Aquatic Nuisance Species Status Report
Florida Fish and Wildlife Conservation Commission
April 2016 through September 2016
Prepared for Gulf & South Atlantic Regional Panel on Aquatic Invasive Species

MARINE AQUATIC NONNATIVE SPECIES

Lionfish

The 2nd Annual Lionfish Removal and Awareness Day held May 14-15, 2016 resulted in 7 separate events held around the state. During this weekend over 14,000 lionfish were removed from state waters. Over 7,000 people attended the main festival in Pensacola which included various family activities including conservation booths, art vendors, a kids educational and fun zone, lionfish tournament, and raffle prizes. Multiple local celebrity chefs prepared and served lionfish dishes to demonstrate the ease of preparing lionfish and to encourage consumption. Lionfish Removal and Awareness Day also served as the kickoff for two new lionfish incentive programs: the statewide Lionfish Challenge and Panhandle Pilot Program. The overarching goal of these two programs was to facilitate more public involvement through recreational lionfish removals.

The Lionfish Challenge, which runs from May 14-September 30 has nearly 80 participants that have collectively submitted 11,800 lionfish. Participants that qualified for the program received a commemorative coin, t-shirt, recognition on the FWC Lionfish webpage, and entry into a raffle. Raffle prizes awarded include lionfish removal gear (Zookeepers and pole spears), fuel cards, scuba tank refills, and fishing licenses. The participant that harvests the most lionfish before the conclusion of the program will be crowned the Lionfish King/Queen and will receive a lifetime saltwater fishing license, feature photo on the cover of Florida Fish and Wildlife Conservation Commission's (FWC) Saltwater Regulations magazine, and recognition at the November Commission meeting in St. Petersburg.

The Panhandle Pilot Program is a year-long program ending on May 20, 2017 that focuses on 7 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 Panhandle Program by 30 participants. Of 130 available red grouper and cobia tags, 32 have been claimed by participants in this program. Additionally, 3 of 10 artificial reefs available for naming have been claimed.

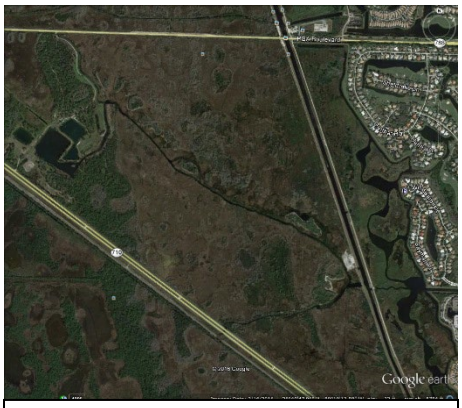
During the report period, staff attended 18 lionfish outreach and education events around the state. These events were attended by over 3,000 people.

Asian Tiger Prawns

During this report period, FWC received three reports of tiger prawns from around the state with one specimen reported per incident. In April, two tiger prawn reports were received, one from Pinellas County neat St. Petersburg, the other from Volusia County near New Smyrna Beach. In August a third report was received from Brevard County near Merritt Island.

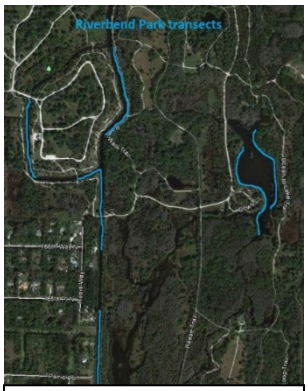
FRESHWATER NONNATIVE FISH STATUS REPORT

Natural Waters Nonnative Fish Survey



Loxahatchee Slough in Palm Beach County.

The Loxahatchee Slough and Loxahatchee River in Palm Beach County were electrofished to assess fish community structure including the presence and relative abundance of nonnative species in "natural" waters. For this study, natural waters would be those that flow through primarily urban, undeveloped lands. Both sampling sites are periodically connected to the Loxahatchee Slough Canal, a man-made urban drainage canal flowing through the Jupiter, FL area, which could allow for fish dispersal (native and nonnative) between systems. The species composition of nonnative fish in the two natural areas was comprised primarily of Mayan cichlid, Mozambique/blue tilapia, spotted tilapia, and sailfin catfish. In Loxahatchee Slough, four of the 19 fish species collected were nonnative species and comprised 4% by number and weight of the fish collected (n = 405, 103 kg). In the Loxahatchee River sample, six of the 26 species collected were nonnative species and comprised 14% by number and 28% by weight. The interconnectedness of these natural and man-made systems can allow for the introduction of new nonnative fish species either by range extension or illegal release with unknown consequences to the native fish community.



Loxahatchee River in Riverbend Park, Palm Beach County.

Of interest was the large (>30) number of sailfin catfish observed spawning along the banks in some areas of the Loxahatchee River. Their burrows exacerbate shoreline erosion and could be particularly

damaging in streams and rivers during high water flow. All of the sailfin catfish collected in these samples, and most of the other nonnative species were removed. Removing nonnative fish species with demonstrated biological or socioeconomic impacts either by contractor or FWC from selected natural areas may be worthy of consideration.

2016 Nonnative Fish Round Up

The 7th Annual Everglades Cooperative Invasive Species Management Area (ECISMA) Nonnative Fish Round Up was held April 16, 2016. The primary objectives of this event are to promote consumptive use of nonnative fishes and to increase public awareness of nonnative fish issues. FWC and partners used a team format for participants, resulting in 20 teams comprised of 65 people. Participants registered at weigh-in stations in Miami-Dade, Broward and Collier counties. Approximately 1,000 fish comprised of 14 different species and weighing 564 pounds were submitted during this one-day event. Mayan cichlid, oscars, blue tilapia, and sailfin catfish were the primary species removed. No new species of nonnative fish were caught, but anglers did submit a pike killifish, hornet tilapia and banded cichlid. Every participant received a t-shirt and prizes were awarded for most species (Nonnative Slam), heaviest fish, and most weight harvested per team. The participants enjoyed the team fishing, and bow fishermen in particular suggested we run the tournament for 24 hours to increase fishing time and improve their chances of success. With the increased popularity of bowfishing, we might have to add a separate prize category!

Bullseye Snakehead Round-Up

The 2016 tournament season has nearly come to a close. The final event is scheduled for September 17th. Three catch, keep and kill tournaments were held this year with 116 anglers spending 928 hours catching 385 bullseye snakehead weighing 1,230 pounds. The largest tournament-caught fish weighed 11.12 pounds, but the average weight was about 3.25 pounds. Motivated anglers can be sources of valuable information that will assist FWC in determining the distribution of nonnative fish, especially in waterbodies we cannot sample by standard methods.

2016 Nonnative Fish Catch, Click and Report Contest

FWC sponsored the second annual Nonnative Fish Catch, Click and Report contest. The objectives of this statewide contest are to document nonnative fish species in areas not commonly sampled by biologists, to increase public awareness of nonnative fish issues, and to promote consumptive use of nonnative fish. The citizen scientists were asked to take a picture of their catch and submit it by one of several reporting methods. We allowed participants to submit their catches through Instagram or EDDMapS. In an effort to increase participation, the contest was held in April and lasted for the entire month. Forty four participants submitted a total of 131 nonnative fish reports. Five of these anglers submitted 29 Instagram reports. A total of 22 nonnative fish species were reported with Mayan cichlid, blue tilapia, and spotted tilapia the most common. Several species known to FWC, but uncommonly sampled included hornet tilapia, redbelly pacu, and yellowbelly cichlid. Adult and youth prizes were given for most species and most unusual catches.

Nonnative Fish Chat and Fish Slam

In May, FWC and USGS hosted a Fish Chat for biologists in south Florida studying nonnative fish. Presentations and posters were given by staff and students from Florida International University, USGS, University of Florida, University of Minnesota, and FWC. The following day, participants split into teams and collected nonnative fish from a variety of locations not routinely sampled by FWC. Twenty nonnative fish species were collected and 42 lots of 248 voucher specimens were given to the Florida Museum of Natural History. As part of an ongoing effort initiated by the ECISMA, 14 specimens of bay snook were removed from waterways contained within a city park in Miami-Dade County. The outlet from the park has been sealed and no bay snook have been found in adjacent canal systems. We plan to hold another Fish slam event in November to revisit this park with the objective of eradicating bay snook from this isolated area.

African Clawed Frog Pond Renovation

African clawed frogs were first reported from Florida in 1964 when an importer released 200 specimens into a canal in Miami-Dade County. These frogs did not survive and the few subsequent reports were of singleton specimens from central Florida locations. However, in July 2016, biologists from University of Florida's Tropical

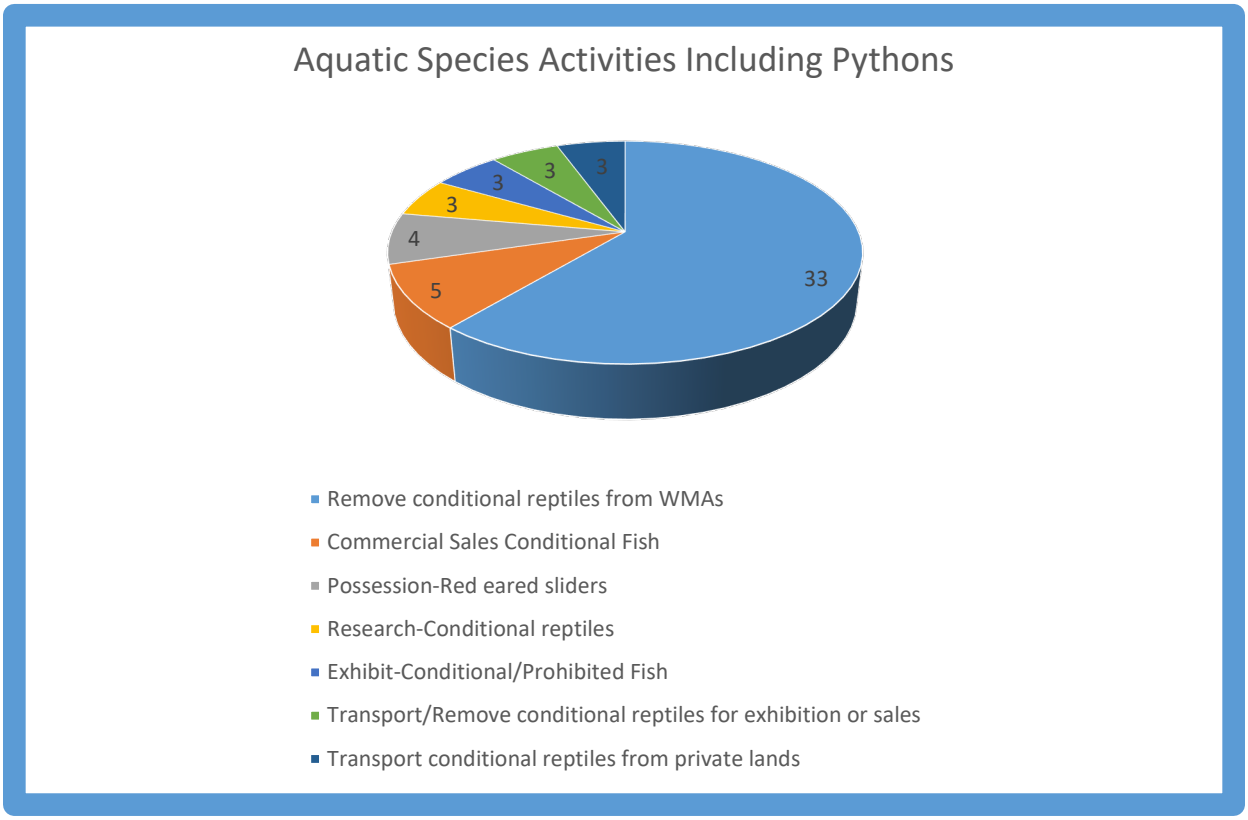
Aquaculture Laboratory (UFTAL) investigated three reports of African Clawed frogs (ACF) in Riverview, FL. These reports were submitted through the USGS's Nonindigenous Aquatic Species reporting system. UFTAL found a small retention pond in a mobile home park that had a large population of ACF tadpoles and froglets. UF notified FWC of their discovery and subsequently removed approximately 13,000 ACF tadpoles from the < 0.1 ha pond. Based on the pond being isolated from the adjacent Rice Creek and ecological concerns about ACF, FWC decided to renovate the pond as a control effort. One of the main concerns is the ACF's potential to be an effective carrier of *Batrachochytrium dendrobatidis (*Bd*)*, a chytrid fungus which has been linked to global declines in amphibian populations. Additionally, UF has developed a draft version of an Early Detection Rapid Response tool that can assist resource managers with decision-making regarding a "go" or "no go" response for nonnative species. UF professor leading this tool development, Dr. Christina Romagosa, used the ACF pond as an example of when to use the tool. She entered biological information known about ACFs into the draft tool and a "go" response was quickly determined and relayed to FWC staff.

Staff from FWC's Species and Conservation Planning section also collected swabs from 30 ACF tadpoles to test for Bd in conjunction with this control effort. ACF disperse readily from ponds so with assistance from UFTAL staff, a siltation drift fence was installed as a migration barrier while a renovation plan was developed. Outreach materials and talking points were drafted and after consultation with partners, hydrated lime was chosen as the preferred option to renovate the pond. Hydrated lime is commonly used in the aquaculture industry to biologically disinfect production ponds, is readily available and inexpensive. It is safer to use than rotenone and does not require specialized training, permits or certified personnel to apply. It is environmentally friendlier than rotenone and less likely to cause a fish kill in the event of an accidental spill.

Heavy rain delayed the initial plans for renovation, but in mid-August, staff from FWC's Wildlife Impact Management Section and Community Relations along with UFTAL personnel applied 150 pounds of lime to the pond (approximately 50m long x 15m wide x 0.5m deep) and spread 50 pounds of lime in the area between the waterline and the siltation fence. The lime quickly raises the pH creating an alkaline environment, lethal to amphibians. Any froglets or adults attempting to escape the pond were captured and euthanized in a 20,000 ppm solution of MS222. Follow-up visits the next day and a week later yielded no surviving tadpoles or froglets in the pond. Approximately 30 ponds in the area have been surveyed for ACF to no avail. However, juvenile ACF have been collected approximately 1.5 km from the

pond from the front yard of a private home after the renovation. Additional surveys have been scheduled to locate this source of ACF.

Permitting



Most permits issued during the April-September 2016 time period were for the removal and transport of conditional reptiles (primarily Burmese pythons). Thirty-three permits were issued for the removal of conditional reptiles from FWC Wildlife Management Areas and three for the transport of conditional reptiles captured on non-FWC managed lands by CISMA cooperators, government employees or nuisance trappers. Three permits were issued for the transport of conditional reptiles for the purpose of exhibition or commercial sales. Five permits were issued for commercial sales and three for public exhibition of conditional fish. Three permits were issued for research involving conditional reptiles and four permits were issued for the personal possession of red-eared sliders.