

**GULF & SOUTH ATLANTIC REGIONAL PANEL
ON AQUATIC INVASIVE SPECIES
MINUTES**

**Tuesday, October 4, 2016 – Wednesday, October 5, 2016
Lafayette, LA**

On Tuesday, October 4, 2016 Chairman **Kristen Sommers** called the meeting to order at 8:30 a.m. The meeting began with introductions of the members and guests. The following were in attendance:

Members & Proxies

James Ballard, GSMFC, Ocean Springs, MS
Tim Bonvechio, GA DNR, Waycross, GA
Rick Burris, MS DMR, Biloxi, MS
Paul Carangelo, Port Authority, Corpus Christi, TX
Mark Ford, NPS, New Orleans, LA
Pam Fuller, USGS, Gainesville, FL
Lisa Gonzalez, HARC, The Woodlands, TX
Leslie Hartman, TPWD, Palacios, TX
Chuck Jacoby, Indian River Lagoon National Estuary Program, Palatka, FL
Peter Kingsley-Smith, SC DNR, Charleston, SC
Herb Kumpf, At-Large Member, Stuart, FL (via conference call)
Monica McGarrity, TPWD, Austin, TX
Robert McMahon, UT Arlington, Arlington, TX
Matt Neilson, USGS, Gainesville, FL
Matt Phillips, FWC, Tallahassee, FL
Bobby Reed, LDWF, Lake Charles, LA
Dennis Riecke, MS DWFP, Jackson, MS
Wilfredo Robles, Univ. of Puerto Rico, Corozal, PR
Kristen Sommers, FL FWC, Tallahassee, FL
Jessica Spencer, USACE, Jacksonville, FL
Timothy Strakosh, USFWS, Atlanta, GA (via conference call)

Staff

Ali Ryan, GSMFC, Ocean Springs, MS
Joe Ferrer, GSMFC, Ocean Springs, MS

Others

Jacoby Carter, USGS, Lafayette, LA
Lee Eisenberg, Greater Caddo Lake Assoc., Karnack, TX
Eric Hoffman, UCF, Orlando, FL
Olivia LaMaster, SFASU, Nacogdoches, TX
Shiyu Li, Stephen F. Austin State Univ., Nacogdoches, TX
Justin Murdock, TN Tech Univ., Cookeville, TN
Ping Wang, SFASU, Nacogdoches, TX
Lihong Zhao, Univ. of LA, Lafayette, LA

Public Comment

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

Adoption of Agenda

A motion to adopt the agenda was made, and passed unanimously.

Approval of Minutes

The minutes of the April 5-6, 2016 meeting in Orange Beach, AL were presented for approval.

A motion was made to approve the minutes. The motion was seconded, and the motion passed.

Field Testing the Use of Food Grade Oils to Suppress Apple Snail Reproduction

Jacoby Carter gave a PowerPoint presentation entitled “Field Testing the Use of Food Grade Oils to Suppress Apple Snail Reproduction”. Reasons to use food grade oils are that they may be exempt from EPA oversight since they are already approved as inert ingredients, and they are already considered safe for human consumption. They are also inexpensive and easily obtained. The mode of action is physical, not chemical. The oil suffocates the egg mass. The use of spray may have advantages over physical destruction of the egg masses.

Pam cooking spray, which is mostly canola oil and emulsifiers, was used at a study site in Langan Municipal Park in Mobile, AL. Also, undiluted coconut oil was applied to egg masses with a hand-pumped agricultural sprayer. A control was not sprayed. Egg masses were observed for a minimum of three weeks, after which the percentage of hatching was evaluated. From May through July 2016, 235 egg masses were entered into the field study. A modified Braun-Blanquet Index was used to record percent hatching at the end of three weeks.

Both oil applications significantly reduced overall hatching (between 70-80%), as compared to control. The longer the egg mass, the greater the likelihood of hatching, but the effect was small. Pam cooking spray was cost-effective. One can sprayed over 80 egg masses. However, its effective range is short, whereas a conventional sprayer can spray at a distance.

Population Modeling of Maculata Apple Snails: One Model Does Not Fit All

Lihong Zhao gave a PowerPoint presentation entitled “Population Modeling of *maculata* Apple Snails: One Model Does No Fit All”. Little has been quantified regarding their life cycle. To measure the growth of snails at various stages of development, several growth experiments were conducted. The goal of the experiment was to build a mathematical model, calibrate it to make accurate population projections, and quantify the environmental and economic impact. Measurements were taken weekly for 13 weeks. Snails were individually marked by gluing tags to their shells. Weight, operculum length, shell length, sex, identification, and date were recorded. A population-level approach was done.

Females are generally larger than males. Females and males may have different growth dynamics. Smaller snails generally appear to grow faster than larger ones. Single-stage growth function is not suitable for males or females. Snail hatchlings reached reproductive maturity in 73-83 days, which is much earlier than other researchers observed.

Future work will involve quantifying local populations, and predicting long-term population dynamics and impacts.

Managing ANS in the Southwest Louisiana National Wildlife Refuges

Billy Leonard gave a PowerPoint presentation entitled “Management of Invasive Aquatic Nuisance Species at Refuges in Western Louisiana: Problems, approaches, Needs”. The three newest aquatic plants are giant salvinia, Peruvian water grass, and Cuban bullrush. Water hyacinth, Cuban bullrush, and giant salvinia re combining together to form thick mats, which can impede water access to many areas of the refuge.

Only approved herbicides can be used. Herbicide is supplied to the LA Department of Wildlife and Fisheries spray crew, but there are constraints due to the amounts of chemical that can be sprayed, the budget, and the list of approved chemicals. Most invasive plants can be managed by using chemicals. There is no strategy yet for apple snails. Numbers are rising again for nutria and *Myocastor coypus*.

Funding, support, and more research are needed for the most problematic aquatic species.

Update on the Invasive Plant Program in Louisiana

Jill Day gave a PowerPoint presentation entitled “LDWF Aquatic Plant Control Program Update”. In 2015 and 2016, over 50,000 acres have been treated by LDWF. Control methods include integrated pest management, chemical, mechanical, and biological. Trials are being done on giant salvinia to determine the effectiveness of alternative surfactants.

Containment booms limits plant movement and allows containment for herbicide application. Drawdowns target shoreline plants, affects the entire waterbody, and can removes large quantities at low cost. Weevils and triploid grass carp are used as species-specific control.

Three giant salvinia weevil rearing ponds have been established on LSU AgCenter property. There is high winter mortality of adult weevils due to freezing temperatures, and failure to establish north of 32° N in the U.S. There is a quest for cold-tolerant weevils.

Current Distribution of the Invasive Asian Carps in Louisiana

Bobby Reed gave a PowerPoint presentation entitled “Determining Asian Carp Expansion in Louisiana Waters through Larval Fish Sampling”. LDWF received a small ANS grant in 2013 and 2014 from USFWS to sample for larval Asian carp in Louisiana waters. The primary objective was to determine the degree of Asian carp invasion, and define the leading edge of reproductive expansion. The targeted species included silver, bighead, grass, black, and common carps. The secondary objective was to determine if water quality may influence the reproductive success of Asian carp. Asian carp larvae were sampled in selected waters throughout Louisiana to test the theory that low alkalinity may inhibit Asian carp reproduction.

In summary, Asian carp appear to be reproducing in only the largest rivers with relatively high alkalinity compared to the smaller adjacent gulf coast drainages. May was peak spawning for bighead and silver carps in LA. The study should be repeated in five years.

Detection of Feral Hog Impacts to Water Quality and Wildlife

Michael Kaller gave a PowerPoint presentation entitled “Detection of Feral Hog Impacts on Water Quality”. Feral hogs negatively impact native wildlife and native vegetation. Water samples were taken at West Bay and Ft. Polk wildlife management areas, and tested for water quality. Excessive fecal coliforms (*E. coli*) were found in 8 of 20 samples. Pathogens identified include: *Aeromonas*, *Enterococcus*, *Staphylococcus aureus*, and *Shigella*. In the Kisatchie National Forest, excessive fecal coliforms (*E. coli*) were found at 17 of 31 sites. *Leptospira* and *Klebsiella* were found at 19 of 31 sites. *Salmonella* was found at 8 of 31 sites. *Yersinia* was found at 6 of 31 sites.

Preliminary implications revealed that human and wildlife pathogens were present and associated with feral hogs. DNA fingerprinting at 22 of 40 sites detected individual and/or matrilineal connection (i.e. same sounder) in 12 of 39 hogs.

The Spread of Zebra Mussels in Texas

Monica McGarrity gave a PowerPoint presentation entitled “The Spread of Zebra Mussels in Texas”. Five lakes are infested with zebra mussels: Lake Lavon, Lake Livingston, Lake Waco, Lake Worth, and Fishing Hole Lake. In May 2016, hundreds of veligers were found in Eagle Mountain Lake, and an adult zebra mussel was confirmed in June 2016. In July 2016, they were confirmed in Stillhouse Hollow Lake.

Coordinated monitoring efforts have been undertaken, and boater inspections have been done on over 1,900 boats in 2016. A marina outreach is being done to build partnerships, provide updates, and give advice. In 2016, 87 marinas and 63 repair shops have been visited. A public awareness campaign is ongoing. Regulations have been established to make it illegal to possess zebra mussels or other prohibited species – live or dead.

Giant Salvinia Extracts as an Endocode to Control Giant Salvinia

Shiyong Li reported that field trials are being done to control giant salvinia. Salvinia is damaged by cold weather, but can survive under water and on soils for weeks. Swamps and creeks serve as salvinia nurseries of lakes and rivers.

Large Scale Giant Salvinia Weevil Production on Caddo Lake

Lee Eisenberg gave a PowerPoint presentation entitled “Large Scale Giant Salvinia Weevil Production at Caddo Lake”. Successful biocontrol of salvinia at Caddo Lake has limitations. There are cold winters, and a short growing season. Salvinia is cold hardy, and overwinters.

A weevil production greenhouse was built where greater numbers of weevils are produced in less time. The greenhouse has an efficient floor plan and is climate controlled. The weevils are sheltered from unusually cold weather. Lake water is used for the tanks. Weevils are released in sheltered areas with minimal drift, and unlikely to be sprayed. Production and effects on salvinia are quantified, and production space required to mitigate an infestation of a given size is extrapolated. In the first year, 165,000 adults were produced, and 85,000 so far this year. Over 20,000 weevils were introduced at a 200-acre release site in Willowson Woodyard which is heavily infested with salvinia. The population survived through the mild winter, and has caused extensive damage in a six inch thick mat.

Effects of *Didymosphenia geminata* Invasion on Riverine Food Webs

Justin Murdock gave a PowerPoint presentation entitled “*Didymosphenia geminata* Effects on River Food Webs”. *Didymosphenia geminata* changes physical habitats by homogenizing habitats, changing near-bed velocities and macroinvertebrate structures, and impacting fish.

A study was done in 2014-2015 on three rivers (tailwaters) with varying coverage. Three sites per river were studied for macroinvertebrate composition, habitat, and water quality. Two sites per river were studied for food web stable isotope and lipids. Brown trout and rainbow trout were studied for yearly abundance and condition data at each river.

Macroinvertebrate conclusions found food resources switching with mat coverage over 50%. Lipids had same trend as isotopes, and did not assimilate didymo cells or stalks. There was less reliance on diatoms in general. Effects were less severe in “patches” than “blankets”.

Trout conclusions found browns and rainbows primarily assimilating flatworms, amphipods, and didymo stalk at high and low didymo sites. Stalks increase chironomid midge and oligochaete worm abundance, but the strongest isotopic signatures came from turbellarians and amphipods, which are typically found outside of mats.

Update on the 2016 USFWS Region 4 AIS Small Grants Program

Ballard gave a PowerPoint presentation entitled “U.S. Fish & Wildlife Service Region 4 AIS Program Small Grants Program”. In 2016, seven grants were awarded. Next year, the RFP will possibly be revised for 2017 to narrow the scope of proposed projects. The membership on the Review Committee could possibly be expanded. How the findings from the funded completed projects are displayed will also be decided on.

Update on African Clawed Frogs in Florida

Sommers gave a PowerPoint presentation entitled “African Clawed Frog Removal Effort”. In 2016 in Riverview, FL, two adults were removed from a in a mobile home park pond by a homeowner. Thousands of tadpoles were found in the pond. In July, 17 water bodies were surveyed, and tadpoles and froglets were discovered in the pond. Approximately 13,000 tadpoles and froglets were removed. Frogs and native amphibians were tested for chytrid fungus. Hydrated lime was spread in the pond and around the barrier. Frogs and froglets trying to escape were euthanized. The mobile home park was canvassed with public information sheets. Follow-up was done on the pond, and 8 juvenile frogs were caught by a landowner in August. In September, staff returned and found lots of frogs in the pond. A follow-up is planned for November. Partnership between agencies and researchers is crucial to conduct EDRR. Follow up will need to be continual until eradication or control goals are met.

Update on AIS Prevention and Control Efforts in Puerto Rico

Robles gave a PowerPoint presentation entitled “Update on AIS Prevention and Control Efforts in Puerto Rico”. The Grupo Antillano de Especies Invasoras (Antillean Group for Invasive Species) (GAEI) is a multidiscipline group from the College of Agricultural Sciences in Puerto Rico, in collaboration with scientists from Mississippi State University. The main goals are to prevent invasive species introduction and spread using a regional-focused EDRR program, and to raise citizen awareness regarding the importance of invasive species on ecosystems. Their

objectives are to develop hands-on training workshops for the general public, and to develop a web-based information and monitoring system available for general public. There are seven target plant species, and six target insect species.

One-day training workshops were held at many locations throughout the island. Over 200 attendees attended. They had no general knowledge of invasive species.

The Atlas de Especies Invasoras de PR is a web-based monitoring and information system launched in 2011, currently in Spanish language, that includes fact sheets, invasive species distribution maps, blogs and updated news articles, and outreach materials. There have been over 12,000 hits per year.

In 2013, water hyacinth was present at Laguna San Jose in the San Juan Bay Estuary. Effects on water quality and aquatic insects was studied. Efficacy of mechanical and chemical control was also studied.

Invasive Crayfishes: Impacts, Pathways, Detection, and Prevalence

Susie Adams gave a PowerPoint presentation entitled “Invasive Crayfishes: Impacts, Pathways, Detection, and Prevalence”. Crayfish are among the most notorious invasive aquatic species in freshwater ecosystems and have been reported not only to displace indigenous crayfish, but also to impact a number of other aquatic organisms. They reduce fish growth, compete for shelter, and have negative population effects. They also deter breeding in CA newts, and alter terrestrial food webs. They displace or reduce abundance of native crayfishes, and harbor diseases and parasites.

Introduction pathways include via live bait; pet/ornamental trade; as a food source; aquaculture; and schools. Wisconsin and Pennsylvania have outlawed the use of live crayfishes as bait after devastating invasions by *Orconectes rusticus*. Fish stocking needs to be examined as a possible pathway.

Large water bodies have been under-sampled for invasive crayfishes. Knowledge of their native ranges is incomplete, and more must be learned about pathways of introductions.

Using Genetics to Understand the Invasion Dynamics of *Megabalanus coccopoma*

Eric Hoffman gave a PowerPoint presentation entitled “Using Genetics to Understand the Invasion Dynamics of *Megabalanus coccopoma* (Titan Acorn Barnacle)”. The native range is from Mexico to Panama. The first invaded report in the Caribbean was in 2001, and in the Atlantic in 2006. There is an unknown number of species in the genus, so all samples collected might not be *M. coccopoma*.

Samples were collected at numerous locations, and molecular analysis was done. Results indicated that there are multiple genetic lineages invading the Florida coast. Most samples were *M. coccopoma*. It was not possible to determine where the invasion originated from. There were no statistical differences between native and invasive populations for measures of genetic diversity – no evidence of admixture.

Ongoing and future research include further study of species complex, temporal differentiation comparison within non-native populations, and the use of microsatellites to investigate genetic structure using faster evolving markers.

Wednesday, October 5, 2016

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

Overview of the Texas Lionfish Symposium and Future Plans

Hartman reported that initial hurdles of the symposium were interest, funding, and expectations. Sixty invitations were sent out to federal, state, and non-governmental agencies, universities, and public corporations. There were 39 attendees, with varied expertise. The 3-day symposium consisted of presentations, public outreach, and facilitated break-out topics.

The next symposium will be held February 15-16, 2017 at the NOAA Galveston Laboratory. The goal will be a multi-pronged approach to mitigate lionfish impacts on ecology and economy, and to use lionfish as a 'poster child' for what not to do. Long-term plans for the symposium are to hold it every 2-3 years.

Overview of the USGS ANS Database Updates

Neilson reported that NAS Database Program updates include a mobile reporting app, and a new point map interface.

Update on New Aquatic Nuisance Species Introductions

Neilson reported that NAS alerts are generated when a species is new to one or more geographic levels in a country, state, drainage, or county, and observed within the last six months. Since April 2016, there have been 29 fish, 22 mollusks, and 15 plants. There have been nine fish, eight mollusks, two plants, and two frogs in Florida, Texas, South Carolina, Georgia, and Mississippi.

Aquatic Nuisance Species Task Force Update

Strakosh reported that they are working on an additional invasive species to list, which will take approximately two years. There is a possibility that lionfish will be listed as an injurious species.

The use of using foreign sand for beach reconstruction and habitat projects has come up. If no source of domestic sand was available to a municipality, foreign sand could be used instead. The concern was that possible invasive species can be in the sand. However, after researching this, it was found that that practice is regulated.

Ballard reported that there will be no increased panel funding in the foreseeable future from the ANSTF.

The ANSTF will not host an international symposium on the use of CRISPR, but the subject will be incorporated into the innovation summit that NIMFS will be holding on December 5, 2016.

Mexico will be added as a standing seat to the SOP.

Discussion about Panel and Work Group Membership

Ballard reported that he will be contacting people for possible membership for the panel's tribal seat. A representative for aquaculture will also be sought.

Sommers is the new Chairman for the Pathways/Prevention Work Group. **Strakosh** was added to this work group. **Bonvechio** and **McMahon** are the new Chairmen for the Eradication/Control/Restoration Work Group. **McGarrity** was added to this work group. **McGarrity** and **Ballard** were added to the Research/Development Work Group. **Kingsley-Smith** was added to the Education/Outreach Work Group.

Ballard stated that as an Action Item, the EDRR Plan will be redone.

Update on USFWS Region 4 Aquatic Nuisance Species Activities

Strakosh reported that there will be a one-half percent decrease from the FY2016 budget for the Small Grants Program. Funding for FY2016 was less than anticipated, and money was pulled from other programs to support projects.

A rapid response task team will be created in the future to determine what resources, personnel, supplies, etc. are available to respond to partners' needs in the event of detection.

An eDNA trailer will be obtained from Region 3 that can be staffed and deployed throughout the southeast region to assist with partners' needs.

Update on the Invasive Species Traveling Trunk Revisions

Gonzalez reported that she is gathering information on adding feral hogs to the traveling trunk.

Ballard reported that a replica of an Asian carp will be added to the trunk. He is also attempting to obtain a replica of a lionfish. A poster will also be created for teachers to keep in their classrooms after utilizing the trunk. The PowerPoint presentation will also be updated. No new invasive plant species will be added to the trunk at this time. An elementary school invasive species interaction game will be created in the future.

Kingsley-Smith reported that he obtained two apple snail shells, and an egg mass encased in rubber for the trunk, which were passed around at the meeting for the panel members to see.

Kumpf stated that he will update the notebook that is included in the traveling trunk.

Update on the Establishment of a GSARP Distinguished Service Award

Ballard reported that he has researched how other agencies and organizations handle their awards, and found that most turn in nomination letters. **Ballard** created a standard format template for an online GSARP Distinguished Service Award nomination form that will be put on the GSARP website. When nominations are opened, a link will be provided to the nomination form. Nominees will be compiled and reviewed by the review committee. The Chairmen and Co-Chairs of the Work Groups will decide who the award will be presented to. The award will pertain to aquatic invasive species in the GSARP region.

It was decided that the style of the award will be a wall plaque.

It was decided that the name of the award will be changed to “GSARP Distinguished Achievement Award”.

Update on the Clearinghouse of Outreach Materials

Ballard stated that if anyone has any pdf outreach materials they want placed in the clearinghouse, to get them to him, along with the appropriate contact person and their information. The clearinghouse will be on the GSMFC website in the spring.

A clearinghouse for completed risk assessments will also be put on the website.

State Reports/ Members Forum

Florida

Sommers reported on the Panhandle Pilot Program, which is a year-long program that focuses on seven Florida panhandle counties. For every 100 lionfish tails submitted to a checkpoint, participants are eligible to receive either a red grouper or cobia tag for harvest over the bag limit in state waters. Individuals or groups that harvest 500 or more lionfish are eligible to name an artificial reef. To date, over 6,000 lionfish have been submitted to the program. The program ends on May 20, 2017.

The 2nd Annual Lionfish Removal and Awareness Day was held May 14-15, 2016. During this event, over 14,000 lionfish were removed from state waters. Multiple local celebrity chefs prepared and served lionfish dishes to demonstrate the ease of preparing lionfish, and to encourage consumption. The event also served as the kickoff for two new lionfish incentive programs: the state-wide Lionfish Challenge, and the Panhandle Pilot Program.

The Lionfish Challenge ran from May 14 – September 30, 2016. Participants have collectively submitted 11,800 lionfish. The participant who harvests the most lionfish before the conclusion of the program was crowned the Lionfish King/Queen. Raffle prizes were also awarded.

Staff attended 18 lionfish outreach and education events around the state. These events were attended by over 3,000 people.

The Loxahatchee Slough and Loxahatchee River in Palm Beach County were electrofished to assess fish community structure, including the presence and relative abundance of non-native species in natural waters. The non-native species found in two natural areas were tilapia, spotted tilapia, and sailfin catfish. Of interest was the large number of sailfin catfish observed spawning along the banks in some areas of the Loxahatchee River. Their burrows exacerbate shoreline erosion, and could be damaging in streams and rivers during high water flow. All of the sailfin catfish and most of the other non-native species were removed.

On April 16, 2016, the 7th Annual Everglades Cooperative Invasive Species Management Area (ECISMA) Nonnative Fish Round Up was held. The primary objectives of the event are to promote consumptive use of non-native fishes and to increase public awareness on non-native

fish issues. Approximately 1,000 fish comprised of 14 different species were submitted during the one-day event. The primary species removed include Mayan cichlid, oscars, blue tilapia, and sailfin catfish.

The Bullseye Snakehead Round-Up 2016 tournament season ended September 17th. Over 380 bullseye snakehead were caught. The largest weighed 11.2 pounds.

The 2nd Annual 2016 Nonnative Fish Catch, Click and Report Contest was held in April and sponsored by FWC. The objectives of this state-wide contest are to document non-native fish species in areas not commonly sampled by biologists, to increase public awareness of non-native fish issues, and to promote consumptive use of non-native fish. A total of 131 non-native fish reports were submitted by 44 participants, and 29 Instagram reports were submitted. A total of 22 non-native fish species were reported. Mayan cichlid, blue tilapia, and spotted tilapia were the most common.

USGS and FWC hosted a Fish Chat in May for biologists in south Florida studying non-native fish. Participants collected non-native fish from a variety of locations not routinely sampled by FWC. Twenty non-native fish species were collected, and 42 lots of 248 voucher specimens were given to the Florida Museum of Natural History.

A large population of African clawed froglets and tadpoles were discovered in a small retention pond in a mobile home park in Riverview, FL by biologists from the University of Florida's Tropical Aquaculture Laboratory (UFTAL). UF notified FWC, and 13,000 tadpoles were removed from the pond. FWC decided to renovate the pond as a control effort due to the concern of ACFs being an effective carrier of *Batrachochytrium dendrobatidis* (Bd), a chytrid fungus which has been linked to global declines in amphibian populations. A siltation drift fence was installed as a migration barrier. Hydrated lime was chosen as the preferred option to renovate the pond, which is environmentally friendlier than rotenone and less likely to cause a fish kill in the event of an accidental spill. In August, 150 pounds of lime was applied to the pond, and 50 pounds was spread in the area between the water line and the siltation fence. Any froglets or adults attempting to escape the pond were captured and euthanized. Follow-up visits yielded no surviving froglets or tadpoles.

Georgia

Bonvechio reported on the Satilla River Flathead Catfish Removal Project. During the current 2016 sampling season, over 5,000 flathead catfish have been removed. Since 2007, over 60,000 flathead catfish have been removed. Suppression of the flathead catfish population in the Satilla River has been demonstrated through measured changes in biomass, size, and age-structure. Ongoing intensive harvest is required to prevent the population from rebuilding.

In 2016, over 160 blue catfish were harvested. The increase in observed blue catfish is a concern, and continued monitoring and removal of the species will occur.

Asian carp continue to move up the Tennessee River system in Alabama. There are many potential vectors for the spread of Asian carp into Georgia waters, such as inter-basin transfer via angler bait bucket. Their movement is continuously monitored by GA DNR.

Giant salvinia is one of the top species of concern in the Georgia Aquatic Nuisance Species Management Plan. A treatment program was developed to ensure that the plant does not spread. All herbicide treatments and monitoring are conducted by Fisheries Management personnel. In June 2016, six Asian swamp eels were collected in Cobb County.

In April 2016, a koi (*Cyprinus carpio carpio*) was collected in the Coosa River.

Three red bellied pacu were caught in the Alcovy River in June 2016.

A yellow perch was caught in the Oconee River in May 2016.

From November 2014 until August 2016, 15 wild grass carp were captured and submitted for triploid testing in Warm Springs. All 15 fish tested positive as triploids.

The GA WRD website has been revamped. Input was received from several regions. Aquatic nuisance species examples and potential future threats were summarized. Also addressed were major diseases and epidemics with neighboring states trout populations, aquatic vegetation issues, and other non-game invasives.

Louisiana

Reed reported that four species of carp (grass, bighead, black, and silver) are invading Louisiana's rivers, streams, and reservoirs. Ongoing research includes impacts the carp may be having on native fishes of similar trophic level.

Apple snails have colonized the waters of southeastern and south central Louisiana in the lower Atchafalaya and Mississippi River basins during the past decade. They are spreading more rapidly and distant than in previous years.

LDWF has received 31 reports of tiger shrimp in 2016 from commercial and recreational fisherman catches along the Louisiana coastline from the Texas state line to the Mississippi River.

Two reports of land crabs have come from the Grand Isle-Grand Terre area of lower Barataria Basin, where they have been found inhabiting the mangrove trees.

Mississippi

Burris reported on outreach activities. The inaugural meeting of the Mississippi Aquatic Invasive Species Task Force (MAISC) was organized and attended by DMR. At the Mid-South Aquatic Plant Management Society meeting, DMR gave a presentation about their aquatic vegetation control efforts. At the Celebrate the Gulf Marine Education Festival, DMR displayed and distributed invasive species outreach materials, including items from GSARP's Traveling Trunk, as part of an interactive outreach exhibit.

As part of their early detection/rapid response activities, DMR conducted an aerial survey, two ground surveys, and 66 boat surveys for early detection of AIS and monitoring of existing infestations. A program of integrated pest management using salvinia weevils and limited spot

herbicide application was used to treat existing populations of common salvinia and giant salvinia. In Robinson Bayou in the Pascagoula River, 3,485 giant apple snail egg masses were destroyed, and 35 live snails were removed.

A report of lionfish on one of Mississippi's offshore artificial reef sites was received and confirmed. Four confirmed reports of Asian tiger shrimp were also received.

Riecke provided the freshwater report. Their aquatic plant control activities included chemically treating several water bodies for invasive plants.

The first meeting of the Mississippi Aquatic Invasive Species Council was held to guide implementation of the activities specified in the *Mississippi State Management Plan for Aquatic Invasive Species*.

DWFP is continuing to work with Chef Philippe Parola and Moon River Foods to promote the harvest of Asian carp. Special Harvest permits were issued to Moon River Foods for the use of special gear.

There are new detections of black carp in the Mississippi River near Greenville, and Brazilian elodea and giant salvinia in the Ross Barnett Reservoir.

Links to the Mississippi River Basin Panel on Aquatic Nuisance Species and the Gulf and South Atlantic Regional Panel on Aquatic Invasive Species, Stop Aquatic Hitchhikers, and Habitattitude websites are on the department website.

Distribution continues of "Stop Aquatic Hitchhikers" cards along with all boat registrations or renewals that are mailed out.

Future activities include: composing freshwater fishing bait regulations to specify what bait can be legally sold, possessed, transported, and used in Mississippi; seeking approval of legislation required to initiate licensing of retail bait outlets selling live freshwater fishing bait; adopt a list of approved, restricted, and prohibited species under the authority specified in MS Code 49-7-80 and as specified in the *Mississippi State Management Plan for Aquatic Invasive Species* Amend list of approved, restricted, and prohibited species as specified in the public notice that regulates aquaculture activities in Mississippi; establishing an EDRR monitoring program comprised of state and federal personnel who sample aquatic species in Mississippi public waterways on a routine basis.

North Carolina

A new sighting of Chinese mystery snail was reported from the Cape Fear basin, and identification will be confirmed soon.

Flathead catfish are moving upstream in several watersheds in the Tar River and Neuse River basins. This is likely the cause for the decline of Carolina Madtoms.

Gill lice have been found on brook trout and rainbow trout populations. Anglers have been asked to report observations of gill lice, and NCWRC will continue to sample brook trout and rainbow

trout populations across the mountains of North Carolina to document the distribution and status of gill lice.

Whirling disease was confirmed in rainbow trout collected from the Watauga River in July 2016. This is the first occurrence of the disease in North Carolina. It was also identified in the Elk River. The NCWRC initiated testing of self-sustaining wild trout populations in spring 2016 for the presence of *Myxobolus cerebralis* and whirling disease. Approximately 1,500 trout from 36 localities were examined. Four collections from three major basins were infected with *Myxobolus cerebralis*.

In the Tuckasegee River, *Didymosphenia geminata* (Didymo) was documented for the first time in North Carolina. Additional research is needed to determine its prevalence in the Tuckasegee River and throughout the state.

Lionfish continue to thrive off the North Carolina coast. NOAA is working to address lionfish ecological impacts, control strategies, and various commercial harvesting methods.

In Lake Waccamaw, hydrilla has been completely suppressed by fluridone treatments in 2016. Tuber densities have declined within the treatment area since 2012, but remain at detectable levels. Continued management is needed to fully deplete the tuber bank in the infested area.

A large section of the Eno River was treated with fluridone in 2015 and 2016 to control hydrilla. This was the second year of a two-year pilot project with the objective to demonstrate the effectiveness of an herbicide treatment (fluridone) to control hydrilla in a riverine system. Preliminary survey results suggest there was significant control of hydrilla, with minimal to no impact to non-target plant and animal species.

Additional localities of hydrilla have been confirmed in the Cape Fear Basin. In August 2016, a small area at a public boat access in Lake Rim was discovered, and then treated with herbicide in September 2016. NCWRC staff are working towards a plan to identify the extent of hydrilla occurrence in the upper half of the Cape Fear basin, with potential survey expansion into other vital rare aquatic species habitats in the Chowan and Neuse basins.

In some parts of North Carolina, blue catfish have become a topic of concern. Their range has been expanding over the years, and commercial landings have increased. Much of the concern is centered on HR 2419 (The Farm Bill) and a provision intended to impact imported aquaculture-raised fish.

The North Carolina Aquatic Nuisance Species Management Plan has been finalized by the working group, and has been signed by all three departments. There is currently no plan for submission to the national ANS Task Force for approval.

Puerto Rico

Robles reported that they are continuing to survey the islands. They are better able to reach more countries since they have provided information in Spanish on the website. Data has been

uploaded as well. Iguanas are a large problem in PR. The airport has had to be shut down for several hours due to so many iguanas being on the tarmac that airplanes were unable to land.

South Carolina

Kingsley-Smith provided an update on island apple snails. MRRI researchers completed additional surveys of ponds in three locations that have an established population to determine the extent of *P. maculata* spread. SCDNR researchers completed a survey of 100 stormwater ponds between May and September 2015 across the five eastern South Carolina counties. An additional invasive freshwater snail, *Melanooides tuberculata*, was discovered. The survey was expanded, and three additional invasive freshwater snail species were discovered – *Bellamya japonica*, *Biomphalaria havanensis*, and *Pyrgophorus parvulus*. In June 2016, the sites with *M. tuberculata* and/or *P. parvulus* were revisited. Snails were collected and brought back to the MRRI, identified, and measured. In total, 8,388 *M. tuberculata* specimens were collected, and 1,099 *P. parvulus* specimens were collected.

SCDNR researchers continue conducting research on Asian tiger shrimp. When specimens are donated to the MRRI, in addition to measuring and sexing them, the first three pairs of pleopods are collected. These samples are held in a tissue repository in Beaufort, NC. MRRI researchers want to learn the status of efforts by USGS researchers to use genetic approaches to identify the geographic origins of *P. monodon* living along the Gulf and Atlantic coasts of the U.S, and the population structure of the shrimp in its introduced range.

The charrua mussel, native to Central and South America, appears to be expanding northward in South Carolina. The mussel has the potential to heavily foul structures that are submerged in seawater. It is believed that their arrival was most likely via transport in ballast water or in the fouling community on hulls of vessels arriving from South America. Recreational vessels from areas where the mussel is already established provides an additional potential vector of introduction.

Texas

McMahon reported that funding for 2016-2017 was increased. To address statewide management of aquatic invasive species, \$6.3 million was received, an increase from \$1.1 million in the previous two-year funding cycle.

In February, the first Lone Star Lionfish Symposium was held at the Texas State Aquarium. A public forum was held, and attending experts answered questions about lionfish threats and management. A draft management plan is being developed based on priorities identified during this symposium.

TPWD is sponsoring a study by researchers at Texas Tech University that seeks to delimit the range of Bigheaded Carp in north Texas rivers by using traditional electrofishing and eDNA-based detection technologies. The results of this study will help to refine preventive regulations restricting live bait transfer, and target outreach signage to reduce the risk of transfer to new areas.

Zebra mussels have spread from Lake Texoma to 12 additional water bodies in three river basins. Of these, eight can be classified as fully infested with zebra mussels. In 2016, fully established infestations were detected in two new lakes. Zebra mussels and/or their larvae were also detected repeatedly in two other new lakes. In 2015, TPWD initiated a marina outreach program to help prevent contaminated boats from entering non-infested waters. In 2016, TPWD teams visited nearly 80 marinas to further develop these partnerships.

Estimated cumulative state-wide spread of giant salvinia in public waters has increased since it was first found in Toledo Bend Reservoir in 1999. Twenty-five water bodies have had giant salvinia. It has been eradicated in eight water bodies. However, certain water bodies have frequent re-introductions that have periodically required rapid response to contain and eradicate. In 2016, TPWD has chemically treated over 7,000 acres on several lakes. Also, over 580,000 adult giant salvinia weevils have been released on Toledo Bend and Caddo Lake to help manage infestations. Research is being done on development of endocides, which show great promise as a new tool for giant salvinia management.

TPWD has purchased a mobile rapid response unit consisting of a fully-enclosed cargo trailer containing 1,300 feet of floating containment/oil spill boom. Two additional trailers may be purchased in fiscal year 2017.

The two most problematic riparian invasive plants in Texas are salt cedar and arundo. Increased funding has allowed substantial expansion of control efforts.

Hartman reported that they will be updating their marketing division to increase media outlets and other campaigns.

HARC

Gonzalez reported that they received funding from TPWD and will be working to update species profiles on their website, and add additional species. Also, the pocket guide of invasive species that was created several years ago will be updated as well.

USACE

Spencer reported that lyngbya algae was found in Bankhead Lake. Attempts are being made to contain it and address the problem. At Lake Seminole, herbicides and grass carp are being used to control hydrilla. In the Savannah district, hydrilla is an issue and has been found to carry AVM. There is a proposal to do integrated management using herbicides and grass carp there as well. There is a concern though of how this might affect native vegetation. The USACE has funded control measures for iguanas near Lake Okeechobee. There is concern of their burrowing which degrades roadbeds and terrain. The USACE's UAV (unmanned aerial vehicle) program is working with the USDA biocontrol class to do biocontrol releases with the drones to target harder to reach areas.

Port of Corpus Christi

Carangelo reported that they are attempting to remove Brazilian pepper from national and state areas. Beetles continue to be released onto salt cedar trees.

National Estuary Programs

Jacoby reported that better linkages are being created for the Florida estuary program.

Discussion of ANSTF Recommendations

Increase funding to the panels that they can utilize to support annual meetings, coordination, and panel activities. **A Motion was made to accept the Recommendation. The Motion was seconded, and passed.**

Provide feedback on the Panel's concerns to pursue amending the Lacey Act to prohibit intrastate transport. **A Motion was made to accept the Recommendation. The Motion was seconded, and passed.**

Other Business

Next Meeting Time and Place

The location of the next meeting will be in Savannah, Georgia.

The next meeting will take place the second week of May 2017.

Public Comment

Kristen Sommers provided the opportunity for public comment. There was none.

A Motion was made to adjourn the meeting, and the Motion was approved. There being no further business, the meeting adjourned at 5:00 p.m.