

National Water Quality Monitoring Council Creates New Volunteer Monitoring Working Group

In May 2016 Florida LAKEWATCH Director Mark Hoyer attended the 10th National Water Quality Monitoring Council Conference held in Tampa, Florida. This was an exciting conference because the National Water Quality Monitoring Council has just passed a charter to establish a new Volunteer Monitoring Working Group. The purpose of the new working group is to engage key stakeholders in volunteer monitoring-related discussions; provide a conduit for our community to share resources, technology, and lessons learned; and facilitate the integration of volunteer monitoring activities with ongoing water-quality monitoring conducted by local, state, and federal agencies. Volunteer monitoring has been a key citizen science initiative for over fifty years. Passage of this charter offers us the opportunity to increase and improve communica-

tion between the volunteer monitoring community and our federal, state, and local partners, and to develop new national resources and tools to keep the movement vigorous.

The Council was created in 1997 as a vehicle for bringing together diverse expertise needed to develop collaborative, comparable, and cost-effective approaches for monitoring and assessing our Nation's water quality (<http://acwi.gov/monitoring/index.html>). The approaches are fundamental to the successful management and sustainability of the nation's waters, and are increasingly important because water issues are becoming more complex, resources are tighter, and the demand for high-quality water continues to grow in order to support a complex web of human activities and aquatic ecosystem needs.

The Council establishes working groups including the following:

- Methods and Data Comparability Board (Methods Board) – Provides a forum for evaluating and promoting methods that facilitate comparability among water-quality monitoring and analytical methods.
- The Aquatic Sensor - Workgroup is a subcommittee of the Methods Board that has focused on quality control and data management of sensor data.
- Water Information Strategies Workgroup - Defines and promotes strategies for monitoring designs; data management, access, and exchange; data integration and analysis; and information reporting to address water needs.



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- Collaboration and Outreach Workgroup – Works to build partnerships that foster collaboration and communication within the water-quality monitoring community.
- National Network of Reference Watersheds – Defines and promotes strategies for improved coordination and collaboration for sharing and accessing reference watershed information and water-quality data for freshwater
- NEWLY ESTABLISHED: Volunteer Monitoring Working Group – Engages key members of the Council in volunteer monitoring-related discussions to better encourage integration of volunteer monitoring activities with ongoing water-quality monitoring conducted by local, state, and federal agencies.

And, it is good to see the Council comprised of so many local, state and federal groups understanding the importance of Citizen Science and Volunteer Monitoring.

Florida LAKEWATCH staff member honored with UF/IFAS Superior Accomplishment Award

In 1988, the Florida Legislator authorized the creation of a State University-wide Superior Accomplishment Awards program. At each of the eleven universities, divisional awards are presented, and divisional honorees are eligible for University-wide recognition.

The University of Florida has established seven divisions based on unit or organizational lines. IFAS comprises one such division. Within each division, there are now seven award categories, the newest being the Community Service Award.

This year Florida LAKEWATCH's Senior Biological Scientist, Christine Horsburgh, received this award in the Scientific/Technical category.

Christy has worked for UF/IFAS since the mid 1980's and was there at the start of the Florida LAKE-

WATCH program. Christy finished her Masters Thesis under Dr. Canfield in the Department of Fisheries and Aquatic Sciences (Horsburgh, Christine Ann. 1999. Lake regions of Florida: water chemistry and aquatic macrophyte data. University of Florida, Gainesville, FL).

Her thesis was the foundation for the nutrient zones developed by LAKEWATCH and now incorporated into the recently EPA approved numeric nutrient criteria. During her tenure at UF and LAKEWATCH Christy has been one of the lynch-pins for the program and involved in all aspects of UF's Land Grant Institution; teaching, research and extension.

Well done Christy, and well deserved!



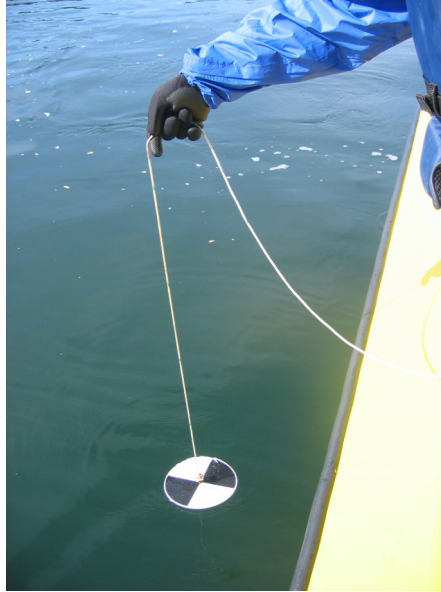
LAKEWATCH

July is Lake Appreciation Month

Where You Can Participate in the 2016 Secchi Dip-In!!

Numerous Florida LAKEWATCH volunteers have participated in the Secchi Dip-In for many years. This year marks the 23rd anniversary of the Secchi Dip-In and the 151st anniversary of the very first Secchi dip by Father Pietro Angelo Secchi. Each summer Dip-In participants add their water transparency measurements to a unique effort and thus demonstrate that they are an invaluable part of the effort to monitor lakes around the world. We invite you to participate in this year's effort.

A time-honored instrument of limnology turns 151 this year. The Secchi disk, the black and white plate at the bottom of many a lim-



Volunteer taking Secchi measurement

Image from: University of Washington

nologist's rope, was invented by Pietro Angelo Secchi, an Italian Jesuit priest in 1865. In fact, the story goes, he first deployed the instrument into the waters of the Medi-

terranean, dropping the disk in over the side of the papal yacht.

The founder of the Dip-In, Dr. Robert Carlson recently transferred the management of the Dip-In to the North American Lake Management Society (NALMS). Over the years, NALMS has been a stalwart supporter of the Dip-In as the program fits with the mission of NALMS, "to forge partnerships among citizens, scientists, and professionals to foster the management and protection of lakes and reservoirs for today and tomorrow." To participate this year, follow instructions listed on the Secchi Dip-In web site:

<http://www.secchidipin.org/>

Enjoy your summer on the lake!



Pietro Angelo Secchi

Image from: United States Navy



Secchi disks waiting for new volunteers to take them

LAKEWATCH

Handle with Care... Taking Good Care of Your Releasable Fish

Ruth Francis-Floyd, DVM, MS, DACZM

Catch and Release

Many anglers practice catch and release and fish above or below legal length limits must be released. This article offers some suggestions on how to care for these fish while in your hands. The goal is to return a “healthy” fish to the environment it was taken from and optimize its chance for survival.

Handling Freshwater Game Fish

Most freshwater game fish caught in Florida lakes are members of the centrarchid family. This includes the largemouth bass, crappie, and members of the bluegill or sunfish family, often referred to as “pan fish”. These fish are generally pretty hardy but there are a couple of things to remember if you intend to return them safely to their environment.

First, never “lip” the fish. Many anglers handle fish, especially larger specimens, by grasping the lower jaw to restrain them. Even worse, some people will lift fish by the jaw for photos or to be weighed. This is very harmful to the fish, and the occurrence of broken and displaced jaws is well documented. If a fish with an injured jaw is returned to the lake, the likely outcome is that it will



Image from: [Greer Today](#)

slowly starve to death. Rather than try to restrain the fish by holding the lower lip, it is best to provide support for the whole body. An

ideal way of doing this is to use a sling of some sort. A fish that is restrained in a sling is much less likely to injure itself if it starts to struggle.

Second, a serious effort should be made to remove all gear from the mouth of the animal if it is to be released. If a hook has been completely swallowed it may not be possible to remove because it may be embedded in the stomach or esophagus. Hooks or leaders remaining in the tissue may compromise the animal's feeding ability. Although they may not be removable in all cases, anglers should try to get everything off the animal before turning it loose.



Image from: [The weekend anglers guide to good fishing](#)

Another important consideration when handling fish is to protect the scales, skin and slime layer. These external barriers provide important natural protection to the fish. To protect the external surface of the fish, try not to let its body touch a dry or abrasive surface. Minimize contact with nets, and select nets (or slings) made of soft and non-abrasive material whenever possible. Avoid gripping the animal tightly as this will damage mucus, and may also bruise underlying tissues.

When the skin, or external barrier, is damaged, a freshwater fish will absorb excessive amounts of water into its tissues. The fish's body fluids are saltier than the freshwater environment it was taken from. The influx of freshwater causes the fish to over-hydrate, upsetting the delicate balance of minerals and salts within the body. In this situation, a fish with damaged skin has to continually pump the excess water out of the body, an energy-consuming process. This energy loss is part of the "stress response". All animals have adaptive mechanisms to deal with unusual situations. Part of this adaptation is the release of extra energy for "fight or flight". A fish that has had its external barriers (skin, scales and slime) damaged has to use some of this energy to stabilize body fluids. Remember that the fish has already had to "fight"

when it was hooked, so the loss of energy started at that point. Injury further increases the energy demand. When all available energy has been used up the fish approaches a point of exhaustion. Once in the exhausted state, the fish may not be able to recover from the stressful event.

Live Well Considerations

If a fish is not released immediately, it will most likely be placed into a live well for holding. Important considerations for safe use of your live well include ensuring that the temperature in the live well is the same as the temperature in the lake; ensuring that you have excellent aeration available at all times; change the water occasionally if the fish are to be held for more than a short period of time; and finally, consider adding salt to your live well to assist the fish in maintenance of proper hydration (see paragraph above). Each of

these considerations will be discussed briefly.

Temperature

Fish are cold-blooded animals. This means that their body temperature is always going to be the same as, or very close to, the environmental temperature. Centrarchids are a type of fish that are very tolerant of temperature extremes, however no fish can tolerate rapid temperature change. When handling fish, an important rule of thumb is not to allow water temperature to change more than 3-5° F in a 30 minute period. If fish are taken from a lake and placed into a live well more than a few degrees warmer than the lake, they will experience stress and in the extreme may even die suddenly. The same is true when they are released. The water they are removed from should be very close to the temperature of the lake they are being released into.

[Image from: Bass Fishing Tips & Tactics](#)



Dead bass!



Dissolved Oxygen

If fish are to be held in a live well, aeration is essential for their survival. Centrarchids are not very tolerant of low oxygen conditions, and the bigger fish use up oxygen very quickly. A 3-5 lbs. largemouth bass could conceivably use up all available oxygen in less than 30 minutes if good aeration is not provided. The need for aeration is increased in warm weather. Because warm water holds less oxygen in solution than cooler water. Further, the warmer the water, the greater the oxygen needed by the fish. Anglers should ensure that their aeration equipment is in good working order before trying to hold fish in the live well. If an oxygen meter is available, dissolved oxygen concentrations should be higher than 5 mg/L at all times.

Water Exchange

Fish held in a live well are going to be uncomfortable and under stress. The confinement alone is an unnatural situation for them. As such, they will be using extra energy to maintain fluid balance (discussed above) and their need for oxygen will likely be greater than if they were just hanging out under their favorite rock. As their activity increases, they will dump

waste products into the water. While confined in the live well, waste products will accumulate in the water and these can be very damaging to the fish. Thus, frequent water exchanges will flush waste materials out and keep fish in a cleaner environment. This will also help to maintain temperature



Image from: B. Dunnigan

as close to the lake temperature as possible increasing chances of survival.

Use of Salt in the Live Well

Finally, use of salt in your live well is strongly recommended. There are a number of commercial products that are marketed as “conditioners” for the water in a live well. Likely, salt is an important

ingredient in most of these. To salt a live well, a special product is not needed. You can use any over-the-counter product that is safe for human or livestock consumption. Most commonly, people select water softener salt because it can be purchased in bulk for a very reasonable price. When using these products, avoid anything that has additives or anti-caking agents as these may be toxic to fish. All you want is just plain salt (sodium chloride or NaCl). It does not matter if it is iodized or uniodized, both forms are safe for fish.

The most common mistake people make when adding salt to a live well is that they just don’t use enough! Of course it is possible to use too much, in which case the fish will be obviously stressed and roll over. If not removed at that point, they may die. Using too little salt

is much more common though. At the University of Florida, we typically recommend a concentration of 5 grams salt per liter (g/L) of water, which equates to a salinity of 5 parts per thousand (ppt). This does not have to be an exact science so adding about ½ pound of salt to 10 gallons of water will do the trick and yield water with approximately 5 ppt. Remember to replace the salt if you exchange the water.

Summary

In conclusion, if you catch a fish with the intent of releasing it, you should try to do everything possible to enhance its chance for survival following the release. When physically handling the fish, avoid restraining it by gripping the lower lip, and never support its body weight by holding the jaw. Avoid contact with dry or abrasive surfaces, and if it is necessary to restrain the fish try to use a sling instead of a net. Try to minimize physical contact with the fish's body, and do not grip firmly as this will damage external surfaces, compromising osmoregulatory balance, and underlying muscle tissue may be bruised.

If fish are to be held in a live well, ensure the temperature of water in the live well is very similar ($< 3\text{-}5^{\circ}\text{F}$ difference) to water in the lake the fish was taken from. Aeration must be provided while fish are held, and water should be exchanged regularly to minimize fouling. Finally, adding salt to the live well will help the fish adapt to the temporary, but confined, environment. Up to one-half pound of salt can be added for every ten gallons of water in the live well. If fish should show an adverse reaction, change the water immediately.

The suggestions presented here will help prevent injury to fish while in your care. The goal is to maximize survival so that they will continue to contribute to the fishery and hopefully to the enjoyment of future anglers.



Ruth Francis-Floyd is joint faculty with the Fisheries and Aquatic Sciences Program and the College of Veterinary Medicine at the University of Florida.



Image from: Frank Sargeant. The Huntsville Times

Lionfish Explosion in Coastal Waters

By Mike Dickson

The lionfish, *Pterois volitans*, is an exotic reef fish most notorious for its long and venomous spines.

This brown and white striped fish originates from the Indo-Pacific and first became popular in the United States through the saltwater aquarium trade. In recent decades lionfish have become more prolific

in the western Atlantic, and are now equally as well known for their unwanted invasion. Researchers suspect that several aquarium escapees initially established themselves in south Florida waters, and since then their populations have exploded in coastal reefs around the state. Lionfish are capable of reproducing quickly, each time releasing thousands of eggs into the water, and face no natural predators in their new range. Unfortunately, this invasion has been disastrous for Florida's native reef fishes, for which lionfish have a large appetite, and has thus given this exotic a negative connotation among many Florida residents.

In addition to environmental impacts, the presence of lion-



Image from: Alexander Vasinin

fish has caused great economic concern, considering that many fishing and tourism industries rely on the health of coastal reef ecosystems. In response, the Florida Fish and Wildlife Conservation Commission (FWC) has made great efforts to educate the public and to encourage harvest methods, including incentivized recreational fishing programs, lionfish "round-up" derbies, and commercial markets (there are currently no recreational or commercial restrictions on lionfish such as bag limits, slot sizes or season closures). These efforts have paid off, as more and more lionfish are being removed from Florida waters each year.

In May 2016, FWC reported that during a Pensacola derby over 8,000 fish were harvested in only a two day period. If participating individuals obtain the proper license requirements, they are then also able to sell their catch to licensed seafood wholesalers. Lionfish happen to be very delicious to eat and

are increasing sought after by restaurateurs.

Although there has been much recent success in battling the lionfish invasion, it is still important to continue efforts that mitigate their impacts. The phrase "Eat 'em to Beat 'em", a common slogan used by the REEF organization, promotes human consumption of lionfish as a good tool to help keep populations under control. Even though lionfish have venomous spines, they are not dangerous to eat once the meat is cooked, so one can feel at ease ordering them at a local restaurant or trying out a recipe at home. Below is one delicious and easy recipe featured by REEF in their Lionfish Cookbook. Enjoy!

Hawaiian Lionfish

Ingredients:

3 eggs, beaten
1 cup chopped toasted almonds
1 cup flaked coconut
1 tbsp. sesame seeds
1 tbsp. brown sugar
1 pinch nutmeg
1 (15 ounce) can crushed pineapple, drained
½ cup chopped onion
8 lionfish fillets



Directions:

Preheat oven to 350 degrees. Grease a large baking dish.

Place the beaten eggs in a shallow dish. Mix the almonds, coconut, sesame seeds, brown sugar, and nutmeg together in a mixing bowl. Stir the pineapple and onion together in a separate bowl.

Dip each lionfish fillet into the beaten egg, and then press into the almond mixture.

Place the coated lionfish into the prepared dish. Spread the pineapple mixture over the coated fillets. Bake until the fish flakes easily with a fork, about 40 minutes.

For more information on lionfish in your area, please contact Mike Dickson at flcwholesale@gmail.com

Florida's Most (or Least) Wanted

This is written with information from an article in *Aquatics* (Spring 2016) titled *Aquatic Plant Problems and Management Necessity in Florida Public Lakes and Rivers*, by Jeffrey D. Schardt

With shallow depths and abundant nutrients most of Florida's waterways provide highly favorable conditions for aquatic plant growth. While these plant communities provide several positive effects on the waterbodies from wildlife habitat and food to shoreline stabilization, there are negative effects as well. Non-native and invasive plants have found Florida to be a very hospitable location for growth and many can outgrow or outcompete native Florida plants. These plants can take over lakes and rivers creating problems for wildlife and humans.

1. Waterhyacinth

Waterhyacinth is one of Florida's most invasive floating plants. Originally from South America, it was introduced to the United States in the 1880's as a decorative plant because of its distinct flower. If left unmanaged waterhyacinth populations can double in two weeks. They reproduce by budding and/or by producing seeds. These seeds can lie dormant in dry areas during drought and then suddenly germinate when water levels rise again.

Waterhyacinth is listed as one of the world's worst weeds. These plants can float around in the wind and often form large mats which can accelerate lake sedimentation. Dissolved oxygen under these mats can drop to below lethal levels for fish. These mats often block navigation and clog irrigation intakes and flood control systems.



Image from: Floris taxonomy



Image from: Full service aquatics



Image from: Aquatic Plant Management Society, Inc.

2. Hydrilla

Since being released by the aquarium trade in the 1950's hydrilla has become the most invasive plant in Florida. It grows rapidly, in relatively low light, has a longer growth season than other plants, and can create a "canopy" over native plants, starving them of light. It can reproduce by several means, including regrowth from small broken off sections. Small tubers can be present under the substrate which can grow even after the emerged sections of the plants are controlled.

Hydrilla plants are more dense toward the surface of the water body; creating mats. Temperature, pH, and dissolved oxygen fluctuate greatly under these mats. During dark or on cloudy conditions the plants will actually respire, and use up oxygen in the water, often leading to fish kills.



Image from: Isaac Szabo



Image from: NC Invasive Plant Council

Volunteer Bulletin Board

Extension office moved

The Hernando county IFAS extension office has moved to a new location. The new address is:

**16110 Aviation Loop Dr.
Brooksville, FL 34604**

Florida LAKEWATCH's new website is up and running

Please visit our new website and take a look around. Please feel free to leave us a comment and let us know what you think.

Attention Volunteers!

If your email address has changed please update us by contacting Mary at LAKEWATCH.

1-800-525-3928

or

fl-lakewatch@ufl.edu

Change to the LAKEWATCH data sheet

There's a new column in the "Secchi Disc Measurements" section of the both the Freshwater and Saline water collection data sheets. We have moved "time" from the top of the page and added a column to fill in with each station's information. Please start filling this area in as you're taking data at each station.

Thank you!

Florida LAKEWATCH Freshwater Data Sheet

Lake Name: _____ County: _____

Sampler: _____

Phone: () _____ Date: _____

Yes ___ No ___: Surface Water Collected for Total Phosphorus and Total Nitrogen.

Yes ___ No ___: Surface Water Collected for Chlorophyll and Filtered Within 48 Hours.

Yes ___ No ___: Secchi Depth Reading Taken

Secchi Disc Measurements:

- For **Secchi depth** and **water depth** measurements, please indicate the number of feet and then estimate and circle the appropriate fraction, if needed.
- If your **disc is visible on the bottom** write **B**. If your **disc disappears in the weeds** write **W**, in the **vanishing point** column and the **depth** at which your disc disappears.

Vanishing Point	Sun Code Number	Sun Code Key <small>Use the codes from below to fill in the Sun Code Number column.</small>	Water Depth	Time
Sta 1	ft. 1/4 1/2 3/4	1 = full sun	ft. 1/4 1/2 3/4	
Sta 2	ft. 1/4 1/2 3/4	2 = haze over sun	ft. 1/4 1/2 3/4	
Sta 3	ft. 1/4 1/2 3/4	3 = thin cloud	ft. 1/4 1/2 3/4	
		4 = medium cloud cover		
		5 = heavy cloud cover		

DESCRIBE the amount and duration of any unique occurrences that have occurred within two weeks or so before your sampling date either in the lake or on the local watershed:

Lake Level Measurements: Please circle or describe the type of gauge located in the lake and then record the lake level. **Type of Staff Gauge:** WMD / City / LCWA / USGS / Other (Please describe): _____

Lake level: _____ **Rain (in.) since last report:** _____

* If you wish to record lake levels of your lake, please fill in these last two blank. Call LAKEWATCH (1-800-LAKEWAT) if you have any questions on how to get started.