

Coming Soon: New Florida LAKEWATCH Web Site!

By Mark Hoyer, LAKEWATCH Director



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As part of our LAKEWATCH 30th Birthday celebration we will soon be kicking off a new LAKEWATCH WEB Site, which should make tracking our data and other resources much easier and more efficient. We will send you an E-mail announcement when it is up and running. When it is up and running please take a look and let us know your thoughts, likes and dislikes so we can best judge how to address our stakeholder's needs.

To help LAKEWATCH moves into the future, we have updated and refreshed all of the materials that we have produces over the last 30 years

and are making it available on the new web site. We have also created new reports (e.g., water chemistry) to help everyone better understand Florida's aquatic systems. Though not inclusive, the following is a rough outline of how the web site will be organized and the type of content you can expect to find (We hope you enjoy it):

1) About

- Mission
- What is Florida LAKEWATCH?
- Team
- History
- Contact Us
- Directions

2) Volunteer Working Resources

- Data Sheets
- Training Field Guide
- Collection Centers
- Water Sample Pickup Schedule
- Regional Meeting Schedule
- LAKEWATCH Standard Operating Procedures (SOP)

4) Data

- Long-term Data by County
- LAKEWATCH Data Reports:
 - including water quality, aquatic plants, bathymetric maps, aquatic birds, and aquifer watch.

5) LAKEWATCH Publications

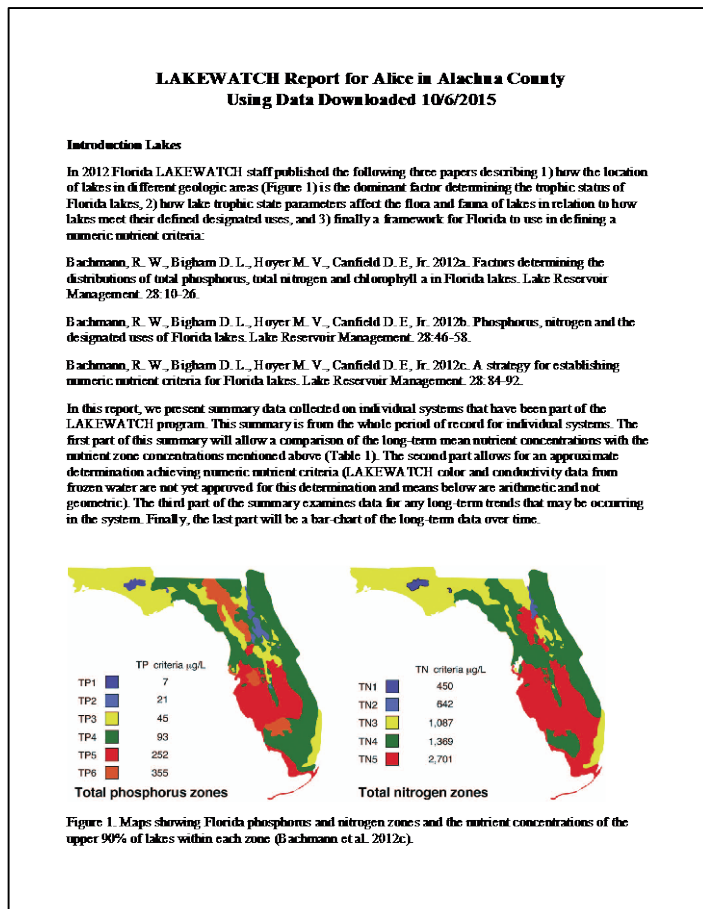
- Extension
- Research (Bibliography for each)
- Teaching
- Lake Management Plans
- Bibliography of LAKEWATCH Books
- Historical Research Reports

6) Links

- Additional Lake Management Resources and LAKEWATCH Partners

7) Opportunities

- Volunteer Opportunities
- Jobs



We have also created new reports (e.g., water chemistry) to help everyone better understand aquatic Florida's aquatic systems..

UF/IFAS Research Update: Field Evaluation of Hydrilla Integrated Management

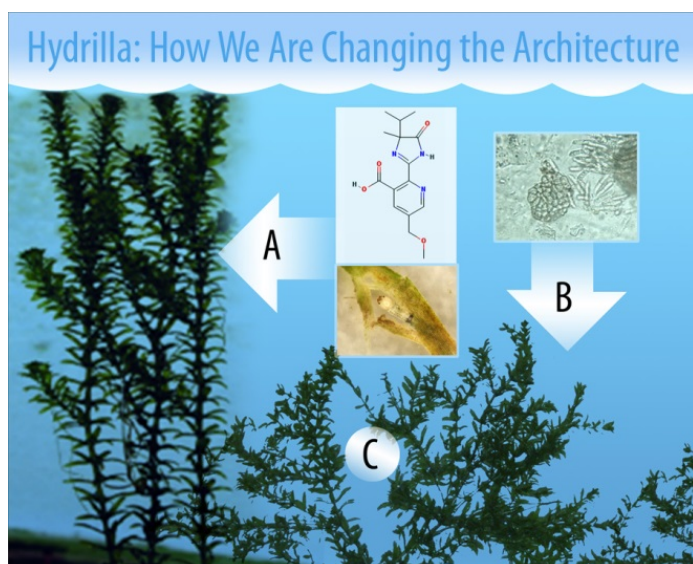


Figure 1. An integrated management plan for hydrilla, an herbicide (A) and two biological control agents (B-fungus, C-hydrilla tip mining midge) are applied together to enhance control.

What is hydrilla? Hydrilla is an invasive freshwater plant that may cause damaging infestations potentially displacing native plants and impedes waterway navigation and recreational use. These issues impact many stakeholder groups from water body managers to businesses that support ecotourism to homeowners.

Why practice integrated management of hydrilla? Hydrilla is notoriously hard to control. Physical and mechanical controls are difficult because of hydrilla's multiple methods of propagation including tubers, turions and fragments. Chemical control

has been used almost exclusively for management, which has resulted in the development of hydrilla that is resistant to some treatments. Biological control options (the use of grass carp, insects and fungus that eat hydrilla) have been tested with mixed results. A management plan that integrates multiple techniques should be more sustainable and will maximize control while minimizing chemical applications and the possibility of chemical resistance development.

What options are we considering? Tools currently under assessment by the program

are the herbivorous hydrilla tip mining midge, a plant-pathogenic fungus and an herbicide. The hydrilla tip mining midge feeds on hydrilla during its aquatic immature stage and has a short lived adult stage that does not need to eat. With a three-tool approach damage to hydrilla could be enhanced (Fig. 1). The herbicide should reduce the amount of plant material and encourage branching. Branches, in turn will provide more tips as development sites for the hydrilla tip mining midge larvae. Developing hydrilla tip mining midge larvae, then create more open wounds for fungal access. The aim of our study is to establish the most effective combination of these tools for sustainable hydrilla management.

Step One: Building and installing the limnocorrals. Below you can see us assembling and installing limnocorrals in the research ponds at the UF/IFAS Center for Aquatic and Invasive Plants (Fig. 2). Each limnocorral acts as an individual experimental unit or mesocosm, which enables us to apply the different treatment combinations to each mesocosm within a single pond.



Figure 2A. Large corrugated tubing was used to create floating rings. The tubing was attached to cylinders of plastic (Aquatic Research Instruments, Hope ID) to create the mesocosm area.

Step Two: Treatments to be tested.

The limnocorrals were installed in the ponds, baseline measurements were taken (Fig. 3) and the three treatments (i.e. hydrilla tip mining midge, fungus and herbicide) were applied alone and in combination with a control (no treatment). Three experiments will be completed to enable the testing of all the necessary combinations. Between each experiment the



Figure 2B. Chain was added to the bottom to anchor the unit and plastic rings were used for structure. The limnocorrals were installed in the ponds and then left for two weeks so hydrilla had a chance to regrow.

limnocorrals will be removed, cleaned and placed in a new pond.

Step Three: Wait patiently!

The limnocorrals were monitored every other day and data were collected at days 22 and 45, including surface area and biocontrol agent presence/damage (Fig. 4). At day 45, the hydrilla was harvested and dry weight was recorded. The experiment was completed three times

throughout 2015 with different treatments and will be completed in 2016 for replication.

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Figure 4. The limnocorrals were monitored every other day but left mostly undisturbed. Data are collected at days 22 and 45. A mesh top was added to reduce herbivory from insects and birds.

Acknowledgements: We thank Jason Bennett and Hunter Munsell (Florida LAKEWATCH), and Adriana Mitchell, Courtney Stachowiak, Nicole Miller, Rachel Watson, Laura Harmon and Brooke Cantrell (UF/IFAS) for assistance with field work. We acknowledge the USDA National Institute of Food and Agriculture Crop Protection and Pest Management program (USDA NIFA CPPM Grant 2014-70006-22517) for financial support.

FWC Approves New Freshwater Bass Conservation Measures

At its meeting Thursday, the Florida Fish and Wildlife Conservation Commission (FWC) approved sweeping changes to streamline bass regulations and increase effectiveness. Commissioners meeting at the Florida Institute of Public Safety near Tallahassee approved implementation of new black bass conservation measures, which will go into effect July 1.

Anglers will be allowed to keep smaller, more abundant largemouth bass. Length limits for black bass species will be changed and many specific rules for different water bodies will be eliminated. "The intent is to simplify existing rules and increase abundance of larger bass statewide," said Tom Champeau, director of the Division of Freshwater Fisheries Management.

Black bass are the most popular group of sport fish in North America. In Florida, they include largemouth bass and more specifically the genetically unique Florida bass that is renowned for its trophy potential. Other black bass species in Florida include Suwannee, shoal, spotted and Choctaw basses that thrive in the northwest areas of the state, primarily in rivers.

Black bass regulations have evolved over the past century as scientists learn more about the species, their habitat requirements, population dynamics and angling impacts. The FWC has been a leader in determining better ways to manage harvest not

only with hands-on experimentation but also by monitoring successes and failures of bass regulations in Florida and other states and evaluating the results. Integrating social science with biological research allows the FWC to develop measures that are justified biologically while accommodating angler opinions, attitudes and behaviors.

After July 1, the new rule will eliminate the three zones that currently regulate bass harvest along with 42 site-specific regulations for largemouth bass. This simplification has been a long-standing desire of anglers and resource managers.

Anglers may still keep up to five black bass (all species combined) of any size, but only one bass 16 inches or longer in total length may be kept per angler per day. For Suwannee, shoal, Choctaw and spotted basses, the current 12-inch minimum size limit remains in effect, but there will be no minimum length limit on largemouth bass. In addition, the proposed changes include a catch-and-release-only zone for shoal bass in the Chipola River.

Anglers are practicing voluntary catch-and-release at record levels. While reduced harvest of large bass is beneficial, allowing more bass under 16 inches to be kept may improve some fisheries by reducing competition so other individuals grow faster and larger.

The existing bass tournament

permit program will continue to allow anglers participating in permitted tournaments temporary possession of five bass of any size. This successful program has been in place for over 20 years and allows delayed-release bass tournaments to remain viable, but requires proper care, handling and release of all bass caught during the tournament (even those that could otherwise be legally harvested).

Meanwhile, the FWC's Trophy-Catch program (www.TrophyCatchFlorida.com) continues to reward anglers for registering, documenting and releasing bass heavier than 8 pounds.

This incentive driven, citizen-science initiative further ensures recycling of the trophy bass that anglers from all over the world come to Florida hoping to catch.

The FWC will advertise details of the changes in the new regulation summary (July 1, 2016-June 30, 2017), on-line, via FWC apps, on signs at boat ramps and fish management area kiosks, and at local bait-and-tackle stores. The FWC will monitor the results, but anticipates the simplification will make it easier for anglers, while resulting in more bass longer than 16 inches being caught and released routinely by anglers in the future.

This article was provided courtesy of the Florida Fish and Wildlife Conservation Commission. It was obtained through their free information service at MYFWC@public.govdelivery.com

Teach the Teachers: Professional Development and Lessons on Invasive Plants for 4th – 12th Grade

By Katie Walters, Coordinator of UF/IFAS CAIP's Florida Invasive Plant Education Initiative



Plant Camp 2015 teachers participate in a plant identification lab led by Dr. David Hall. Photo Credit: UF/IFAS Center for Aquatic and Invasive Plants.

The Florida Invasive Plant Education Initiative is part of the Information Office of the University of Florida's IFAS Center for Aquatic and Invasive Plants. The Information Office provides research and information to all stakeholders about the impacts and management of invasive plants. The Education Initiative was formed in 2005 specifically to provide outreach to teachers and their students. Over the years we have developed four curriculum modules, an annual professional development work-

shop for educators (Plant Camp), online resources, educational materials and games, and a social media presence. Regular communication and collaboration with teachers ensures that our materials remain relevant and practical for classroom use. Our continuing partnerships with the Florida Fish and Wildlife Conservation Commission (FWCC) and organizations such as the Florida Aquatic Plant Management Society (FAPMS), the Aquatic Plant Management Society (APMS), and the Aquatic Ecosystem Restora-

tion Foundation (AERF) allow us to offer these materials and workshops at no cost to Florida educators. Over 300 teachers have attended our workshops who, in turn, have taught approximately 72,000 Florida students over the last 10 years!

Due to our tropical climate and year-round growing season, Florida has major environmental and economic problems resulting from invasive species. Education can play a critical role in preserving Florida's natural areas through increased awareness

of the problems caused by invasive species. By introducing younger generations of Floridians to the importance and complexities of natural resource management, our programs help ensure that we have the engaged citizens, scientists, researchers, and resource managers needed to confront these problems in the future.

Plant Camp provides educators a behind-the-scenes look at Florida's invasive plant management program. Each year, teachers across the state apply to attend this unique professional development workshop. Presenters from UF/IFAS CAIP, UF/IFAS Lake-watch, various state agencies, and the private sector provide

direction and information throughout the week-long program. Teachers participate in all kinds of "camp" activities, such as trekking through the woods, identifying and removing invasive plants, surveying hydrilla maintenance control by airboat, and dipnetting for macroinvertebrates. The goal of the workshop is to provide teachers with practical field experience, background information, and educational resources to enable them to successfully introduce the important topic of invasive species management within their own classrooms. Participating teachers complete a pre-test and post-test to measure their knowledge gains and to assess

changes in their attitude toward the management of invasive species. For example, among the 2015 Plant Camp class the overall knowledge increase was 14%, but individual questions showed knowledge increases as high as 114%. We also query teachers' opinions on the various methods of invasive plant management – chemical, mechanical, biological, and physical (each of which is explained during the program). Participants have consistently demonstrated an increase in their positive opinion on all methods of invasive plant management. Commenting on the workshop in general, one teacher stated "...I really gained a deeper appreciation



Teachers Jim McGinty and Donna Foley dipnet for macroinvertebrates during a lab led by Dr. Sharon Fitz-Coy. Photo Credit: UF/IFAS Center for Aquatic and Invasive Plants.

and depth of understanding by meeting the scientists doing the research and management of these plants. They are a very dedicated group of people. I am glad they are working to preserve and protect Florida's ecosystems."

We need today's students to become tomorrow's environmental stewards – armed with the information, practices, and awareness to address 21st century environmental issues. Towards this goal we visit classrooms across Florida providing educational lessons. We are funded to provide 10 in-class demonstrations of our role-play activity, *Lakeville – A Natural Resource Management Activity*. In this

three-part lesson, students first learn about invasive species, then participate in a role-play activity as either organisms or stakeholders of a hypothetical freshwater ecosystem and citizen community. Students complete both a pre-test and post-test to measure their knowledge gains. Last year our *Lakeville* students showed an average knowledge gain of 24% from pre- to post-test.

We also provide in-class and after school demonstrations locally whenever possible. All of our educational curriculum and materials, including audio-visual presentations, are available for down-

load on our website (<http://plants.ifas.ufl.edu/education/>). Materials needed to implement the educational games developed by the Education Initiative are available in loaner kits if provided with one month's advance notice. All of the activities come with detailed lesson plans. Each activity takes about 50 minutes to complete (although some require prior background knowledge). If you are involved in youth outreach and are interested in borrowing a *Lakeville* kit or would like more information, please contact the Florida Invasive Plant Education Initiative at caip-education@ufl.edu or 352-273-3665.



Students at P.K. Yonge Development Research School play *Lakeville – A Natural Resource Management Activity*, developed by the Invasive Plant Education Initiative.

The Nine Lives of Florida's Catfish

By Travis Tuten, Eric Nagid, and Chris Anderson, Florida Fish and Wildlife Conservation Commission

Most people have seen or at least heard of catfish. For a lot of people, catfish may be one of the first fish groups they knew about as a kid. These fish are known for the long whisker-like barbels found around their mouth and chin, resembling a cat's whiskers. They are also known for their spines, which have the potential to cause a lot of pain to an unlucky person. Catfish are found in both marine and freshwater environments, and can also be found in many aquariums. With almost 3,000 described living species, catfish are one of the largest groups of fish and occur on every continent around the world except Antarctica. They are often bottom dwellers, and depending on the species may feed on a variety of items such as detritus (decomposing organisms), filamentous algae, snails, aquatic insects, and other fish. Many species of catfish support important recreational and commercial fisheries, including the aquaculture industry, because of their edibility.

Florida has just two marine catfish species, both of which can also be found in brackish waters and have also been rarely collected in freshwater.



Figure 1. Photo of a Snail Bullhead captured in the Ocklawaha River in May 2010.

Florida has 10 native freshwater catfish species and numerous other species that have been introduced into the state. Some of the non-natives include Flathead Catfish (*Pylodictis olivaris*), Walking Catfish (*Clarias batrachus*), Brown Hoplo (*Hoplosternum littorale*), and Suckermouth Armored Catfish (*Pterygoplichthys* spp.). The 10 native freshwater catfish include species such as Channel Catfish (*Ictalurus punctatus*), three different smaller madtom species (*Noturus* spp.), and five different bullhead species (*Ameiurus* spp.). The Snail Bullhead (*Ameiurus brunneus*) and Spotted Bullhead (*Ameiurus serracanthus*)

are two similar bullhead species found in Florida that are not commonly caught or seen by anglers.

The Snail Bullhead occurs from Southern Virginia to Central Florida and west to Eastern Alabama and the Central Panhandle of Florida. It is only found in the Apalachicola and St. Johns River Basins in Florida. The St. Johns River population is an isolated population that is separated by at least 100 miles from the next closest known population at Altamaha River, Georgia, and by at least 200 miles to the Apalachicola River, Florida. This is one of four fish species that have a similar, isolated



Figure 2. Photo of a Spotted Bullhead captured in the Santa Fe River in January 2016.

population in the St. Johns River Basin. Snail Bullheads typically have slender, elongated bodies with broad, flat heads and relatively large eyes compared to most other bullhead species. They can be mottled, and are often heavily mottled in the St. Johns River Basin. They are typically light brown, grey-brown, or olive green in color and have white chin barbels. Their fins are edged in black and they have a dark blotch at the base of the dorsal fin. The Florida Fish and Wildlife Conservation Commission (FWC) sometimes captures Snail Bullheads during our annual freshwater long-term monitoring electrofishing transects on the Ocklawaha River. Figure 1 shows a large individual captured in May 2010 that was 10" in total

length.

The Spotted Bullhead has the smallest range of any bullhead catfish in the world, only being found in streams on the Gulf Coastal Plain in the Suwannee, St. Marks, Ochlockonee, Apalachicola, and St. Andrews Bay Basins of Northern Florida, Southern Georgia, and Southeastern Alabama. Their coloration is generally gray or blue-black above with a yellow-gold cast, gray to white below, and they are distinguished from other bullheads by being covered with many round, gray-white spots. Similar to the Snail Bullhead, the fins are edged in black, there is a large dark blotch at the base of the dorsal fin, and their eyes are relatively large compared to most other bullhead species.

However, the chin barbels on the Spotted Bullhead are black, whereas the Snail Bullhead has white chin barbels. In January 2016, FWC collected a Spotted Bullhead on the Santa Fe River that measured 12 5/8" in total length and weighed 1.2 lbs (Figure 2). This fish was collected during FWC's annual river monitoring (LTM). In a review of over 5,000 records of Spotted Bullhead that have been collected by FWC staff, only three fish were longer and only one was heavier.

Find out more about FWC's Freshwater Fish long-term monitoring project at:

[FWC's Freshwater LTM](#)



Travis Tuten is a Biological Scientist with the Florida Fish and Wildlife Conservation Commission.

Volunteer Bulletin Board



UF Fisheries biologist and friend of LAKEWATCH passes away

It is with a sad heart that we have to inform everyone that Sharon Fitz-Coy, senior biologist with our Fisheries and Aquatic Sciences Program and longtime friend of LAKEWATCH, unexpectedly passed away Saturday, February 27, 2016.

As the education coordinator for the Fishing for Success program, Sharon personally conducted face-to-face, hands-on outdoor education programs for over 150,000 children and their parents. She probably introduced more children to fishing than any other person in Florida.

She had a passion and love for introducing children of all ages to the wonders of our aquatic world. It's was not uncommon for a teacher to come up to Miss Sharon and say "You probably don't remember me, but as a child, I participated in one of your programs and now I'm bringing my students to you to teach." What a role model! Sharon will always be remembered in our hearts and in the hearts of the many 10,000s of children that she influenced!

Sharon always greeted folks with a big smile, a laugh, and a will to get things done!
As said by one of Sharon's best friends - "We will all hurt and cry at her loss, but I will always remember the fire and joy she always displayed."

Sincerely,
Dr. Charles Cichra and the Florida LAKEWATCH staff

There are a few new and relocated collection centers around the state

Charlotte County:

HOA Association Office
Broadmore Park
646 Rotonda Circle
Rotonda West, FL 33947
Hours: M-F 8-5
Contact: Norene Kugler
(941)697-6788

Flagler County:

Palm Coast City Hall
160 Lake Avenue
Palm Coast, FL 32137
Contact: Tim Baker
(386) 986-4726

Lake County:

Lake County Water Authority
Hickory Point
27351 SR 19
Tavares, FL 32778
Contact: Gail Goldberg
(352) 324-6141

Martin County:

Martin County Extension IFAS
2614 SE Dixie HWY
Stuart, FL 34996
Contact: (772) 288-5654

North Florida Regional Coordinator Out on Medical Leave



One of our LAKEWATCH family, David Watson, who is the North Florida Regional Coordinator recently had a stroke and will be away for a while recuperating. Please keep David and his family in your prayers as he heals. David will return as soon as he feels ready to resume the Coordinator's responsibilities. We will let you know when David returns, but until that time if David was your Regional Coordinator and you need LAKEWATCH information or help please contact us using the following contact information and it will be forwarded to someone who can help:

e-mail: fl-lakewatch@ufl.edu
phone: (800) 525-3928

Volunteer Bulletin Board

Attention Retiring Volunteers!

If you are moving away from your lake or for some other reason have decided to stop sampling with us, please return your sampling kit and any unused sampling supplies you may have to your nearest collection center. We can often reuse these materials, saving us much need resources that we can put back into helping citizens manage their aquatic systems across the state!

Notice to all Florida LAKEWATCH active samplers

Keep those samples flowing!!!

Please be sure to deliver all frozen water and chlorophyll samples to your collection center as soon as possible. This will allow us to collect and process them in a timely manner. An updated collection schedule will be available on our new website! Please check there or contact us if you have any questions about when your samples are picked up from your local collection center.

Remember to leave some space in your bottles



Remember when collecting samples for nitrogen and phosphorus at each of your stations to be sure and dump a small portion of the water back out before freezing. This allows the water inside to expand once frozen. Failure to do this can lead to cracked bottles. Once thawed in the LAKEWATCH water lab the cracked bottle's contents will drain out and that sample cannot be analyzed. Don't let your hard work on the lake go down the drain! Even if the bottles don't break immediately the strain of stretching weakens them over time increasing the chance of a crack for someone else. This quick action can help us keep our bottles sampling for years!



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Website: <http://lakewatch.ifas.ufl.edu/>

All unsolicited articles, photographs, artwork or other written material must include contributor's name, address and phone number. Opinions expressed are solely those of the individual contributor and do not necessarily reflect the opinion or policy of the Florida LAKEWATCH program.

Thanks for your help!!

