Exotic Snail Discovered in Central Florida Lake

On Tuesday, June 29th, Dana Denson from FDEP and Gloria Eby from the Seminole County Stormwater Division visited Lake Brantley in Longwood and the intent with collecting aquatic plants. When they arrived, they were surprised to find thousands of very large snails in the lake. They later identified them as the channeled apple snail (Pomacea canaliculata). This is not a native snail, but one that originated in South America. It has been introduced into many areas around the world, where it has become a very serious agricultural pest (many of rice and tomato) and threatens natural lakes and wetlands due to modification of habitat and competition with native species.

As reported in a 2001 LAKEWATCH article by Gary Warren of the Florida Fish and Wildlife Conservation Commission, the channeled apple snail is marketed as the golden apple snail in pet and aquarium shops. This exotic snail has become particularly prolific in south Florida lakes and in lakes and ponds in the Tallasahsee area. The proliferation of these species in the wild has caused concern among biologists who speculate that the larger non-native species may displace the native Florida apple snails from their habitats, disrupting the natural function of aquatic ecosystems.

Why are these snails a threat to native systems? They eat virtually all species of aquatic plants including native and non-native macrophytes. Channeled apple snails reproduce often during warm months with numerous small pink egg clusters. There are few predators for this exotic snail and the channeled apple snail is much larger than the native apple snail.

What can be done to help control and prevent the spread of these snails? Do not release aquaria kept animals into natural water bodies. Do not transfer channeled apple snails to other water bodies. Lakeshore residents can remove egg clusters and adult snails from their lakes by hand since these snails are harmless to humans.

A problem occurring with the control of hydrlina in some lakes is due to its tolerance to fluoride. Fluoridolone in the main herbicide used to treat hydrlina, but with fluoride now dominating most large central Florida lakes, the spraying crop is reduced for a high dose of fungicide but the concentration cannot be maintained at the 16-21ppb dose now needed to kill bolling snails. Funds are insufficient, the prolonged high dose may impact native plants, and summer rains can flush expensive treatments from the field through lakes. Low application rates of endothal have a synergistic effect with fluoride residues of 15ppb and above and will be applied as follow-up spot treatments in high use areas as part of the 2004 control campaign.

Control of Tussocks, Grasses, and Others

Hydrilla infested as many as 280 public lakes and rivers. That number was reduced to 186 in 2003, 3/4 of which covered 10 acres or less. Most of the hydrilla control budget is spent on 20-25 waters, however these are some of the largest and most important water bodies in the state.

Hurricanes and Lakes: The Good, The Bad, and The Ugly...

The devastation that Hurricanes Charlie, Frances, Jeanne and Ivan had on Florida this year has to measure in billions of dollars and that is not accounting for the suffering that Florida residents endured long after the hurricanes were gone. Some of the impacts these hurricanes had on Florida lakes were obvious and instant and others may be long term and hard to measure. The lakes have been linked for thousands of years and depending on the unique characteristic of each lake the effects on individual lakes can be good, bad, and even ugly. To address some hurricane impacts on Florida lakes the Central Florida Chapter of the Florida Lake Management Society held a public meeting December 2, 2004, that highlighted some effects of hurricanes on Central Florida lakes.

By Jeff Schardt
Edited Dennis Willis

Florida's hydrilla control program focuses on containing and/or eradicating colonies before they become large-scale infestations, in part, and reducing established populations to sustain the various uses of Florida's public waters. Hydrilla infests as many as 200 public lakes and rivers. That number was reduced to 186 in 2003, 3/4 of which covered 10 acres or less. Most of the hydrilla control budget is spent on 20-25 waters, however these are some of the largest and most important water bodies in the state.

Wildlife Conservation Commission, the channeled apple snail is marketed as the golden apple snail, being sold as a model for other states and countries interested in building comprehensive invasive species control programs.

The Orange County Environmental Protection Division (EFD) sampled 48 water bodies within 24-48 hours of the hurricanes passing through the area. (author’s note: Some of these included unfenced retention ponds. We considered unfenced retention ponds to be similar to a lake relative to the potential for a kid to fish or go wading.) Initially, fecal coliform counts ranged from a high of 9,000 CFU/100mL in one lake to 180 CFU/100mL. However, in almost all cases the counts returned to below 200 within a few weeks. This confirmed classic textbook responses to bacteria die off in the environment.

After the hurricanes, some lakes started to rise and did not stabilize until the drainfields of some older homes were submerged. In the water column above these drainfields fecal coliform counts rose to well over 200 CFU/100mL. These areas remain slightly higher today and we are continuing to monitor them.
small storm surges on the southern and western shores of Lake Virginia and Lake Maitland, resulting in severe but localized shoreline erosion.

Trees knocked down by Hurricane Charley caused numerous blockages in Howell Creek between Lake Sue and Lake Virginia. This caused water in Lake Sue to rise two feet above it’s ordinary high several days after the storm. All blockages were cleared within a week of the storm, and water levels in Lake Sue following hurricanes Frances and Jeanne peaked half a foot lower even though there was more rainfall. All ditches and canals in Winter Park are currently open, and able to move water at full capacity. There are still numerous trees down along Howell Creek that will have to be removed eventually.

Power outages caused by Hurricane Charley resulted in numerous lift station failures, which in turn caused sewage spills in several locations. Elevated bacterial levels were measured in the chain for two weeks following the storm event. Sewer spills also occurred following Hurricanes Frances and Jeanne. These spills were caused by a combination of power outages, and overloading the system with too much water. Because the spills were diluted with groundwater and stormwater, the contamination in the lakes was not as great as after Charley, and only persisted for a few days.

Long-term impacts to water quality are difficult to determine at this time. Minor algae blooms, and reductions in water clarity have been observed, but it is not clear whether these changes are because of the influx of nutrients and organics in the effluent material, or to cooler surface water temperatures which caused the lakes to turn over earlier than normal. Turnover, or mixing, usually occurs in Winter Park lakes between November and January, and is usually accompanied by minor algae blooms.

Here in Florida LAKEWATCH’s backyard the lakes that have been suffering from a severe drought are full once again. A good example is Lake Newnan, one of Alachua Counties outstanding fishing lakes almost completely dried up during the drought. Lake Newnan went from a 9,000 acre lake in 1998 (lake level of 70 ft Mean Sea Level) to only about 2,500 acres (lake level of 61 ft MSL) in 2001 and 2002. After hurricanes Francis and Jeanne dropped approximately 25 inches of rain you can clearly see on the chart that the lake is once again full. The great news is that the Black Crappie population in Lake Newnan managed to produce a strong year class of fish in the spring of 2003 and Eric Nagid of the Florida Fish and Wildlife Commission stocked 250,000 fingerling largemouth bass into the lake on May 2004. If the lake continues to hold water Lake Newnan should once again support an excellent fishery. So even though the hurricanes caused severe damage to the state there is always a silver lining.

FROM HURRICANE WATCH BACK TO LAKEWATCH

Several folks tried to follow their normal sampling routine, but that the weather was just not cooperating. Others sampled, but could not drop off samples at the collection center as it was closed. Similar circumstances around the State have led our volunteers to ask some very important questions regarding samples and sampling as a result of the hurricanes this past summer.

When do we resume our sampling routine?

If you missed 1 or 2 months of sampling don’t worry about the missed opportunity, the storms affected everyone in the State. Just pick up where you left off. Get back into a comfortable and safe routine and keep the samples coming. All our collection centers are open again with most closed centers reopening within a few days of the last hurricane.

Are the samples I collected still going to be okay?

Many volunteers and collection centers around the State lost power for several days and folks are concerned about the reliability of their samples. As troubling and inconvenient as these outages were, we are reassured the majority of the samples are going to be okay for the analyses to be performed. The Florida LAKEWATCH program analyzes a total of more than 100,000 samples from the 150 lakes sampled; however, they were still able to account for most of the lakes sampled from the last few months of the year to really study the impacts of the storms. When most of the lakes were not sampled, we could be able to evaluate the seasonal impacts on sampling effort and the quality of the chlorophyll.

Lake Newnan

6.15.2001

Featured Fish

The Swamp Darter

The Swamp darter is a small fish that is rare in Florida lakes and is usually found as a solitary specimen. The species is found as far north as southeastern Maine and as far west as Texas and Oklahoma. It currently has no commercial or sportfish value but, according to Robert Schmidt in the June 1983 issue of American Currents, can make a desirable aquarium fish.

This fish has a slender, elongate body that is green to tan above with dark green to brown motting on the side. The back has 8 to 12 dark blotches and the belly is whitish with dark specks. The dorsal fin (on the top of the fish) is split into two fins and the fish can grow up to 2 inches in length.

Swamp darters occur in clear or dark coastal streams, ponds, lakes and streams. They are usually found in or near aquatic plants that are rooted in mud, sand or detritus. They feed mainly on small insects and crustaceans caught near or on aquatic vegetation. This small fish species preys on the smaller organisms that are just visible to the naked eye.

Mating occurs in early to late spring in the Northeast and probably somewhat earlier here in Florida. A. M. Fletcher, in a 1976 article in American Currents, recorded the mating behavior of the Swamp darter. The male darter spreads his fins and "dances" before the female and swim side by side through the plants where eggs are deposited on the leaves of the aquatic plants.

These short-lived fish rarely live for more than two years in the wild. In a study of fish in Florida lakes, the swamp darter was found in 39 of 60 lakes sampled; however, they were never found in very high numbers in any one lake. These lakes varied in size, depth and water chemistry, which suggests that swamp darters should be common in Florida lakes. However, due to their very small size and relative low abundance in lakes, are rarely seen by the general public.

Featured Bird

Roseate Spoonbill (Ajaia ajaja)

Phylum: Chordata
Class: Aves
Order: Ciconiiformes
Family: Threskiornithidae
Genus: Ajaia

Also known as “famae bird” or “pink curlew,” the beautiful Roseate Spoonbill has a whitish pink head and breast with bright pink wings and an orange-pink tail. The shoulder of the wings and lower belly are then a deeper crimson color. This species has long pink legs for wading and is fairly large, standing about 20” – 32” in height with a wingspan of up to 51 inches.

The Roseate Spoonbill was not one of the birds most frequently sighted by Florida LAKEWATCH volunteers. In fact, it was relatively rare when compared to other species observed on Florida lakes. The Roseate Spoonbill was observed on only 6 of the 14 lakes participating in the Florida LAKEWATCH surveys and only a single bird was reported for each sighting. The lake levels in Hillsborough County and Pinellas County were in mid-Pebruary and both counties are near saltwater estuaries, the preferred habitat of this species.

The Spoonbill is the most striking anatomical feature of the Roseate Spoonbill. Long and straight, but flattened out at the end like a spatula or spoon, the super sensitive bill of this bird helps it feed on small fish, shrimp, snails, and other aquatic invertebrates. The bill has touch receptors that allow this species to feel for prey. When the Roseate Spoonbill sweeps its long bill side to side underwater, it easily detects any contact with prey items. The prey are then snapped up and eaten. This is why Roseate Spoonbills are considered to be lace-leek feeders.

The range of the Roseate Spoonbill includes the coasts of Texas, Louisiana, and South Florida. It is also found in Mexico and in Central and South America. This species prefers mangrove swamps, tidal ponds, saltwater lagoons, and areas with brackish water. Florida LAKEWATCH volunteers have occasionally sighted the bird utilize lakes.

The Roseate Spoonbill flies with neck outstretched and is usually silent but sometimes makes low croaking and cackling sounds. It builds a bulky nest of sticks and bark preferring mangroves or similar low bushes and trees. These birds tend to nest in colonies and the females lay 2-3 dull-white eggs with dark streaks and dots. The chicks hatch in about 2 weeks and are able to leave the nest and fly in from 35-42 days.

The young birds are lighter colored than adults, being generally white with a slight pinkish tinge on the wings. As they reach maturity over a three-year period, the pink color intensifies. This species was widely hunted for its beautiful plumage around the early 1900’s and the population dramatically declined. After Roseate Spoonbills received protection from hunting, the population has made a strong comeback.
The management of aquatic plants in Florida public waters is carried out by the Bureau of Invasive Plant Management within the Florida Department of Agriculture and Consumer Services (FADACS). The mission of Florida’s aquatic plant management program includes reducing the abundance of invasive exotic aquatic plants impacting Florida public water bodies. This is achieved through improving water hyacinth, water lettuce, water hyacinth, water lettuce, and hydra. A new graduate student named Whitney Stambaugh is studying the effects of artificial light on aquatic plants in Lake Washover.

Lakes Information and Photos link located on the left of the page.

Coming soon: The Water Atlas Program will include dedicated websites for Orange County, Manatee County, and Pinellas County.

The Aquatic Plant Maintenance Program in Florida Public Waters during the 2002-2003 Fiscal Year

The management of aquatic plants in Florida public waters is carried out by the Bureau of Invasive Plant Management within the Florida Department of Agriculture and Consumer Services (FADACS). The mission of Florida’s aquatic plant management program includes reducing the abundance of invasive exotic aquatic plants impacting Florida public water bodies. The Florida Water Atlas websites are currently available for online forms to report illegal fishing, and online documents intended to teach citizens and environmental scientists. These are just a few requirements that seem to be common to all types of community service programs. However, each school and community service hour for the Bright Futures Scholarship. Robert is a junior at Park Vista Beach High School in Palm Beach County and is sampling Lake Charleston. He uses the community service hours for the Bright Futures Scholarship. Heather Vanheuveln is a senior at North Miami Beach Senior High in Miami-Dade County and has been sampling Sky Lake for our LAKEWATCH has been fortunate to have young adult volunteers who are using the time for community service hours needed to meet graduation requirements.

LakeWatch Welcomes 5 New Graduate Students

LakeWatch welcomes the help of 5 Masters students working under Dr. Daniel Canfield of the University of Florida. These students are assisting with plant surveys and water chemistry sampling. Each of their projects and names are listed below.

- Lauren Magen STOCKMAN is studying the effects of artificial light on aquatic plants in Lake Washover.
- Whitney Stambaugh is studying the effects of artificial light on aquatic plants in Lake Washover.
- Jason Kerby is studying the effects of artificial light on aquatic plants in Lake Washover.

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Notice to all active volunteers:

Keep those samples flowing!

Recently, all active samplers were sent a post card reminding them to deliver all frozen water and chlorophyll samples to their collection center as soon as possible. There will be a LAKEWATCH staff person picking water up from all collection centers in December and January (there are 70 collection centers in 38 counties). Getting the frozen water to the LAKEWATCH lab in a timely fashion this late in the year is essential for us to prepare the annual data reports on schedule.

If you have delivered your 2004 samples, THANK YOU!

If you still have 2004 frozen water and chlorophyll samples in your freezer, please take the time to get them to the collection center as soon as possible.

We’d also like to take this opportunity to thank all of you for your hard work and dedication—without you this data would not be collected!

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BASS Relocating to Central Florida:

It’s official! The largest fishing organization in the world will soon call the Sunshine State home. In October of 2004, BASS/ESPN Outdoors announced that the company would relocate from its current headquarters in Montgomery, Alabama, to Celebration, Florida. “Moving to Walt Disney World will tremendously enhance our ability to grow the sport,” said ESPN and ABC Sports President George Bodenhimer. “Our efforts to expand our reach and improve the fishing experience for millions of visitors will clearly benefit from the unique combination of fantastic fishing venues and the marketing capabilities of both groups.”

Florida’s natural resources stand to benefit from the move as well. The BASS Conservation Program already works closely with the Florida Fish and Wildlife Conservation Commission on natural resource issues in the state. However, Florida’s waters are faced with various challenges. One of which is the perpetual problems surrounding aquatic vegetation management in many Florida lakes. BASS brings with it the ability to get angler, property owners and other water users to the table to resolve conflicts surrounding aquatic plant management.

Florida has a wealth of outdoor recreational opportunities. BASS will work with legislators, universities, state agencies and the people of Florida to protect and enhance the state’s natural resources for current and future generations.

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LAKEWATCH Thanks Information Specialist

Amy Richard for Eight Years of Service

After eight years of editing information circulars, newsletters and many other LAKEWATCH materials, Amy Richard is leaving the staff to follow other career opportunities. Her contribution to the LAKEWATCH program will be long lasting, as the newsletters and circulars (listed below) she edited and produced will continue to educate a wide range of students, professionals and volunteers in many different states:

- Information Circular #101. A beginners guide to water management-The ABCs, Descriptions of commonly used terms.
- Information Circular #102. A beginners guide to water management-Nutrients.
- Information Circular #103. A beginners guide to water management-Water clarity.
- Information Circular #104. A beginners guide to water management-Lake Morphology.
- Information Circular #105. A beginners guide to water management-Symbols, Abbreviations & Conversion Factors.
- Information Circular #106. A beginners guide to water management-Bacteria.
- Information Circular #107. A beginners guide to water management-Fish Kills.

LAKEWATCH gives a big thanks to Amy for her years of hard work and wishes her the best!!!