

A misty landscape with a line of trees and their reflection in a body of water. The trees are mostly bare with some autumn-colored leaves. The water is calm and reflects the trees and the overcast sky. The overall mood is serene and quiet.

Florida LAKEWATCH

WINTER 2024 NEWSLETTER

Celebrating Christy Horsburgh

Florida LAKEWATCH's biologist and lab manager

Written by Florida LAKEWATCH director, Gretchen Lescord

Transitions can be hard, even under the best circumstances. And that's what we had when I started as the new director of the LAKEWATCH program: the best possible circumstances, due largely to my predecessors, who built such a strong program. I consider it a privilege to build on the solid foundation they created. Last newsletter, you read an article from one such predecessor, former director Mark Hoyer, who recently retired. This edition, I am writing to celebrate our other recent retiree and a core part of the LAKEWATCH program: Christy Horsburgh.



Christy (left) surveying aquatic plants with students.

Christy first met Dr. Dan Canfield, the founder of Florida LAKEWATCH, in 1983 as an undergraduate student. Dr. Canfield recruited Christy to work with him the summer of 1985, surveying aquatic plants and collecting water chemistry samples from lakes and rivers around our beautiful state. Her aptitude and excitement for the work quickly became apparent and she has been with LAKEWATCH ever since. As a LAKEWATCH biologist, Christy helped the program survey dozens of lakes across the state, gathering data that has been used in many research studies and student projects. As an aquatic plant expert, she co-authored the LAKEWATCH book titled, “Florida freshwater plants a handbook of common aquatic plants in Florida lakes” in 1996 (copies of which can be ordered from the [UF library](#)). Christy also completed her Masters of Science with Dr. Canfield in 1999, [The Lake Regions of Florida: water chemistry and aquatic plant data](#).

In 2017, Christy transitioned from the field to the LAKEWATCH analytical laboratory (see our [newsletter article](#) about her shift!). For the past 6 years, she has been in charge of analyzing the 50,000+ samples we receive each year from our dedicated volunteers. Under her leadership, our lab collaborated closely with DEP and refined our methods to produce the most accurate data possible.



On a personal note, Christy was a huge support for me when I arrived at Florida LAKEWATCH. Her daily visits to my office were welcoming and she gave me invaluable insight into the program and feedback on my early ideas. She helped me understand our activities and the program’s rich history, as well as the volunteers and staff who made it all possible. While she is already missed, she ensured our new lab manager (Dr. Zhuona Li) and extension manager (Dr. Liz Moreau) were properly welcomed, supported, and trained before her departure.



Christy and Sunny on a recent hike!

Christy has started her retirement off right, enjoying long hikes with her dog, Sunny. She's also been visiting her family in Texas and celebrating with friends. Please join me in thanking Christy for her decades of hard work and dedication to the Florida LAKEWATCH program! If you'd like to send Christy a message, you can reach her at: horsburg@ufl.edu.



The LAKEWATCH team at Christy's retirement party.

Welcome LAKEWATCH's new Managers!

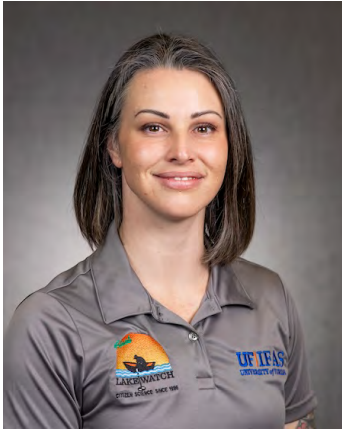
Our new faculty director, Dr. Gretchen Lescord, has brought an influx of new ideas to the LAKEWATCH program and we are hoping to grow our monitoring, research, and extension activities. Dr. Lescord has hired three new managers to facilitate these goals: former Regional Coordinator Mrs. Marina Schwartz is now the Data Manager, Dr. Zhuona (Joanna) Li is the new Scientific Laboratory Manager, and Dr. Liz Moreau is the new Extension and Field Manager.



We are a friendly bunch! From left to right: Data Manager Marina Schwartz, Lab Manager Dr. Zhuonna (Joanna) Li, and Extension Manager Dr. Liz Moreau



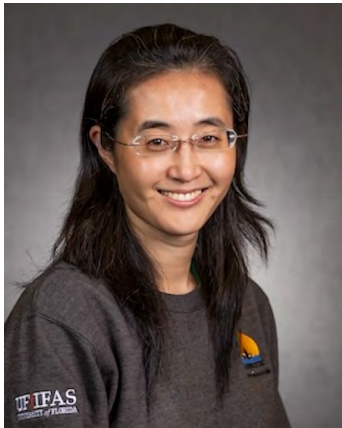
Regional Coordinator Dan Willis took the new managers on a field trip to Lake Butler to show us the LAKEWATCH sampling protocol. LEFT: Zhuona measuring water for chlorophyll filtration. RIGHT: Liz measuring water clarity with a Secchi disk.



Marina Schwartz is the new Data Manager for Florida LAKEWATCH. Marina designs and maintains LAKEWATCH's data management and sharing systems and supports LAKEWATCH staff in research, teaching, and extension activities. Marina has been with LAKEWATCH since 2018.

Marina is a Florida native from the Tampa area. Marina received her Bachelor of Science degree in Integrative Animal Biology from the University of South Florida in 2016 and a Master of Science Degree in Fisheries and Aquatic Sciences from the University of Florida in 2019.

Marina and her husband, Andy, love to travel, and enjoy finding new hiking, camping, and fishing adventures across the United States. She is always in pursuit of the perfect cup of coffee. You can contact Marina at: (marinaschwartz@ufl.edu) or (352) 273-3640



Dr. Zhuona Li is the Scientific Laboratory Manager for LAKEWATCH. She is responsible for overseeing daily operations and managing the lab staff. Since 2014, she has been a resident of Florida and holds a PhD in analytical toxicology, along with master's and bachelor's degrees in environmental science. Throughout her career, Zhuona has actively participated in

projects related to marine and lake environmental impact assessments. Feel free to reach out to Zhuona at zhuonali@ufl.edu.



Dr. Liz Moreau is the new LAKEWATCH Extension Manager and will work closely with the Regional Coordinators and Director in support of the Mission and Goals of the program. She also edits the newsletter!

Liz is a newcomer to the field of limnology, coming to us with a marine ecology background.

But don't hold that against her! Having lived her first 20 years in Ohio and Michigan she gained an early appreciation for freshwater ecosystems and recreation. Since then, she has lived in four states (WA, AK, NH, SC) and two countries (Ecuador, Costa Rica) before landing in Florida in 2017 for her PhD studies at UF.

Liz brings a wealth of relevant research skills and citizen science experience to LAKEWATCH! Her research has focused on crustacean fisheries and disease ecology, working with various stakeholders to address applied scientific questions. She has also worked extensively with citizen scientists and their data in her role as a sea turtle biologist for the state of South Carolina.

In her free time Liz enjoys kayaking, scuba diving, camping, gardening, and spoiling her dog, Juniper, and cat, Huxley. She also loves traveling, learning about new cultures, and exploring naturally beautiful places.

You can contact Liz at: duermite@ufl.edu or (352) 273-3611



LAKEWATCH data is used in new research!

LIMNOLOGY AND OCEANOGRAPHY
Letters

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LETTER

Impacts of residential fertilizer ordinances on Florida lacustrine water quality

Samuel J. Smith • Diego Aviles, E. Fay Belshe, Alexander J. Reisinger

Department of Soil, Water, and Ecosystem Sciences, University of Florida, Gainesville, Florida

Scientific Significance Statement

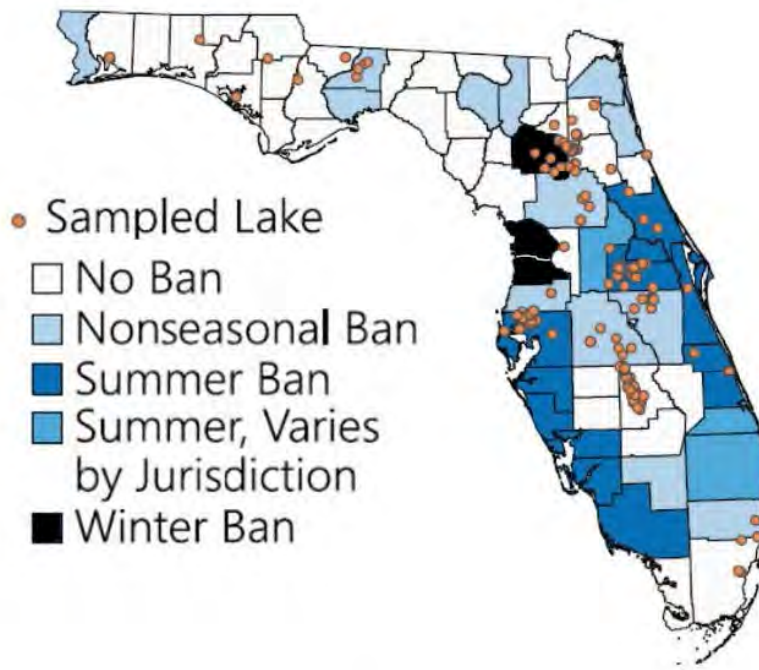
Residential fertilizer ordinances are widely adopted in populated coastal regions as a best management practice for mitigating nutrient loading to prevent toxic algal blooms, groundwater contamination, and other ecosystem disruptions. However, few studies have analyzed the impacts of these ordinances, leaving a critical knowledge gap between ordinance design/implementation and their impacts on environmental systems. Moreover, the impacts of these ordinances at larger spatial (e.g., statewide) and temporal scales (e.g., decades) remain largely unknown. Here, we analyze long-term ordinance impacts on four water quality metrics (total phosphorus, total nitrogen, chlorophyll *a*, and Secchi depth) across Florida lakes under different ordinances. Results show fertilizer ordinances favorably impact water quality metrics and winter fertilizer bans are the most comprehensive and effective relative to other ordinance types.

Abstract

Despite the assumption that residential fertilizer ordinances improve regional water quality, their impacts across space and time largely remain unknown. Here, we analyze changes in water quality of lakes throughout the State of Florida from 1987 to 2018, comparing trends in water quality parameters before and after implementation of county-wide fertilizer ordinances. We used a large dataset of publicly collected water quality data and linear mixed models to analyze ordinance impacts on total nitrogen, total phosphorus, chlorophyll *a*, and Secchi depth across 160 lakes throughout Florida. We further analyze water quality impacts relative to the type of ordinance (winter fertilizer ban, summer ban, nonseasonal ban, no ban). We found fertilizer ordinances favorably impacted lacustrine water quality, and winter (dry season) fertilizer bans had the greatest effect across all water quality metrics. Results of this study can be used to support the effectiveness of fertilizer ordinances across humid tropical and subtropical climate regions.

In 2022, UF researchers from the Department of Soil and Water Sciences published a new paper on the effectiveness of residential fertilizer bans on water quality across Florida. And they used data that you collected as part of the LAKEWATCH program! More specifically, they used data from our lakes with data from before and after fertilizer bans began in the mid 2000s. With a few other filtering criteria, this gave them 160 lakes, shown in the map below, which they then categorized by the county residential fertilizer ordinance:

- Summer ban (fertilizer is prohibited during the summer wet/growing season)
- Winter ban (fertilizer is prohibited during the winter dry/dormant season)
- Nonseasonal ban (restrictions after seeding or sodding)
- No ban (fertilizer can be used whenever)



The map of 160 LAKEWATCH lakes used in a recent study on the effectiveness of seasonal fertilizer bans on lake water quality.

Overall, a lot more research is needed to fully understand the effects of fertilizer bans in our state, but this study suggests that winter bans decrease nutrient loading slightly more than other types of bans. If you would like to learn more about this study or fertilizer bans in general, see the following resources:

- **Manuscript** <https://doi.org/10.1002/loi2.10279>
- **UF /IFAS Extension document** <https://edis.ifas.ufl.edu/publication/SS724>
- **Blog post** <https://blogs.ifas.ufl.edu/news/2022/09/06/study-shows-fertilizer-ordinances-improve-water-quality-but-timing-matters/>
- **Fertilizer ordinance map** <https://ffl.ifas.ufl.edu/fertilizer/>



Ask the Experts



We are introducing a new section of the LAKEWATCH newsletter called Ask the Experts! In it, we will use our collective knowledge and enlist advice from outside experts to answer your most burning questions related to our lakes, rivers, and coastlines. So, please email your questions to fl-lakewatch@ufl.edu and include “Ask the Experts!” in the subject line. We look forward to hearing from you!

For this inaugural column we are answering a question that we’ve been asked a lot recently:

I'm seeing more filamentous algae in my lake; what is causing this and how can I get rid of it?



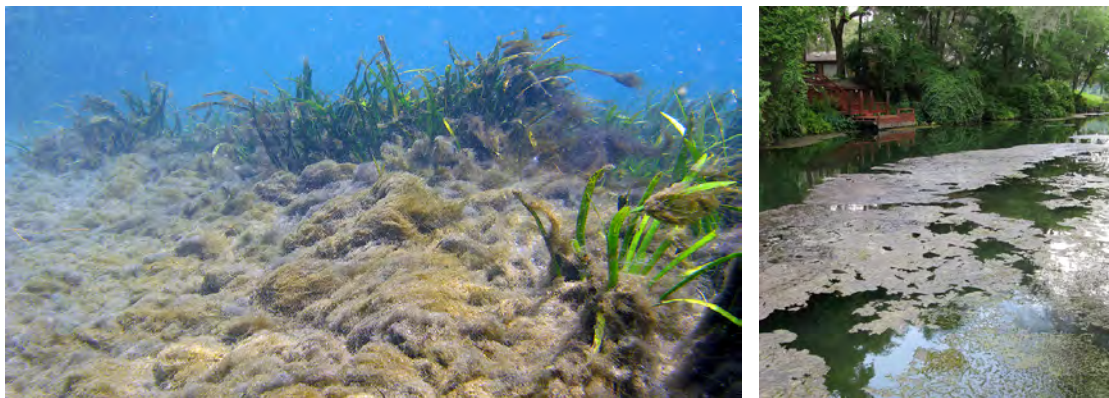
Featured Expert: Dr. Dail Laughinghouse, Associate Professor of Applied Phycology at UF/IFAS Fort Lauderdale Research and Education Center.

First, what are you seeing?

There are several types of filamentous algae affecting Florida lakes. Green algae, such as *Spirogyra*, *Pithophora*, and *Cladophora* can grow to massive and unpleasant concentrations but do not produce toxins. On the other hand, blue-green algae, or cyanobacteria, can be toxin-producing. You may have heard these filamentous cyanobacterial blooms called “*Lyngbya*” - even by us here at LAKEWATCH! However, using advanced molecular methods, Dr. Laughinghouse and other researchers have found a variety of algae species in Florida’s freshwater, but true *Lyngbya* species may not be here. One of the most common *Microseira wollei*, which taxonomists renamed from *Lyngbya wollei*. We now refer to this group of cyanobacteria species as “Lyngbya-like”

What do they look like?

Lyngbya-like algae can produce thick mats attached to the bottom of lakes and rivers, typically in clearer waters with a lot of light available. These mats are often dark blue to black in color when they start growing. Trapped gases can cause them to detach from the lake bottom and float to the surface, turning them lighter yellow or orange in color. Often, these filamentous algae blooms disappear as quickly as they appear.



Lyngbya-like filamentous algae on the benthos (left) and detached mats of floating Lyngbya-like algae on the surface (right). Photos courtesy of the Center for Aquatic and Invasive Plants.

Are Lyngbya-like algae a problem?

Whether on the benthos (lake bottom) or surface, these mats are often undesirable to lake users. They can shade out other aquatic plants, can contain toxins, smell unpleasant as they decompose, and complicate fishing, swimming, and other recreational activities. At this time the cause of these blooms and why they disappear is unclear, though it is likely related to excess nutrient availability. Some reports suggest that Hydrilla removal may free up nutrients that the cyanobacteria use to grow (see Cowell and Botts 1994 for more details).

How do you control Lyngbya-like algae?

Once established, cells from filamentous algae can easily move between waterbodies on boat hulls, in bilge water, and by many animals, so it is important to implement control measures as early as possible. Many of the familiar control measures used on other aquatic weeds (outlined in our circular [“A Beginner’s Guide to Water Management – Aquatic Plants in Florida Lakes”](#)) can be helpful.

Mechanical control using harvesters to remove floating filamentous mats can help with dense algae growth, but it doesn't help prevent future problems or remove the algae attached to the lake bottom. Chemical control including algaecides control growth because they are toxic to the algae or bind nutrients to limit growth. Application of algaecides should always be done in consultation with a lake management professional and in accordance with applicable regulations.

Cowell, B.C. and Botts, P.S. 1994. Factors influencing distribution, abundance and growth of *Lyngbya wollei* in central Florida. *Aquatic Botany* 49(1):1-17.



Volunteer Highlight



Tom & Peggy Prevost

Santa Fe Lakes, Alachua County

Written by Florida LAKEWATCH Extension Manager, Liz Moreau



The Prevosts enjoying a day of sampling.

Tom and Peggy Prevost adore their lake – Lake Santa Fe and its smaller basins, Melrose Bay and Little Santa Fe Lake, which they have been sampling for LAKEWATCH for nearly 34 years! In that time, they have only missed a handful of samples, racking up 433 months of sampling from their beloved 24 foot Sea Auk, “the Big Easy”.

The boat’s name harkens back to Tom’s childhood in New Orleans; but he spent his summers in Melrose with his grandparents, who built the house that Tom and Peggy now live in, right on Melrose Bay. Thus, Tom fell in love with his lake at a young age and moved to the area upon graduating from high school. He soon met Peggy and they grew their family, raising three daughters to love the lake as well.

They spend as much time as possible on the lake fishing, bird watching, and water skiing. He claims that their impressive sampling record is simply because their schedules and abilities allow it, though it’s clear there is also deep passion for conserving the beauty and function of this precious natural resource. In addition to the regular monthly LAKEWATCH sampling, Tom and Peggy have participated in various research projects over the years. One such project involved sampling of 36 stations to assess whether nearby farmland was adding fecal coliforms to the lake water. That’s dedication!

When asked if he has a favorite memory on the lake, Tom says:

“When I look out, you never know what you’re going to see in the mornings. It’s a blessing... The natural beauty that we’re able to see...so you have an interest in keeping the lake and water quality good.”

We here at LAKEWATCH appreciate this interest and offer Tom and Peggy our sincerest thanks for being such dedicated, long-term volunteers!



Featured Fish



Black Crappie

Scientific name: *Pomoxis nigromaculatus*

Written by Regional Coordinator, Dan Willis



Black crappie or commonly called speckled perch are a deep bodied, silver fish that is mottled either green or black.

You often hear the phrase “Florida is the Speckled Perch Capital of the World”, leading many cities like Okeechobee to have a [Speckled Perch Festival](#) (March 9th & 10th, 2024). Black Crappie are prized fishery and fished for sport (state record 3.83 lbs.) but in many counties in Florida, they are also a local subsistence fishery for people. The daily bag limit is 25 per person per day and the possession limit is two days bag limit per licensed angler ([FWC Freshwater Fishing Regulations](#)).

Unlike other panfish, such as bluegill and redear sunfish, they are found throughout most of their life in open water, where they will associate with structure if possible. During their spawning season (February to March) they will move inshore. The males will clear the beds for spawning and guard them. Crappie are fished for all year, but fishing pressure increases when the crappie moves inshore to the littoral areas to spawn.



Regional Coordinator Dan Willis with a day's catch. Photo credit: M. Hoyer

Our recently retired director (Mark Hoyer) and I went out on Newnan's Lake in January and caught some crappie for ourselves; they were delicious. It is a great time to go catch a speckled perch.

- **Diet:** Juveniles feed on insects, insect larvae, crustaceans, and zooplankton. Adults eat small fish such as minnows, shad, other juvenile panfish, and grass shrimp.
- **Distribution** : Black crappie is distributed from the Great Lakes south to Florida and west to Texas. However, they have been introduced across the United States.
- **More information** : [FWC's Black Crappie profile](#).



Featured Bird



Sandhill Crane

Scientific name: *Antigone canadensis* (formerly *Grus canadensis*)

Written by Florida LAKEWATCH Extension Manager, Liz Moreau

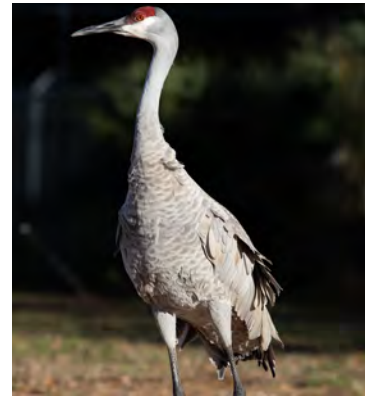
Our unmistakable migratory visitors are here for the winter! Though common year-round in a few parts of the state, most of Florida experiences their loud, rattling "kar-r-r-r-o-o-o" as they fly overhead or their laid back attitude as they walk (slowly) in front of your car in the winter months. These represent two subspecies: the non-migratory Florida sandhill crane, *Antigone canadensis pratensis*, and the migratory greater sandhill crane, *A. c. tabida*.

[Audubon Range Map](#)

Sandhill cranes are a long-legged bird with a patch of bald, red skin on top of their head.



Florida is home to 4,000 to 5,000 non-migratory sandhills cranes but their population increases 6x every winter when 25,000 migratory birds that nest in the Great Lakes region join them! Cranes are often attracted to urban and suburban areas for feeding and can interfere with our property. However, it is important to remember that these birds are protected by the Migratory Bird Treaty Act, making it illegal to harass or harm them. Instead, admire from a distance and consult [FWC's Living with Sandhill Cranes](#) for ideas on how to coexist with these feathered



Photos courtesy of UF/IFAS Communications

- **Diet:** Omnivorous. Insects, roots of aquatic plants, rodents, snails, frogs, berries, seeds.
- **Threats :** Habitat loss
- **More information :** [FWC's Sandhill Crane profile](#), [Audubon Guide](#)



Reminders

Who you gonna call?

Make sure you are getting in touch with the right person for you! Regional Coordinators are the support for new and existing volunteers and are usually the first point of contact for the public to ask questions about Florida's waterbodies. They train and coordinate with volunteers to collect water, help compile the data and disseminate the information back to the volunteers and the general public. There are currently two coordinators Dan Willis and Jason "MO" Bennett and they each serve a specific region of the state. The area and contact information for each Regional Coordinator can be found below. We look forward to assisting you!

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Mo's Region:

Alachua	Lafayette
Baker	Lake
Bay	Leon
Bradford	Levy
Calhoun	Liberty
Citrus	Madison
Clay	Marion
Columbia	Nassau
Dixie	Okaloosa
Duval	Putnam
Escambia	Santa Rosa
Flagler	Seminole
Franklin	St. John's
Gadsden	Suwannee
Gilchrist	Taylor
Gulf	Union
Hamilton	Volusia
Holmes	Wakulla
Jackson	Walton
Jefferson	Washington

Dan's Region:

Brevard	Manatee
Broward	Martin
Charlotte	Miami-Dade
Collier	Monroe
Dade	Okeechobee
De Soto	Orange
Glades	Osceola
Hardee	Palm Beach
Hendry	Pasco
Hernando	Pinellas
Highlands	Polk
Hillsborough	Sarasota
Indian River	St. Lucie
Lee	Sumter

Florida
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Dan: djwillis@ufl.edu or (352) 273-3638, MO: jpb@ufl.edu or (352) 273-3639

Broken Bottles



Cracked bottle from recent sample collection

The LAKEWATCH Lab has been receiving nutrient bottles that are in rough shape. These are the smaller bottles that you fill and freeze each time you sample. We reuse these bottles for as long as possible to save money for the program and keep as many lakes in the program as we can. Please follow the tips below to help us keep using these nutrient bottles:

- Please do not write on the bottles. Make sure to write on the labels only.
- Don't overfill them. The water expands as it freezes and will crack the bottles.
- Be careful when handling frozen bottles as they can crack easily.

Please complete your data sheet!

You work hard for your data so don't forget the little things. Data sheets without sampling and filtering times and dates must be entered with "qualifiers", which means they won't be as useful to DEP and researchers.

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	Sampling Time
Sta 1 2 ft. 1/4 1/2 3/4	1	1 = full sun	8 ft. 1/4 1/2 3/4	10:00 AM
Sta 2 1 ft. 1/4 1/2 3/4	3	2 = haze over sun	9 ft. 1/4 1/2 3/4	10:20 AM
Sta 3 2 ft. 1/4 1/2 3/4	2	3 = thin cloud	8 ft. 1/4 1/2 3/4	10:45 AM
Sta 4 ft. 1/4 1/2 3/4		4 = medium cloud cover	ft. 1/4 1/2 3/4	
Sta 5 ft. 1/4 1/2 3/4		5 = heavy cloud cover	ft. 1/4 1/2 3/4	

Date and Time of Chlorophyll Filtration:

Station	Filtering Date	Filtering Time
Sta 1	August 14, 2020	11:30 AM
Sta 2	August 14, 2020	11:45 AM
Sta 3	August 14, 2020	12:00 PM
Sta 4		
Sta 5		



The LAKEWATCH newsletter is edited by Dr. Liz Moreau. You can reach out with questions, comments, or feedback at duermite@ufl.edu