

## **AQUATIC INVASIVE SPECIES IN THE SOUTHEAST MINUTES**

**Wednesday, October 4, 2017 – Thursday, October 5, 2017**

**Raleigh, NC**

On Wednesday, October 4, 2017 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**

Lad Akins, REEF, Key Largo, FL  
James Ballard, GSMFC, Ocean Springs, MS  
Tim Bonvechio, GA DNR, Waycross, GA  
Rick Burris, MS DMR, Biloxi, MS  
Paul Carangelo, Port of Corpus Christi Authority, Corpus Christi, TX  
Earl Chilton, Canal Winchester, OH  
Corrin Flora, NC DEQ, Elizabeth City, NC  
Pam Fuller, USGS, Gainesville, FL  
Leslie Hartman, TPWD, Palacios, TX  
Tom Jackson, NOAA, Miami, FL (via conference call)  
Chuck Jacoby, St. John's River Water Management District, Palatka, FL  
Peter Kingsley-Smith, SC DNR, Charleston, SC  
David Knott, At-Large Member, Charleston, SC  
Jon Lane, USACE, Jacksonville, FL  
Robert McMahon, UT Arlington, Arlington, TX  
Matt Neilson, USGS, Gainesville, FL  
Matt Phillips, FWC, Tallahassee, FL  
Bobby Reed, LDWF, Lake Charles, LA (via conference call)  
Kristen Sommers, FL FWC, Tallahassee, FL

### **Staff**

Ali Ryan, GSMFC, Ocean Springs, MS

### **Others**

Chip Bates, GA Forestry Commission, Statesboro, GA  
Alex Bogdanoff, NOAA & NCSU, Beaufort, NC  
Bobby Cope, NCSU, Raleigh, NC  
Greg Cope, NCSU, Raleigh, NC  
Wesley Daniel, USGS, Gainesville, FL  
Stephen Davis, TPWD, Austin, TX  
Kevin Dockendorf, NC WRC, Elizabeth City, NC  
Lawrence Dorsey, NC WRC, Raleigh, NC  
Tom Fox, NCWRC, Mebane, NC  
Stephanie Green, Stanford University, Monterey, California  
David Hammond, Greenbrae, CA  
Casey Hares, Lochow Ranch Pond & Lake Management, Bryan, TX

Chris Harper, GA DNR, Richmond Hill, GA  
Jeff Hill, UF, Ruskin, FL  
Eric Hoffman, UCF, Orlando, FL  
Maya Hosabetta, USGS, Gainesville, FL  
Tom Kwack, USGS, Raleigh, NC  
Bridget Lassiter, NC Dept. of Agriculture, Raleigh, NC  
Julie Nachtrieb, USACE, Lewisville, TX  
Ian Pfingsten, USGS, Gainesville, FL  
Jacob Rash, NCWRC, Marian, NC  
William Wood, NCSU, Raleigh, NC  
Andrea Wylie, FL FWCC, Tallahassee, FL

### **Public Comment**

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

### **Adoption of Agenda**

After a minor change to the agenda, **a motion to adopt the agenda was made, and passed unanimously.**

### **Approval of Minutes**

The minutes of the May 11-12, 2017 GSARP meeting in Savannah, GA were presented for approval.

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

### **Carolina Madtom Declines in Relation to the Presence of Flathead Catfish**

Tom Fox gave a PowerPoint presentation entitled “Invasion of Non-native Flathead Catfish and Decline of the Carolina Madtom”. Carolina madtom is a Federal Species of Concern, and state-threatened. They are endemic to Tar and Neuse River basins, and their historic range included all major and many minor tributaries to the Tar and Neuse River basins. Thirty sites were chosen from historical locations to conduct 60 surveys for frequency of occurrence. The madtoms were captured with aquarium nets, weighed, and measured. Anal fin clips were taken for inter/intra basin population genetics. Results revealed that since the 1960s, frequency of occurrences have declined. The population in Contentnea Creek may be the last viable population in the Neuse River basin. The Carolina madtom was not discovered in the lower stretches of Contentnea Creek below Wiggins Mill Pond, which suggests that this population is very localized, and at a high risk of extirpation.

The causes for Carolina madtom declines are habitat degradation, municipal and industrial pollution, turbidity, habitat fragmentation, sedimentation, development, impacts from human population growth in the Neuse River Basin, and the range expansion of the invasive flathead catfish.

Flathead catfish are native to the Southern Great Lakes, and the Mississippi, Mobile, and Rio Grande River drainages. They have been documented in North Carolina from the Tar, Neuse, Cape Fear, Yadkin-Pee Dee, White Oak, Catawba, Roanoke, and Lumber River basins. They compete with native fish for food sources and habitat, and prey on madtoms, bullheads, channel catfish, other flatheads, and darters.

Various solutions include removal, sterilization, genetic modification, and regulations. Establishing a monitoring program to identify and track flathead distribution and population status, and educating anglers and the general public are both beneficial to help combat this invasion. Research needs are to monitor Carolina madtom populations every 2-5 years; determine the genetic diversity and number of genetically distinct populations throughout its range; develop captive propagation techniques to maximize yield and genetic diversity; develop microsatellite markers or similar genetic tagging techniques to determine hatchery contribution to wild stock; delineate the distribution of flatheads catfish and monitor the invasion rate; develop techniques to reduce the rate of flathead invasion and population size.

### **Whirling Disease and Gill Lice**

Jake Rash gave a PowerPoint presentation entitled “Gill Lice and Whirling Disease in North Carolina”. Reports from anglers of whirling disease in rainbow trout were received in July and August 2015. Samples were provided to the Southeastern Cooperative Fish Parasite & Disease Laboratory at Auburn University. Whirling disease was confirmed in the Watauga River and Elk River collections.

In 2015, sampling for whirling disease parasite (*Myxobolus cerebralis*) was done at NC Wildlife Resources Commission facilities. Fish and oligochaetes were tested. No positive fish were found at any facility. At the Marion State Fish Hatchery, *M. cerebralis* was confirmed in oligochaetes (not fish). Extensive biosecurity measures were implemented. In 2015, oligochaete sampling confirmed *M. cerebralis* in the Watauga River and Mill Creek. In 2015 and 2016, wild trout sampling confirmed *M. cerebralis* in Laurel Creek, Boone Fork, Roaring Creek, and South Toe River.

The next steps will be to continue to build upon existing data; private stockings of public waters; continuing work with the NC Department of Agriculture; consultation with management partners; and outreach.

Two species of gill lice have been confirmed in the Upper Cullasaja basin, Cantrell Creek (*Salmincola edwardsii*), West Fork Pidgeon River, Boone Fork Creek, Watauga River, and Otter Creek (*Salmincola californiensis*). This is the first documentation of either species of copepod on wild trout this far south.

Future areas of focus will be to determine: the direct impacts of gill lice to the individual and population; ultimate distribution; factors that influence the magnitude and duration of infestation cycles; transfer mechanisms; prevention or containment of the spread; and to provide public education and outreach. Future research will include spatial and temporal distributions, and elucidation of the fine details of life cycles, incidence of disease, and pathological effects. There is a regional need in the southeast for an aquatic health plan with guidelines for fish health management, communication, and management strategies.

## **Impacts of Spotted Bass and Alabama Bass Invasions on Riverine and Reservoir Largemouth Bass Populations**

Lawrence Dorsey gave a PowerPoint presentation entitled “Black Bass Population Characteristics in Lake Norman, North Carolina, after the Introduction of Alabama Bass”. The first Alabama bass was collected in Lake Norman in 2000. In 2009, the hybridization between largemouth bass and Alabama bass was confirmed. In 2015, “Spotted Bass” was confirmed as Alabama bass.

In Lake Norman, three zones have been sampled annually since 1993. Mean CPU, mean total length, and mean relative weight scores were calculated by zone and year for both species. Three distinct time periods were created: Pre-establishment (1993-2000), Establishment (2001-2006), and Post-establishment (2007-2013).

Results revealed that Alabama bass have become the dominant black bass at Lake Norman. Mean CPUE and mean total length of largemouth bass changed conversely after the introduction of Alabama bass. Sampling must cover all habitats to gain an accurate picture of the black bass fishery.

## **Evaluating Information Sources for ANS Management: Preview of a National Survey**

Stephanie Green (via GoToMeeting) reported on her project to create a national survey to look more broadly at aquatic invasive species in general, and some of the decision-making processes and science that is available. Stephanie and a colleague have an idea to create a national survey, and she is reaching out to regional aquatic invasive species channels to get input. They want to look at how approaches are being chosen based on knowledge of the siege of the invasion, geographic extent over which that invasion is taking place, and population dynamics of the invader and the native communities this may be affecting. A lot of research is conducted about the relationship between invasive populations and their impacts on the native populations, and how this information can inform targets for containment, suppression, eradication, or approaches for preventing the establishment of exotic species.

Stephanie stated that it was not clear how all of those different information sources might be able to tell which stage of invasion a species was at, which tools are most appropriate, and how successful those interventions might be. They want to design an online survey that will help to provide a current projective on four different topics related to decision-making for aquatic invasive species: What management goals, actions, and interventions are for priority occasions across the country in different regions of the U.S.; the current status of the priority invasion success of the interventions that have happened to date; monitoring the stage at which condition impacts the native system and that feed into the decision-making process by choosing among different tools for intervention; understanding the usefulness of federal aquatic invasive species management plans and documents, and how those feed into the decision-making process.

They have drafted an online survey that asks relevant questions for different areas. The surveys can be sent out via email. Under each one of the project objectives, there are a series of questions that relate to obtaining information for that area. The target audience that they are hoping to partner with are those in aquatic invasive species management at all levels, across agencies, NGOs, the private sector, and research institutions. Stephanie and her colleague would like to share the draft with the panel for their feedback.

They want to keep the survey to about 15 minutes of completion time. For those who complete the survey, they can then send a survey to other appropriate people to complete. The results of the survey will be confidential.

Stephanie will also send the draft to the ANS Task Force, and is planning on having a summary of findings to present to the ANS Task Force at their fall 2018 meeting.

**Ballard** asked Stephanie to email the survey to him when it is ready for review, and he will then forward it to the panel members for their comments. He will then send it back to her with those comments.

### **New Florida Records and ED/RR**

**Akins** gave a PowerPoint presentation entitled “Early Detection/Rapid Response of Non-native Marine Fish in the South Atlantic”.

Working in partnership, REEF, NOAA, and the USGS published the ‘*Field Guide to the Nonindigenous Marine Fishes of Florida*’. The publication documents the occurrences, identification and ecology of more than 35 non-native fish species found in Florida waters. Detailed sightings maps, notes on similar appearing species, and information on native ranges are included. The goal of the publication is to provide a single source, field-ready guide for enforcement, as well as a reference for researchers and educators to aid in early detection and removal of non-native marine fish.

Regal demoiselle was first recorded in the West Atlantic in 2013, in the extreme southwest corner of the Gulf of Mexico. This species was also found in 2014-2015 on reefs farther away from that area, but not in the northwest Gulf of Mexico. They appear to be confined to the southwest Gulf, and there have been no reports of the species in other nearby areas.

In October, a report was received by REEF’s rapid-response team of a onespot rabbit fish swimming at the Dania Beach Erojacks, a near-shore artificial reef. Rabbit fish have venomous spines, and could affect native herbivores by depriving native species of aquatic food sources. **Akins** and several other divers captured the rabbit fish alive, and it was brought to the Gulf Stream Aquarium, where it is on display as an example of invasive species that could upset the South Florida ecosystem.

At a private Miami Beach marina, spiny chromis were reported in July 2017. Less than 30 individuals were present. Also present were two humbug damselfish and one sailfin tang. Attempts were made to remove the spiny chromis and other fish, but this could not be accomplished.

### **Integrated Methodologies for Controlling Invasive Lionfish**

Alex Bogdanoff gave a PowerPoint presentation entitled “Invasive Lionfish”. A study was done on ciguatera (CTX) concentrations in lionfish. This is of concern because consumption of fish containing elevated CTX concentrations can result in ciguatera fish poisoning (CFP), the largest cause of non-bacterial seafood poisoning worldwide. Lionfish were collected from 11 locations from around the Gulf of Mexico and Caribbean, and tested for CTX concentrations using

fluorescent receptor binding assay (RBA<sub>F</sub>). Approximately 11% of the lionfish tested contained CTX concentrations that are slightly above the safety level recommended by the FDA; however, they were significantly below levels known to cause human illness. Additional survey studies are needed to determine if the CTX levels in lionfish are any higher than in reef fish that are routinely consumed without adverse health effect.

Lionfish exhibit high association with a variety of natural and artificial structures. Lionfish control has mainly been through diver-based removals, but this approach alone is not an efficient control technique. Observations from North Carolina, Florida, the Gulf of Mexico, and the Bahamas suggest lionfish may actually prefer artificial structure over natural. Based on these observations, Bogdanoff speculated that artificial structures could be used to attract and aggregate lionfish (i.e., Lionfish Aggregating Devices or LADs), and that attractants such as lights, decoys, etc. could also be used in combination with LADs to enhance their effectiveness. These attractants could be used in combination with aggregating devices to enhance their effectiveness. The attractants and LADs could provide an opportunity for spear fishers to perform targeted removals, especially at deeper depths, which would minimize diving constraints, bycatch, and human interaction with natural reefs.

Lionfish Aggregating Devices (LADs) are being field-tested at two locations - one is a hard-bottom reef off North Carolina with seven replicates and three controls, and the other location is a shallow artificial reef in the Bahamas with 16 replicates and five controls. LAD designs were based off observations of high lionfish densities on vertical and horizontal structures. Vertical LAD has six panels made of vinyl-coated crab pot wire and is 5' tall and 3.5' wide. Horizontal LAD is made of PVC and covered in vinyl-coated crab pot wire, and is 6' in diameter with a 1' high peak of the dome. Monthly removals will be done for 5-6 months. Summary measures are done with ANOVA.

For years, spear-fishermen have been saying that they can hear lionfish making noises after they are speared and bagged. Bogdanoff and his colleagues placed five lionfish inside a large tank and recorded the underwater soundscape for five days. The audio was analyzed to describe their basic call characteristics. The team found that the lionfish produced two distinct vocalizations – a humming call, and a quick series of drum-like beats. Although unable to tell why the fish made the noises, it is thought that the lionfish use the vocalizations for hunting, aggression, during courtship, and as a response to a threat. Males and females likely make different calls, and body size affects the vocalizations that the fish make. The sounds could also be used as communication with other species. Further studies will be conducted. Bogdanoff is working on developing a passive acoustic method for monitoring lionfish that could possibly be used to help with control efforts.

Blue Ventures, a science-led social enterprise that develops transformative approaches for nurturing and sustaining locally-led marine conservation, in partnership with the government of Belize, is leading the development of Belize's National Lionfish Management strategy. A generalized population model for management is to provide options/ranges for age-structure, sex structure, growth, initial abundance, mortality, length-weight relationship, and selectivity. An ecosystem-based approach for management is to increase lionfish harvest, which can reduce

peak biomass by up to 25%, and reduced harvest of native reef fish predators can lead to lower lionfish densities.

### **Lower Lethal Temperature for “Other” Lionfish in the Aquarium Trade**

Jeff Hill gave a PowerPoint presentation entitled “Invasiveness Risks of the “Other” Lionfish in the Marine Ornamental Trade. From a conceptual model, risk is evaluated by the probability of introduction, probability of establishment, and consequences of establishment. Other species besides *Pterois volitans* (red lionfish) and *Pterois miles* (devil firefish) are imported in the marine ornamental trade, but basic biological information for other species is scarce or absent, which can make the determination of risk difficult.

Studies were done in an experimental system on thermal tolerance for two species of common lionfish in the pet-trade industry, *Dendrochirus brachypterus* (shortfin turkeyfish) and *Dendrochirus zebra* (zebra turkeyfish) using lethal methodology. Thermal tolerance is an important physiological characteristic that can limit the distribution of invasive fishes. The average chronic lethal minimum temperature was 11.8°C for shortfin turkeyfish, and 14.7°C for zebra turkeyfish. The average chronic lethal minimum temperature for red lionfish is 10.0°C.

Results suggest a narrower potential distribution in the Atlantic for both species if they were to establish outside captivity. The findings are helpful for future risk assessment that can inform regulatory actions, and mitigate harmful introductions.

### **Facilitating Responsible Hydrilla Control**

Gregory Cope gave a PowerPoint presentation entitled “Sensitivity of Freshwater Mollusks to Hydrilla-targeting Herbicides”. Strategies to control hydrilla are mechanical removal, grass carp, and herbicides. Freshwater mollusks are sensitive to contaminants. There is limited documentation on the effects of herbicide commonly used to control hydrilla and other aquatic weeds on many non-target freshwater species. No published information exists on the toxicity of fluridone or endothall to freshwater molluscs. Understanding the potential risks is important because freshwater mussels and snails are highly imperiled, and important to the functional ecology of freshwater systems.

Unionid mussels are water purifiers that are found in streams, rivers, lakes and ponds. There are 673 species in *Unionidae* – half in North America. Gastropods (snails) are found in streams, lakes, rivers, and ponds. There are 703 species in the U.S. and Canada. They are highly susceptible to habitat loss and degradation. Over 71% of North America’s unionid species are endangered, threatened, or of special concern. Of the 703 freshwater gastropod species in the U.S. and Canada, 278 (40%) are federally listed as endangered, and over 74% are considered imperiled.

In Lake Waccamaw, there are several endemic species of fish, mussels, and snails. Hydrilla has infested over 600 acres of the lake. In the Eno River, the panhandle pebblesnail are present. Hydrilla is also present in the river.

A study was done to determine the sensitivity of freshwater mussels and snails to herbicides commonly used in control and management of hydrilla and other aquatic weeds, and to consider

the results in the context of typically proposed hydrilla treatments, and potential future treatment of other sensitive ecosystems. Juveniles and glochidia of the unionid mussel *Lampsilis siliquoidea*, and adults of *Lampsilis fullerkati* were exposed to a formulation of fluridone in laboratory toxicity tests. The early life stages of *L. siliquoidea* were also exposed to a formulation of the dipotassium salt of endothall in separate tests. Juveniles of the freshwater gastropod snail, *Somatogyrus virginicus* were exposed to the Sonar – Genesis fluridone formulation.

Results indicated that the early life stages of unionid are more acutely sensitive to fluridone than most other aquatic organisms that have been tested. The fluridone and endothall concentrations typically recommended for hydrilla treatment were not acutely toxic to the freshwater molluscs tested in the study. A 28-d exposure to fluridone was not lethal to adult mussels, even at the highest concentration. This indicates there is minimal risk of short-term effects to non-target species. Though endothall and fluridone have been used for aquatic weed management for a long time, more research is needed to clarify any potential risk to less-studied non-target taxa.

### **Moving the Regional ED/RR Plan Forward and Other Work Group Activities**

**Hartman** gave a PowerPoint presentation entitled “Moving the Rapid Response Plan Forward and Other Work Group Activities. Current GSARP workgroups are: Education/Outreach (Travelling Trunk and State-Specific Species of Concern), Research/Development (Tiered State Taxonomic Expert List, 2014 Research Priority List, and funded Trojan Y males research), Pathways/Prevention (Ballast Water Management and Inventory Species Prevention Plans), Information/Management (Link state and federal prohibited lists and develop website content), Eradication/Control/ Restoration (Identify case studies and assemble current state and federal E/C/R methods), Early Detection/Rapid Response (December 2004 – Synthesis of each state’s invasive sampling, regulations, and planning; Fall 2009 – Suggest Incident Command System format; April 2010 – Regional Rapid Response Plan in ICS format).

Re-occurring issues include: Competing interests, absolute consensus, and time constraints. One suggestion is a simple majority vote on product. To consider: What is the current goal of the Panel? What is the status/configuration of the work groups? What are the tasks for the work groups? What is the actual availability of the work force?

### **Using Genetics to Evaluate Patterns of Invasion for the Marine Mussel *Mytella charruana***

Eric Hoffman gave a PowerPoint presentation entitled “Using Genetics to Evaluate Patterns of Invasion for the Marine Mussel *Mytella charruana*”. Hoffman collaborated on a research article entitled “Genetic Structure Provides Insights into the Geographic Origins and Temporal Change in the Southeastern United States”.

The first documented introduction of *Mytella charruana* in Florida was in Jacksonville in October 1986. Large numbers of *Mytella* were found on water intake filters at a power plant. None were seen in March 1987, and were assumed extirpated due to cold temperatures. The current U.S. distribution of *Mytella* along the East coast is from Savannah, GA to Cape Canaveral, FL. New invasions have been found in Brazil.



*Mytella* have densities up to 11,000 individuals, with estimates up to 61 million mussels in a single population.

Trials were done on salinity tolerance, substrate preference, development of *M. charruana*, and impacts on native oysters.

From 2006-2011, 82 locations from Charleston, SC to Jupiter, FL were checked twice a year for a study on density fluctuation. The objectives of the study were to investigate the genetic structure of the native and invasive distributions; identify diversity of populations; determine which native populations are the source of the invasion. Predictions were that non-native populations are different from native populations, and the possible source was the South Caribbean. Another objective was to determine if genetic diversity changes over time in invasive populations. It was predicted that changes would be expected in genetic composition through time, based on density fluctuations influenced by reintroduction.

In summary, native populations exhibit high genetic differentiation from each other. Panama was the only native population indistinguishable from the invasive population. Invasive genetic composition was largely unchanged over time.

### **Update on New Introductions**

**Neilson** gave a PowerPoint presentation entitled “New Species Occurrences and Program Updates”. Since April 2017, there have been new occurrences in the Gulf and Atlantic of 22 fish, eight mollusks, eight plants, two mammals, and one hydrozoan. Six of these are new to the U.S.

In Texas, zebra mussels were found in Travis County in Austin-Travis Lakes, and in Comal County in the Upper Guadalupe. In Louisiana, giant apple snails were found in the Lower Grand, and in Vermilion County. Japanese mystery snails were found in York County in South Carolina. Woolly frog’s mouth was found in Beaufort County in South Carolina in the Calibogue Sound-Wright River, and also in Hardee County, Florida in the Peace River. In Clarendon County, South Carolina, giant salvinia was found in Lake Marion, and also in Pearl River County, Mississippi. Crested floating-heart was found in Hardin, Texas in the Village River, and Polk County in the Lower Trinity-Kickapoo River. It was also found in Indian River County, Florida. Regal demoiselle and spotted tiger shovelnose catfish were found in Louisiana. Regal demoiselle fish have been found in Gulf waters off Texas, Louisiana, Mississippi, Alabama, and Florida. Northern snakehead have been found in Mississippi in the Lower Mississippi River - Helena, and in Bolivar, County in the Lower Mississippi – Greenville. In Florida, bighead carp have been found in Washington County in the Lower Choctawhatchee River. Silver carp have been found in Mississippi in the Upper Tombigbee River, and in Wheeler Lake in Morgan County, Alabama.

In May 2017, the USGS National Nonindigenous Aquatic Species Program Factsheet, a basic overview and description of the NAS database, was updated on the website.

The USGS website has a Hurricane Harvey impacts map that provides a timely assessment of potential spread of NAS in flood-impacted areas. It is a tool for natural resource managers to inform NAS survey results.

### **NAS Alert Risk Mapper**

Wesley Daniel gave a PowerPoint presentation entitled “USGS Nonindigenous Aquatic Species Aquatic Risk Mapper (NAS ARM)”. The NAS Alert System, part of a national early detection/rapid response system, provides a framework for the rapid dissemination of new invasions. Registered users are notified of new sightings.

A pilot program will be done to combine the NAS Alert System with a new NAS Alert Risk Mapper (NAS ARM) to inform stakeholders of which waterbodies or river reaches could be at risk based on a new sighting of a nonindigenous species within a Gulf and South Atlantic regional panel area. A map of waterbodies or river reaches within a drainage will be added that are at risk. The maps will include a finer scale layer of rivers and lakes, a map of barriers (large dams), and an algorithm to determine the species-specific distribution potential of nonindigenous species. A distribution potential of a species will be added to help determine the directionality of movement of a species within a drainage if unobstructed, as well as an initial dichotomy of passive (plants and *Dreissena sp.*) movers and active (fishes and crayfishes) movers.

Future enhancements will include expanding the mapper nationally to include the entire contiguous U.S. and Hawaii. Additional barriers to species dispersal (waterfalls and salinity) will be integrated. Species-specific life history traits will be added from the literature to aid in the determination of distribution potential of nonindigenous species. A national boat ramp database will be created and integrated to account for the risk of boat vectored spread.

### **Range Expansions of Introduced Aquatic Plants in the USFWS Southeast Region**

Ian Pfingsten gave a PowerPoint presentation entitled “Range Expansions of Introduced Aquatic Plants in the USFWS Southeast Region – Fall Update”. New NAS plant occurrences in 2016-2017 include: Water hyacinth in Middle Brazos-Lake Whitney in Texas; cape blue waterlily in Pine Island Bayou in Liberty County, Texas; giant salvinia in Lake Marion in Clarendon County, South Carolina; water lettuce in the Lower Savannah River in Chatham County, Georgia; giant salvinia in Pearl River County, Mississippi; yellow floating-heart in the Lower Neuse River in Craven County, North Carolina; tropical American watergrass in the Upper St. Johns River in Brevard County, Florida; red root floater in Charlotte County, Florida; roundleaf toothcup in Big Cypress Swamp in Collier County, Florida; tropical nutrush in Kissimmee drainage in Osceola County, Florida; feathered mosquito fern in Martin County, Florida.

In USFWS Region 4, the focus is on range expansion since 2001 by HUC-8 drainages. There are nine newly-introduced plant species, and 14 previously-established plant species. Availability in the commercial trade can be found at: [plantinfo.umn.edu](http://plantinfo.umn.edu).

### **Thursday, October 5, 2017**

The meeting reconvened at 8:30 a.m. The Chairman again provided the opportunity for public comment. No comments were received. A recommendation was made to change the time for the presentation of the GSARP Distinguished Achievement Award from 2:30 p.m. to 11:00 a.m. The recommendation was approved.

### **Discussion about the Impacts of the USARK Ruling**

In December 2013, the U.S. Association of Reptile Keepers (USARK) filed a lawsuit in the D.C. District Court against the U.S. Department of the Interior that challenged a 2012 rule in which the U.S. Fish and Wildlife Service designated four species of constrictor snakes as injurious under the Lacey Act. The argument for the case was the interpretation of the shipment clause. The shipment clause prohibits any shipment of any injurious species “between the continental United States, the District of Columbia, Hawaii, the Commonwealth of Puerto Rico, or any possession of the United States.” USARK’s argument was that this language expressly restricts shipment between the entities listed, but not between continental states. In May 2015, the District Court found USARK likely to succeed on the merits of its claim challenging the Service’s interpretation of the statutory prohibition against interstate transport of injurious species within the continental U.S. and issued an order enjoining the Service from implementing, enforcing, or otherwise giving effect to its March 2015 rule. Also in May 2015, the Department of Justice filed an appeal to the U.S. Court of Appeals. In April 2017, The D.C. Circuit Court upheld the District Court’s preliminary injunction, and also reached a definitive judgment on the shipment clause’s meaning. The judgment was that the shipment clause does not prohibit transport of injurious wildlife between states within the continental U.S.; the shipment clause is unambiguous and its interpretation is consistent with the legislative history.

Concerned states would need to adopt their own new laws/regulations restricting commerce into their states of the species involved.

**Sommers** stated that prior to the final ruling, they had discussions about what the ruling would mean for them. They want to add additional regulations for the species they are concerned about. There is a lot of concern regarding pythons. She is planning on speaking with their Commissioners in December to address this issue.

**Kingsley-Smith** stated that they will add more species to their prohibited list as issues arise.

**Flora** stated that their agency has regulations regarding importing into the state, but nowhere in those regulations does it state anything regarding enforcement. She said that this has to be dealt with before expanding regulations.

**McMahon** stated that in Texas, it is difficult to get species that are commercially traded onto their prohibited list.

### **Discussion on the Introduction/Spread of AIS from Recent Flooding Events**

**Bonvechio** stated that Georgia had a five-foot storm surge from Hurricane Irma. A dead barracuda was found floating in the Satilla River, but they are not sure exactly how it got there.

**Sommers** stated that they went into “assessment mode” after Hurricane Irma. Electrofishing was done to search for potential invasive species in areas of concern. Prior to the storm, facilities that had exotic species were contacted to see if they needed assistance with securing the facility. Post-storm, the facilities were all contacted/visited within a week to check for damage that caused unintentional releases. Many dead pythons were found on roads.

**Flora** stated that due to high rainfall, freshwater swamp water was dumped into their sounds, and they are seeing blue catfish all the way up to the Oregon Inlet Bridge.

**McMahon** stated that during 2015, high rainfall in north Texas caused the opening of flood gates in the Trinity River, which had several populations of zebra mussels. Zebra mussels were later found in Lake Livingston, which is over 250 miles away.

### **An Update on Zebra Mussel Population Dynamics in Texas Water Bodies**

**McMahon** gave a PowerPoint presentation entitled “Update: Population Dynamics of Zebra Mussels in Texas”. A study of zebra mussel population dynamics in Texas water bodies was funded by TPWD. The study was conducted from August 2016 – August 2017. Zebra mussel population dynamics were investigated in five lakes: Lake Texoma, Lake Ray Roberts, Lake Belton with established mussel populations, and newly-invaded Lake Lewisville and Lake Eagle Mountain. Samples were collected monthly for: physical-chemical characteristics of surface water temperature, pH, O<sub>2</sub> concentration, and calcium concentration; spring and fall mussel cohort shell growth rates and life spans; veliger presence and size distributions; settlement and densities of juveniles on settlement monitors; total chlorophyll *a* and phosphorous concentrations; seasonal variation in dry tissue weights. Results were compared to previous studies of zebra mussel population dynamics in Lakes Texoma, Ray Roberts, and Belton. Possible environmental causes for zebra mussel population collapses and recoveries in those lakes were examined.

Conclusions of the study found that zebra mussels in Texas water bodies have two spawning periods leading to settlement of distinct spring and fall juvenile cohorts. The life spans of spring cohorts are 15-16 months, and fall cohorts 10-11 months. This may be associated with elevated summer temperatures leading to lethal tissue loss. Juvenile mussel settlement does not occur until settlement competent pediveligers are present in the plankton 1-2 months after the initiation of spawning periods. Exposure to severe hypoxia and prolonged exposure to low pH can lead to major reductions in zebra mussel densities. Summer surface temperatures in shallow Texas water bodies can exceed the zebra mussel’s incipient upper thermal limit of 32°C, making them resistant to mussel invasion, compared to deeper lakes with cooler surface waters. Lakes with established mussel populations tended to have lower chlorophyll *a* and total phosphate concentrations than newly-invaded lakes, suggesting that mussel filter feeding can lower primary productivity and energy flow to higher trophic levels. Extensive annual water level variation appears to cause major reductions in mussel populations creating boom-bust mussel population cycles. However, mussel populations can recover from major density reductions within 203 years.

### **Update on the Invasive Species Traveling Trunk Revisions**

**Ballard** reported that he has been investigating adding a memory game to the trunk for school children, and showed the panel members a prototype of a card that he ordered that would be used by younger students as part of a memory game. There will be 44 cards of 22 invasive species, with the animal’s image on the front with a QR code that an older student can scan with a smartphone that opens to the USGS website with fact sheets of additional information on the invasive species.

**Bonvechio** stated that at some schools where he displays the trunk, teachers have told him that they would like to have educational items in the trunk that the children can keep and take home. **Ballard** stated that he will look into getting some items such as key chains, stickers, etc.

**Ballard** bought larger trunks to accommodate additional species that have been added to the trunks, and updated them with new containers for existing and newly-added species. He also added a diagram on how to re-pack the items into the trunk.

#### **Overview/Update of the ANSTF Experts Database**

**Ballard** stated that in 2015, the experts list of names was updated, and ANSTF has requested that the panel once again update the names and each person's expertise.

The panel went through all the names for each state on the list, and updates were made. **Ballard** will provide the revised list to the ANS Task Force.

#### **Presentation of the GSARP Distinguished Achievement Award**

The award for the first GSARP Distinguished Achievement Award was presented to **Earl Chilton**. **Earl** has been involved with invasive species for many years. He was the Aquatic Habitat Enhancement Program Director for Texas Parks and Wildlife Department in Austin, Texas, where he coordinated aquatic habitat enhancement and invasive species prevention and management activities in Texas public waters. **Earl** was in the TPWD Aquatic Invasive Species Program for 26 years. In addition to being a member of the Gulf and South Atlantic Regional Panel on Aquatic Invasive Species, he has been a member of the Mississippi River Basin Regional Panel, Western Regional Panel, National Invasive Species Coordinating Committee, Vice-Chairman of the Texas Invasive Species Coordinating Committee, and on the Board of Directors for the Texas Invasive Plant and Pest Control.

Several panel members shared personal stories of working with **Earl**.

#### **State Reports/ Members Forum**

##### **Florida**

**Sommers** reported that the 3<sup>rd</sup> Annual Lionfish Removal and Awareness Day was held May 20-21, 2017 in Pensacola, FL. Almost 4,000 people attended. Participating divers removed almost 21,000 lionfish from Florida waters. The total number of lionfish removed during 2014-2017 derbies (104 lionfish derbies) was 76,037.

In July 2016, the FWC's NFWP executed a two-year contract with the University of Florida to evaluate, test, and modify the Aquatic Species Invasiveness Screening Kit – a risk-screening tool that can identify potential marine invaders in Florida. The University of Florida's researchers completed bio-profiles for 19 lionfish species. The FWC will use results from these risk screens to determine the most appropriate management strategies for these species.

The FWC's NFWP partnered with FWC's Fish and Wildlife Research Institute (FWRI) and University of Central Florida to conduct a study addressing orange cup coral invasion in the Florida Keys. FWRI evaluated the competitive interactions between orange cup coral and two

native reef-building corals. Direct contact by orange cup coral resulted in tissue damage to the native corals, which suggests that orange cup coral could exert competitive dominance over those native corals, and negatively affect the benthic community if orange cup coral successfully colonized the natural coral reef habitat of the Florida Keys. A genetics study was done to identify species and population level diversity of orange cup coral that have invaded areas in the Keys. Results indicated that multiple species of *Tubastraea* have invaded the Florida Keys and North Gulf of Mexico.

Spiny chromis were reported in July 2017 in an area with rip-rap at a private marina in Miami-Dade County. An initial survey by staff from multiple agencies estimated less than 30 individuals were present, along with two humbug damselfish and one sailfin tang. In August, multiple agencies attempted to remove the spiny chromis and other nonnative fish species from the area, but the effort was unsuccessful.

#### Freshwater report:

US Geological Survey (USGS) collected water samples in November 2016 from two canals in Miami-Dade County to search for the presence of bullseye snakehead eDNA. When analyses were completed in May 2017, all samples collected from the sites tested positive for bullseye snakehead eDNA. This finding potentially represents a more than 20-mile range expansion for bullseye snakehead. Water sampling will continue.

Two natural water areas were surveyed for nonnative fish: the South Fork of the St. Lucie River, and the Manatee River including Lake Manatee. Nonnative and native fish were counted, and nonnative fish were collected, measured, and weighed when possible.

The 8<sup>th</sup> Annual Everglades Cooperative Invasive Species Management Area's Nonnative Fish Roundup was held in April 2017. Anglers caught 2,228 nonnative fish, and set a new weight record of 1,564 pounds of fish removed. No new species were caught during this event.

Between April and August 2017, the FWC's NFWP staff served as weigh-master for five Catch, Keep, and Kill Bullseye Snakehead Round-Up tournaments. A total of 251 anglers participated in the tournaments, catching 710 bullseye snakehead.

The FWC partnered with Fishbrain AB, the world's largest free-to-use app for anglers, to collect information on nonnative freshwater fish. To date, the FWC has received over 2,000 nonnative fish reports. No new nonnative freshwater fish species have been reported.

A population of African clawed frogs was found in July 2016 in a small retention pond in Riverview, FL. A hydrated lime treatment was done on the pond, which raised the pH of the water, quickly killing any exposed African clawed frogs. Approximately 13,000 sub-adults and tadpoles were removed; however, they repopulated the pond within weeks. A second treatment was done. In follow-up sampling in June 2017, staff found African clawed frogs in both the original pond and a second pond on the same property. In early July 2017, both ponds received treatments. Additional surveys in the area found three additional ponds with invasion. NFWP staff continue to remove African clawed frogs from ponds in the Rice Creek drainage area. Additional pond surveys will determine the geographic range of the frogs in this area.

Planning is under way for a 2018 lionfish summit. The event will likely be held in spring 2018. Location and additional details will be determined.

**Phillips** reported on a new “mystery plant” infestation in a private pond. It has the appearance of hydrilla, but the leaves are different. It is most probably an aquarium plant. Samples have been sent to USF for identification.

### **Georgia**

**Bonvechio** reported that during the current 2017 sampling season for flathead catfish, 2,782 flathead catfish have been removed thus far. Since 2007, more than 66,000 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. However, higher recruitment and earlier maturation is being witnessed. Ongoing intensive harvest will be required to prevent the flathead population from rebuilding.

In 2016, 225 blue catfish were harvested in the Satilla River. In 2017, 285 have been caught so far. The increase in observed blue catfish concerns resource managers, so continued monitoring and removal of the species will occur.

A parasitic copepod of the genus *Achtheres* is infecting the mouths of striped bass in Georgia's lakes and rivers. *Achtheres* infects the gills of freshwater fish, and is easily visible when it matures and moves into the fish's mouth and gill arches. Once introduced, *Achtheres* will infect nearly all striped bass in a lake. It has also been seen in other fish species, including largemouth bass. The range of the parasite has expanded to Virginia, North Carolina, South Carolina, and Arkansas. These parasites should not harm healthy fish, but biologists think that heavy infestations could further stress fish as water temperatures rise during the summer months, and result in some mortality.

Georgia Wildlife Resources Division fisheries biologists are monitoring freshwater fish populations through a regular sampling program. In addition, anglers are encouraged to report sightings of the parasite or in any fish species other than striped bass or largemouth bass.

A pacu was caught in a Fulton County subdivision pond in July 2017. Unfortunately, the fish was released back into the pond, but was verified by a staff biologist with a photo.

A yellow perch was reported in the Altamaha River in November 2016. It is the second report in the past few years.

A brown haplo was caught in the Flint River near Albany in October 2016. This was most likely an aquarium released fish. This is the first documented case of these fish being found in the wild in Georgia.

A flathead catfish was reported being collected in November 2016 in Bartlett's Ferry Reservoir, a mainstream reservoir of the Chattahoochee River. This is the first known occurrence in this waterbody.

In June 2017, five goldfish were caught in the Altamaha/Champney River by the UGS Sturgeon Survey team. This is a popular bait fish used by cat-fishermen in the river.

In a pro-active effort to monitor grass carp ploidy, and to minimize the potential establishment of wild grass carp populations in the state-managed waters, the GADNR is instituting a protocol to collect and test grass carp ploidy. From November 2014 until August 2016, 15 wild grass carp were captured from public small impoundments and public rivers and submitted for triploid testing. All 15 of the fish tested positive as triploids, including the latest entries from the Coosawattee and Etowah Rivers.

The first report of hydrilla in Lake Blackshear was received in June 2017. Between 50-75 acres were reported near Veterans State Park. Chemical herbicide treatment was done.

### **Mississippi**

**Burris** reported that two aerial surveys totaling 378 miles and 47 boat surveys totaling 272 miles were conducted for early detection of AIS and monitoring of existing infestations.

In Robinson Bayou in the Pascagoula River, 6,083 giant apple snail egg masses were destroyed, and 223 live snails were removed. Applesnail egg masses first appeared for the season after winter dormancy in April 2017.

A program of integrated pest management using salvinia weevils and spot herbicide application was used to treat existing populations of common salvinia, giant salvinia, and alligator weed.

MDMR staff attended the Mississippi Wildlife Extravaganza in August 2017. There were over 25,000 attendees. There was a display with a live lionfish that was caught by a local dive group on a Mississippi artificial reef.

MDMR produced 5,000 lionfish and 5,000 Asian tiger shrimp decals through the Mississippi Aquatic Invasive Species Council.

#### **Freshwater report:**

Approximately 342 acres of Cuban bulrush, water hyacinth, alligator weed, and water lettuce were chemically treated in the Ross Barnett Reservoir. Also treated were 127 acres of hydrilla, 12 acres of American lotus, and three acres of Brazilian elodea. Chemical treatments were also done in Bogue Homa State Fishing Lake, Percy Quinn State Park Lake, Crystal Lake, Columbia State Fishing Lake, and Bill Waller State Fishing Lake.

Rotenone samples were conducted at Eagle Lake and Tunica Cutoff in July and August 2017 to collect data to compare to historical rotenone sampling data to document effects of silver carp on fish populations. In lakes with silver carp, 90% reductions were seen in shad and common carp biomass.

Three northern snakeheads have been reported in Lake Whittington and a flooded agricultural field along the Mississippi River in June and July 2017.



Approval is being sought of legislation required to initiate licensing of retail bait outlets that sell live freshwater fishing bait.

An EDRR monitoring program comprised of state and federal personnel who sample aquatic species in Mississippi public waterways on a routine basis will be established.

### **North Carolina**

**Flora** reported that the Chinese mystery snail is now found in the Catawba basin, Yadkin/Pee Dee basin, Cape Fear basin, Neuse River basin, and the Roanoke basin.

Blue catfish ranges in North Carolina have been expanding over the years, and commercial landings have been increasing. The NC Division of Marine Fisheries has partnered with Sea Grant and NC Wildlife Resource Commission (WRC) in monitoring blue catfish in the state.

Flathead catfish appear to be moving upstream in several watersheds in the Tar River and Neuse River basins. They are likely the cause for the decline of the Carolina Madtom. The USFWS Sport Fish Restoration Grant has funded a non-native catfish project in the Cape Fear, which will begin in 2017.

Gill lice have been found on brook trout and rainbow trout populations. Anglers have been asked to report observations of gill lice during recreational outings. The NC WRC will continue to sample brook trout and rainbow trout populations across the mountains of NC to document the distribution and status of gill lice.

In July 2015, whirling disease was confirmed in rainbow trout collected from the Watauga River, which is the first occurrence of the disease in NC. The NC WRC will continue to work with researchers from Auburn University to explore the distribution and life history characteristics of whirling disease in NC.

In late 2015, researchers from TN Tech University collected cells of the microscopic algae *Didymo* in the Tuckasegee River while conducting regional surveys. This is the first time the organism has been documented in NC. The NC WRC is working to educate anglers on cleaning equipment and using extra precaution to prevent the spread.

Lionfish continue to thrive off the North Carolina coast. A current PhD student is working with NOAA, making progress on lionfish aggregating devices, control plan development approaches, and research on lionfish sound production.

Regarding the Aquatic Weed Control Program, state legislation was amended to resolve previous limitation set on state aquatic weed funds in 2015-2016 of “waters of the state located within lakes”. The current fiscal year budget now allows operations in all “water of the state”. The Aquatic Weed Control Program has a 2017 work plan in place with \$502,600 earmarked for approximately 62 project sites.

A new staff position was created to support the Aquatic Weed Control Program. This position was filled in spring 2017. The program now has two permanent full-time positions, and a temporary is hired to assist with field operations during the growing season.

Hydrilla growth has been completely suppressed in Lake Waccamaw by large-scale herbicide treatments with fluridone. There is no evidence that new tuber production has occurred since treatment began. From 2015-2017, a large section of the Eno River was treated with fluridone to control hydrilla. These treatments have resulted with significant control of hydrilla growth, with minimal to no impact to non-target plant and animal species.

Albemarle-Pamlico National Estuarine Partnership formed a Hydrilla Technical Advisory Group. The group drafted an action plan on how to monitor and manage hydrilla. Signs have been posted at boat ramps to educate boaters and other users on stopping the spread of aquatic invasive species.

### **South Carolina**

**Kingsley-Smith** reported that from May 2015 to April 2016, three distinct surveys for island apple snails were conducted, including a survey of 100 randomly-selected retention ponds across coastal South Carolina to determine the distribution of the species, surveys of ponds to assess the extent of localized populations, and a survey of one pond bi-weekly to observe growth and abundance patterns of an established population. A manuscript on this work has been submitted to the *Journal of Shellfish Research*.

A graduate student is continuing to make progress on her thesis research on island apple snails. Testing was done on 100 island apple snails from three retention ponds in SC and 188 snails collected from five ponds in GA to determine the population genetic structure of island apple snails in SC and GA using a suite of microsatellite markers. Each population exhibited low genetic diversity across all indices; however, inbreeding was only detected in the Mount Pleasant, SC populations. Effective population sizes were small. Significant population structure was detected among all populations, with the exception of four sites from Kingsland, GA and St. Marys, GA. This lack of population genetic structure indicates there is low gene flow and connectivity among the populations; however, some gene flow may be occurring between the Kingsland and St. Marys sites. Furthermore, hierarchical structure analyses indicated that the two Kingsland sites are not genetically distinct populations. Laboratory experimental trials were also conducted to determine the salinity tolerance of island apple snail hatchlings. Results demonstrated that the species are capable of surviving in upstream estuarine habitats with salinities as high as 8 psu in SC.

In July 2017, a report of an unusually large aggregation of jellyfish in the Broad River was identified by David Knott via photograph as the white-spotted jellyfish, a species native to the southwest Pacific Ocean, from Thailand to Australia. Unfortunately, available resources did not allow for a concerted effort to gather more quantitative information on the extent, density, and duration of the bloom event in SC.

A study by the SC DNR Marine Resources Research Institute's Population Genetics Research Section is currently being done on the hybridization of redeye bass and Alabama bass in South

Carolina. The redeye bass (Bartram's Bass) in the Savannah Basin is one of three priority species, and has been listed as a species of highest concern in SC DNR's State Wildlife Action Plan. This listing is primarily due to the effects of hybridization with the Alabama bass, which was introduced into the reservoir systems in the Savannah River basin in the 1980s.

The SC DNR Marine Resources Research Institute's Shellfish Research Section has successfully pursued funding to study the invasive red swamp crayfish in South Carolina. This species has shown to alter structural and functional components of freshwater ecosystems where it is introduced, and fundamentally alters the nature of the ecosystem it invades.

## **Texas**

**McGarritty** was unable to attend the meeting, but provided a written Inland Report. Outreach and public awareness campaigns were a priority in 2017 to support efforts to prevent giant salvinia and zebra mussel infestations. A new slogan, "Protect the Lakes You Love", was employed for the campaigns, and billboards, digital, radio, social media, and print ads were included that focus on infested and high-risk areas during the summer boater season. A new online campaign was created in 2017 to target invasive species prevention messaging to aquarium owners along the Texas coast, and spotlight the lionfish problem in the Gulf.

Zebra mussel monitoring and outreach continued in 2017, although a hiring freeze limited boater inspections. Marina outreach efforts were expanded to attempt to involve marinas as a partner in early detection. TPWD and partners continue to intensively monitor nearly 60 lakes deemed at risk for zebra mussel infestation. Zebra mussel infestations were detected in two new river basins – in the Colorado River in Lake Travis, and in the Guadalupe River in Canyon Lake.

Nuisance aquatic vegetation management in east Texas continues to focus on efforts to manage giant salvinia and water hyacinth for recreational access, with small-scale treatment of other species as needed. A new population of giant salvinia was successfully eradicated from Lake Fork in 2016-2017. TPWD continues to work to establish salvinia weevils in lakes, and rears weevils for introduction at two facilities, and also utilizes canal systems as weevil nursery areas.

Riparian invasive plant management efforts are continuing, with a focus on Texas' native fish conservation areas. Over 67,000 acres of salt cedar have been treated on the Upper Brazos River, and hydrology monitoring is under way throughout the upper basin. A multi-agency effort is also under way to deliver an arundo prevention program to roadway and construction maintenance industry staff who are uniquely positioned to prevent the spread and new introductions of arundo.

Invasive species research projects supported by funding from Texas Parks and Wildlife Department, Tarrant Regional Water District, City of Dallas, and the ANS Task Force included evaluation of downstream dispersal and population dynamics of zebra mussels, and state-specific assessments to identify water bodies with the highest invasion risk to help guide monitoring efforts for early detection. Additional research focused on invasive bighead/silver carp distributions and reproductive ecology of suckermouth catfishes, and field trips of an "endocide" for use in treating giant salvinia.

### **National Estuary Programs**

**Jacoby** stated that high waters have been an issue. They will have to wait and see how that plays out.

### **REEF**

**Akins** reported that they are beginning to incorporate culinary events at their lionfish derbies. Chefs compete using the lionfish that are caught for the derbies. This is turning the derbies into more of a festival that attracts more people. The derbies will be expanded for the coming year.

They are continuing their education and outreach seminars, such as a monthly lionfish collecting and handling workshop at their Key Largo headquarters. This workshop has a large number of attendees. There is also a new jewelry-making workshop where participants use fins from lionfish and turn them into jewelry.

### **University/Research**

Hoffman reported that he is working on a study for orange cup coral with Brazilian researchers who are studying orange cup coral invasions in Brazil. It is believed that the coral came in on ship hulls and ballast water. They found that there are three primary species of orange cup coral invading Brazil and Florida. They are also performing studies on the invasive golden mussel in Brazil, and have recently finished collecting data on genetic populations and how they have moved in their ranges. It appears that they originated in South Africa, and spread from there.

Jeff Hill stated that he co-authored a research article entitled 'Risk Screen of Freshwater Tropical Ornamental Fishes for the Conterminous United States'. To better evaluate the risk of this pathway, they conducted a risk screen of 34 freshwater ornamental fish species by using the Fish Invasiveness Screening Kit (FISK) Version 2 for the conterminous United States. These fish are thermally limited in their ability to survive, which confines establishment risk to subtropical regions, primarily peninsular Florida, and to isolated thermal refuges (e.g., geothermal springs) in otherwise unsuitable climates. Their results indicate that the freshwater tropical ornamental fish trade is less risky to the conterminous U.S. than has been concluded in most previous studies

### **USGS**

Almost 60 storm-tide sensors have been deployed by U.S. Geological Survey hurricane response crews along the Gulf coast, from Louisiana to the Florida panhandle. Under a mission assignment from the Federal Emergency Management Agency, 28 storm-tide sensors were installed in Louisiana, 10 in Florida, and 20 in Alabama. These scientific instruments were installed to collect information to study the impacts of hurricanes and tropical storms to better understand potential impacts on coastal areas.

### **US FWS Region 4 AIS Small Grants Program**

**Ballard** reported that from 2014 – 2016, 26 projects were funded, totaling \$556,000 for lionfish, apple snail, hydrilla, didymo, salvinia, phragmites, Asian carp, rusty crayfish, speckled crayfish, Asian clam, red-rimmed melania, and the invasive parasite of American Eels.

The Commission was approached by Dan Ellinor with the Florida FWC regarding their lionfish event that is held in May during the annual Lionfish Awareness Week. They want to expand the

event to also include Alabama and Mississippi, and eventually to also include the entire Gulf Coast and the southeast region. A chef's competition on preparing lionfish dishes would be added to the event. **Ballard** asked if there would be interest from other panel members to have their states have a presence at the lionfish events. Several panel members expressed interest. **Hartman** and **Bonvechio** stated that funding for out-of-state travel to attend the event could be a problem.

### **ANSTF**

**Ballard** reported that the ANSTF Charter expired on September 10, 2017. It must be renewed every 2 years. It was not renewed in time, and ANSTF cannot operate. ANSTF was informed that the Charter would not be renewed until they are cleared. Their November meeting was cancelled, so they will not be able to meet for one year. GSARP cannot meet as an advisory body to the Task Force now

ANSTF released \$40,000 to the panel, and **Ballard** is attempting to get guidance from the ANSTF as to what the money can be used for, since GSARP cannot use the funding now. ANSTF is hoping that the renewal will be pushed through, and the task force will be put back on line for next year. **Ballard** will keep the panel informed.

The ANSTF is moving forward with updating the Invasive Species Experts Database on their website.

### **Other Business**

#### **Next Meeting Time and Place**

The possible location of the next meeting in Mississippi will be Vicksburg.

The date will be sometime in April 2018.

**Ballard** will finalize meeting plans and inform panel members of the details.

### **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 3:00 p.m.**