebound. This spring and summer, favorable water conditions (high water) for the fish production have persisted on the river. Such conditions, combined with continued efforts to reduce the Flathead Catfish population, will hopefully result in the Redbreast Sunfish population rebounding to historical levels throughout the entire river.

Weaver's report also gave an update on State Surveys. The DNR Commissioner has established an aquatic vegetation committee to survey all DNR properties to inventory aquatic vegetation. The committee will identify hotspots and most importantly possible threats to Georgia's natural resources. The goal is to gather the information in a database in order to better manage aquatic vegetation on state property. This is the first committee established within Georgia DNR to identify these areas.

Weaver's report gave an update on Applesnail projects. The first phase of the proposal from UGA to evaluate factors controlling the spread and distribution of Applesnails is underway. Recalling the significance of this project, the channeled Applesnail is currently classified as a Priority 1(a) Species in the 2009 Georgia Aquatic Nuisance Species Management Plan (GANSMP). The proposed studies would assist agencies in Georgia with Objective 5, Action 3. Data concerning potential habitats would inform managers when planning surveys to investigate the occurrence of the species in Georgia. In addition, it will synthesize information on existing

locations and abiotic factors effecting growth, reproduction, survival and invasiveness. Ultimately, this vital information will be used to build a predictive model of the spread of the invasive Applesnail within Georgia. The study will also initiate baseline monitoring in existing invasive snail locations and adjacent control sites to begin investigating impacts of the snail on aquatic ecosystems. GADNR is assisting **Dr. Teem** at the Aquatic Center Pond located in St. Mary's, GA. The pond is located near the St. Mary's River and was chosen because of its smaller size, ease of management, and close proximity to the Okefenokee Refuge. The Aquatic Center Pond is largely isolated from other drainage ditches in the area and is connected only during times of high water. In the first year, bi-weekly photographic records of the survey sites at the Aquatic Center Pond and nearby control sites will be made to provide a baseline assessment of the fertile egg masses being produced. Baited traps will be used to measure snail density. At this time, no sterile snails will be released into the Aquatic Center Pond. Before releasing sterile snails, Georgia will require an evaluation of the efficacy of the sterile-release pilot study at the Orange Ave. pond in Florida. Also, snail eggs will be collected at the Aquatic Center Pond and transported to the USDA facility in Tifton for irradiation.

Louisiana – **R. Hillebrant** reported that a volunteer spraying program was started in Toledo Bend to combat Giant Salvinia. Willing participants attend a training seminar and obtain a permit in order to be allowed to spray. To date, 88 people have been trained and 23 permits have been issued. A second training seminar will take place on Saturday, October 24, 2010, with 80-90 participants expected to attend. A similar system is being worked on for Lake Bistineau since there is a large problem with Giant Salvinia there. New Salvinia Weevil ponds have been started, bringing the total number of ponds to 7. The ponds should be ready for harvest next year.

New catch methods for Asian Carp have been legalized. In addition to traditional catch methods, Silver Carp and Bighead Carp may also be captured by dip nets, spears, boats, and snagging. A contract was signed with Tips from the Pros (Chef Philippe Parola) for the promotion/marketing of Asian Carp as a new seafood option in the United States. In other news, a contract with the USGS National Wetlands Research Center for a Louisiana non-native aquatic species pathway analysis and an early detection field manual was completed.

Mississippi – **M. Brainard** reported that the FWS awarded a grant for the purchase of a remote controlled helicopter with an attached camera to use for early detection of Giant Salvinia. The helicopter will hopefully be acquired by the end of the year. **Brainard** also stated that 35-40 "Stop Aquatic Hitchhikers" signs had been put up at public boat launches and piers along the Mississippi Gulf Coast. There were also 500 "Report Invasive Lionfish" pamphlets printed that will be distributed to charter boat operators, dive shops and bait shops.

D. Riecke reported that the department has sent letters to the Corps of Engineer's districts asking them to address their national policy for invasive species in all Public Notice project plan documents. The reaction of the Corps has been mixed, with some districts stating that the policy need not be addressed at the Public Notice stage of the project review process, and some districts not responding at all. An electronic file of North Carolina's version of "*Help Stop Aquatic Hitchhikers*" brochure was sent to Rob Emens, NC Division of Water Resources. A presentation

on ANS issues was given to students at Camp Fish. A revision of MDWFP regulations (Public Notice 1405) was done to prohibit live forms of Snakeheads (all species in the family Channidae) and Swamp Eels (all species in the family Synbranchidae) from being transported into the state, offered for sale in the state, or possessed within the state. Stocking of any non-native fish, except Common Carp, Goldfish, Triploid Grass Carp and Rainbow Trout would be prohibited in private ponds, except for legally permitted aquaculture facilities. This revision was a result of the discovery of Tilapia in a private recreational fishing pond near the Big Black River. Since 1969, only live forms of Piranhas and Walking Catfish could not be transported, offered for sale and possessed in Mississippi. There were no restrictions on stocking non-native species in recreational fishing ponds.

Riecke reported that the State Management Plan for Aquatic Invasive Species has undergone state review and public comments were received. The Plan was sent to the National ANS Task Force in January, 2010 for review and extensive comments were received. The Mississippi Department of Environmental Quality (MDEQ) is the designated lead agency for plan development. The MDEQ was heavily involved in response to the Deepwater Horizon oil spill, which has prevented revision of the State Management Plan. The MDEQ plans to hire a contractor to revise the plan for final submission to the ANS Task Force in the spring of 2011.

Ongoing activities include:

- When boat registrations and renewal mail-outs are done, a "*Stop Aquatic Hitchhikers*" card is also included.
- The "*Stop Aquatic Hitchhikers*" logo and bullet list are published in the annual regulation guides of the *Mississippi Outdoor Digest* and the *Guide to Mississippi Saltwater Fishing*.
- Links to the MRBP, GSARP, Stop Aquatic Hitchhikers, and Habitattitude websites are on the department website.
- The Mississippi Museum of Natural Science has a permanent exhibit on exotic species.
- The MDMR has been monitoring and treating Giant Salvinia (*Salvinia Molesta*) in the Pascagoula River system.

Future activities include:

- Implementing the activities specified in the Mississippi State Management Plan for Aquatic invasive Species.
- Composing freshwater fishing bait regulations to specify what bait can be legally sold, possessed, transported and used in Mississippi.
- Adopting a list of approved, restricted and prohibited species as specified in MS Code 49-7-80. Amending the list of approved, restricted and prohibited species as specified in the public notice that regulates aquaculture activities in Mississippi.
- Pursuing the licensing of retail bait outlets that sell live freshwater fishing baits.
- Establishing an EDRR monitoring program comprised of state and federal personnel who sample aquatic species in Mississippi public waterways on a routine basis.
- The MDMR has secured Mississippi Coastal Impact Assistance Program funding authority to hire a Conservation Resource Biologist under a 4 year contract to form an Aquatic Nuisance Species Advisory Council and begin implementation of action items contained in the Mississippi State Management Plan for Aquatic Invasive Species.

South Carolina - **D. Knott** gave a PowerPoint presentation on South Carolina's update. On September 16, 2010, a Lionfish was captured 90 km off Charleston in routine deployment of chevron fish traps by the MARMAP Program. In June, 2010, another infestation of an undetermined magnitude of Island Applesnails (IAS) was reported in a subdivision pond near Charleston. A DNR inspection yielded 5 large empty shells and 2 egg clusters. Due to apparent objections from the property manager, treatment was not done. In Socastee (Horry County), attempted control of IAS has been both successful and a disappointment. The number of original infested ponds that have had control work performed has been reduced. Some are showing complete eradication, while others have shown a significant reduction in the numbers of snail reproduction. Two new reports have been received in the vicinity.

Knott gave an update on Asian Tiger Shrimp. In 2009, 45 *Penaeus monodon* were reported in 7 coastal states – 16 from NC; 13 from SC; 3 from GA; 1 from FL; 5 from AL; 3 from MS; 4 from LA. In 2010, 10 *Penaeus monodon* were reported – 0 from NC; 4 from SC; 0 from GA; 1 from FL (110-120mm collected 12km south of New Smyrna Beach by a private citizen and given to the FL FWC); 0 from AL; 0 from MS; 5 from LA. Possible sources of the shrimp influx include US escapement, Caribbean aquaculture operations (Dominican Republic, L. Maracaibo and the Venezuelan coast), established breeding populations along the US coast, established wild Caribbean populations, and continuous ballast transport and delivery. **D. Schmitz** asked if the shrimp were being cultured in the United States. **Knott** replied that, to his knowledge, they were not. **M. Brainard** asked if the shrimp are in aquariums. **Knott** replied that he has not heard of them being sold for aquariums. In a report issued by Jason Clay and Aaron McNevin of the World Wildlife Fund, little is known about the overall impact of the introduction of shrimp species from aquaculture. *P. monodon* from Asia have been transported throughout Asia and brought to Latin America. *P. monodon* from Africa have been taken to Asia and the Pacific, and there has been a flow of this same species from Southeast Asia to South Asia and vice versa. The introduction of shrimp from different regions, even of the same species, introduces new DNA and characteristics that have not evolved *in situ*. These interactions are probably insignificant within ponds, but when shrimp escape during water exchange or harvest, they could cause genetic pollution that could alter the inbred characteristics, and perhaps the viability, of wild populations. The introduction of disease pathogens from other areas is equally important. Diseases previously found only in Taiwan and China have now spread throughout Asia and even into Latin America, where they have caused billions of dollars in damage each year. The impact of disease pathogens on wild stocks is not documented, but anecdotal information suggests that it may be serious. In 1992-1993 when diseases reduced shrimp aquaculture in China by 60-70%, the production of wild-caught shrimp in that country also declined by 90%. It is not clear whether the disease was transmitted from the wild to the ponds or vice versa, but there does seem to be some direct relationship. Pathogens can be introduced through the transportation of infected larvae or brood-stock that are released without proper quarantine and handling. In addition, diseases have been found to be viable in processed frozen product that is shipped to another region for further processing.

Control work for Hydrilla utilizing Triploid Grass Carp has been successful on Lake Greenwood, with no herbicide work scheduled for this year. The Santee Cooper Lakes show an increase in

native plants this year following a conservative approach to maintenance stocking of Triploid Grass Carp.

Knott reported that they have received their share of the monies from the approved AIS plan and also additional monies from USFWS. The intent is to utilize those funds to implement public education/outreach activities, as well as, reconvene the SC AIS Task Force to updating the plan.

The SC DNR is working with the Santee Cooper staff and the Clemson DPR to add *Nymphoides cristata* to the "SC Noxious Weeds" list. It is hoped that regulations and education will limit the spread from the Santee Cooper Lakes into other South Carolina lakes.

South Carolina's Early Detection/Rapid Response plan will be modeled after the regional plan that is being developed by GSARP.

C. Page reported that they had used a very low rate of .4 pounds per million of Natrix in eradication efforts of Applesnails. On the first day after treatment, there were floaters in the water. The following day, a few dead snails were found. Another treatment was done, and on the fourth day, an extreme number of dead snails were found, along with some small fish. The application was changed to one single treatment of .4ppm. On the third day, results were seen. Natrix is also used in the control of Zebra Mussels. **Page** stated that they have also stocked some retention ponds with Shellcrackers, which seem to be helping eradicate small snail offspring.

Page reported on Hydrilla efforts in SC. They have used Grass Carp in Lake Murray, the 3rd largest lake in the state, and it has proved to be highly successful. Since a survey was done in 2003, there has been no re-growth of Hydrilla. Lake Greenwood was also stocked with Grass Carp and after the second year, no Hydrilla has been found.

Texas – **L. Hartman** reported that they have not received any reports of Lionfish. **E. Chilton** reported that the first documented case of Zebra Mussels was in 2006 on a boat from Minnesota at Lake Texoma. Four additional boats from out of state have been intercepted and sanitized. In April 2009, the first live specimen was found in actual Texas waters. The range of the Zebra Mussels continued to increase. In July, Zebra Mussels were found near the North Texas Municipal Water District (NTMWD) intake structure on Lake Tecoma. In August, three specimens were found downstream of the NTMWD outfall area on West Prong Sister Grove Creek. Subsequent surveys in 2009 found no additional mussels. Surveys done in 2010 have found additional mussels in Sister Grove Creek. The range of the mussels in the Trinity River Basin in Eastern Texas near Houston could be immense. **Chilton** reported that the TPWD's response will include developing a Prevention and Response Plan; treating Sister Grove Creek with KCI or chelated copper; monitoring Lake Texoma, Lake Lavon, Lake Ray Hubbard, Lake Granbury, Lake Whitney, and Lake Waco; have staff watch for Zebra Mussels during their visits to area bodies of water; inter-basin water transfers.

D. Schmitz made a motion that a newsletter be created by the panel members with summaries about what each state is doing and the research that is being done. Schmitz

volunteered to be the Editor and will do most of the work. He stated that a committee needs to be formed with 3 other people to review the newsletter because it has to be reviewed and cleared to ensure that there is nothing in it that would be controversial or does not meet the panel's goals. He wants to identify researchers who are conducting research in the various states. The newsletter would be put out on an annual basis and would be distributed through PDF to all members of the panel, who would then further distribute it in their own states. **Schmitz** explained as not to burden the members with additional work, he would gather the information for the newsletter from information that has already been presented or has been included in the information packets from previous meetings. If he has any concerns or questions, he would call the panel member. **Schmitz** stated that he would like to have a 2011 edition. **Lukens** suggested that federal agencies also be allowed to contribute summaries of what they have been doing. **Lukens asked if there were any objections to Schmitz's proposal. There being no objections, the motion was approved.**

Work Group Updates

Early Detection/Rapid Response – L. Hartman reported that Texas is doing "TexRAT" in Galveston from June 19-24, 2011, to "test" the Texas Rapid Assessment Team. Out-of-state individuals and agencies are welcome, and she will be sending out letters with information to those interested in attending.

Education/Outreach – C. Jacoby did not have any further updates. **Kumpf** reported that the Boy Scout organization was a way to get the message out about Invasive Species and that 2 merit badges could possibly include invasive species - the Environment Sciences Merit Badge and the Nature Merit Badge. This could be an area to pursue. **Jacoby** stated that there was some work in the past by the task force to try and create an Invasive Species Merit Badge and suggested contacting Susan Mangin for more information.

Information/Management – R. Lukens explained that the standard job for the work group is to manage the content of the web page. **J. Ballard** reported that the GSARP website needs to be updated. Along with the content of the website, the new website was put up and all of the old species fact sheets were still on it. Updating those fact sheets would be difficult and time-consuming. However, **P. Fuller** suggested that she could provide filtered use of their website. They have worked with agencies in other regions of the country and have customized the look that each agency wanted. It then appears on that agency's website with their banner around it. It only shows that region of the country and only queries the appropriate records. **Fuller** stated that if the panel wants to do something similar, she could set it up for GSARP. **Ballard** pointed out that the development and a programmer will cost money. **D. McLean** inquired about the cost. **Fuller** explained that she could do an inexpensive version for approximately $10,000.00. **Lukens** stated that it was a good solution and although the panel does not have the funds at this time, he asked if there were any objections to conceptually moving the issue forward. There were no objections from the panel members. **Lukens made a motion that the panel would like to have the NAS Program create a database for the GSARP panel website. C. Jacoby seconded and the motion was approved.**

Nominations for Potential Member for Open Seat – Selection of New Member

R. Lukens stated that he wants to deal with the problem of panel members who do not show up for meetings. He asked that **J. Ballard** contact those people and ask about their intent to continue on the panel. **Lukens** stated that the open seat was D. Yeager's seat, who was the representative from the National Estuary Program. **Lukens** wants to extend an invitation for panel membership to another representative from the National Estuary Program. **L. Hartman** suggested asking someone from the Galveston Bay Estuary Program because they are highly involved in invasive species. She offered to call and see if someone would be interested in joining the panel. **D. Knott** offered to call someone from the National Estuarine Research Reserve (NERR). **E. Chilton** suggested adding a representative from the aquarium or nursery industry that has a real interest in invasive species. **Lukens** stated that he wants a representative from the commercial/industrial category, but feels the panel needs to take into consideration how large it wants to be. He further stated that extending membership in existing categories and adding categories is a discussion that should be postponed until a later time. He stated that there were 2 suggestions on the table. **Hartman** suggested contacting someone from the Galveston Bay Estuary Program and **Knott** suggested contacting someone from NERR. **Lukens** asked if there were any objections. There were no objections. He instructed **Hartman** and **Knott** to emphasize to the people contacted that they would have a commitment and not to view their panel membership as just a pastime. They will have to come to panel meetings twice a year. **Hartman** and **Knott** will report their findings to **Ballard**.

H. Kumpf suggested that Linda Walters be appointed to the vacant panel seat. Her resume was in each member's folder. **Lukens** stated that the problem was that she has no affiliation with the programs and that she is not a pick for the panel. **Lukens** felt that she would be more appropriate as an At-Large member. There is no limit for the number of At-Large members on the panel. **Kumpf made a motion to consider Linda Walters as an At-Large member. The motion was not seconded. Ballard made a motion to table the issue. Hartman seconded and the motion to table was approved.** **Lukens** stated that the panel will keep the resume of Ms. Walters on file for future consideration. In other news, Lukens reported that **M. O'Leary** is withdrawing from the panel. **J. Herrod** offered to step in for Region 4 and SAARP. **Lukens** also reported that **D. Knott** is retiring from the panel and will be considered for an At-Large membership. **Lukens made a motion to elect David Knott as an At-Large member of the panel. P. Fuller seconded and the motion was approved.**

Lukens brought up the issue of non-active members. **Lukens** asked **Ballard** to contact **L. Akins**, **M. O'Connell**, **G. Ramseur** and **R. Menendez** and ask them about their intention for their seats and their availability for future panel meetings.

Election of Officer

Vice Chairman – R. Lukens reported that he had contacted **J. Morris** via email and suggested that he be replaced as Vice Chairman, because he is not able to attend meetings due to the lack of travel funds. The panel would then accept nominations for a new Vice Chairman, which is a 2-year term. **Lukens** explained that the Vice Chairman doesn't really have any specific duties, other than to act in the absence of the Chairman and to be involved with the steering committees.

Lukens pointed out that whoever gets elected would normally move into the Chairman's seat when the Chairman's term expires. He then opened the floor for nominations. **D. Schmitz nominated L. Hartman for Vice Chairman. D. Riecke seconded the motion. D. Knott nominated P. Fuller, who declined the nomination. With no other nominations, L. Hartman was elected as Vice Chairman, effective immediately.**

Other Business

D. Schmitz spoke on The North American Invasive Species Network, which put together a consortium of regional invasive species centers and institutes and met last March in West Palm Beach, Florida. An overall strategic plan was hammered out with benchmarks to achieve in putting together a network. There has been a lot of interest in the endeavor and they now have the backing of the Commission for Environmental Cooperation, which helps implement the North American Agreement for Environmental Cooperation between the United States, Canada and Mexico. The Commission granted travel funds in the amount of $260,000.00. The next workshop is scheduled for mid-November in Boise, Idaho. Along with informative discussions, there will be elections and training sessions held. Information about the workshop will be sent to **J. Ballard**. **Lukens** asked **Schmitz** how they envisioned working in cooperation with the regional panels. **Schmitz** explained that, along with having established by-laws, they are also going to have a Board of Directors. The network will be comprised of the regional hub, as they are the ones who are actually providing services and already have an infrastructure in place. There will also be advisory boards for the United States, Canada, and Mexico. The United States advisory board will be comprised of general agencies, the invasive species council, and regional panel representatives. The advisory board will seat 25 members. Two additional advisory boards that will be created are a technical advisory board and an industry representative advisory board. **Lukens** asked **Schmitz** to keep the panel posted as the mission moves forward. **Schmitz** informed the panel that there will be another workshop held next spring or summer in Mexico or Canada.

Next Meeting

Charleston, SC was selected as the primary meeting location, with Mobile, AL as the secondary location. The week of April 4th or the week of April 11th was selected as the time frame.

Public Comment

Lukens provided the opportunity for public comment. There was none.

Lukens made a motion to adjourn the meeting. Hartman seconded and the motion was approved. There being no further business, the meeting adjourned at 12:30 p.m.