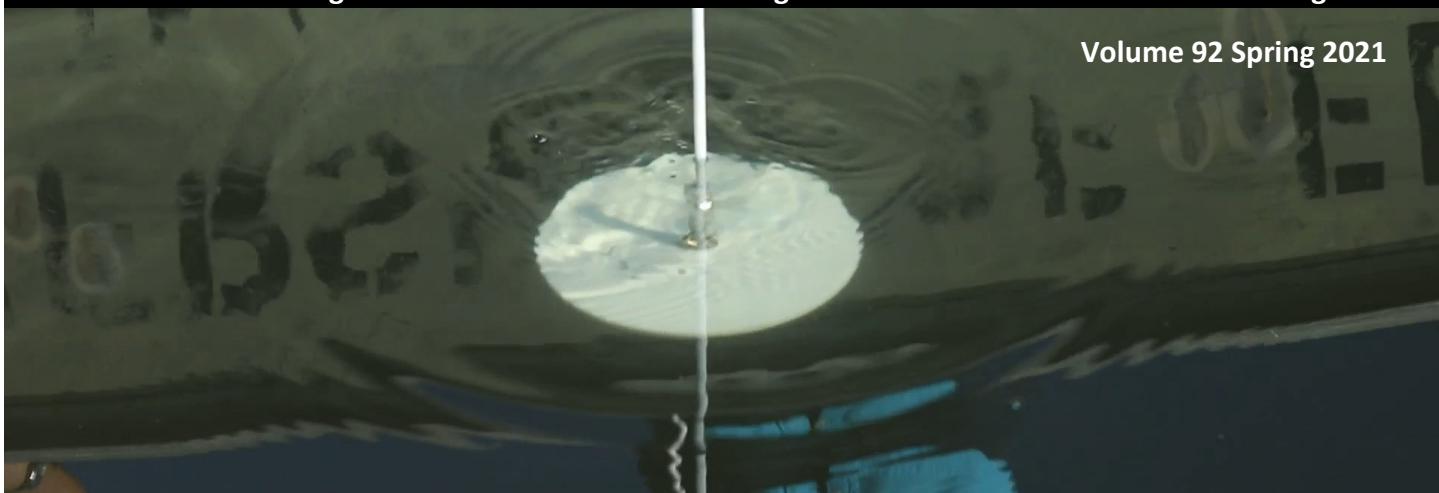




LAKEWATCH

Dedicated to Sharing Information About Water Management and the Florida LAKEWATCH Program

Volume 92 Spring 2021



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LAKE APPRECIATION MONTH AND THE SECCHI DIP-IN

BY MARK HOYER

Many authors from around the world and throughout history have used the term “Jewels” to describe lakes. Closer to home, J. N. MacGonigle (1896) in a National Geographic Article described lakes in central Florida this way: “Dotting the landscape, like jewels of crystal in a field of green, are numberless lakes, varying in size from a gem-like lakelet to the broad expanse of Okeechobee”. The term Jewel is an excellent descriptor because our Florida Lakes are both precious and beautiful.

LAKE APPRECIATION MONTH (July 2021) AND THE SECCHI DIP-IN (CONTINUED)

The North American Lake Management Society (NALMS) strives to protect and promote the value and beauty of lakes. Thus, in 1998 NALMS launched Lakes Appreciation Week to focus attention on lakes and reservoirs, their unique value as well as the management issues they face. Then in 2003 Lakes Appreciation Week grew into a month long celebration thanks to the help of EPA's Year of Clean Water celebration that honored the 30th anniversary of the Clean Water Act. For the past 18 years, NALMS has been encouraging lake lovers to celebrate Lakes Appreciation Month during the month of July. Last year (2020), Governors from 13 different states signed proclamations declaring July as Lake Appreciation Month. We have asked and hope that this year Florida's Governor, Ron DeSantis will also follow suite and declare this July as Lake Appreciation month.



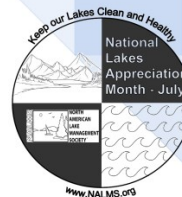
**MARK HOYER,
LAKEWATCH DIRECTOR**

One way Florida LAKEWATCH volunteers have helped and will continue to help promote Lake Appreciation Month is to participate in the Secchi Dip-In. This July 2021, we ask volunteers and LAKEWATCH friends to go out on their lake and measure water clarity with a Secchi Disk (training video: <https://lakewatch.ifas.ufl.edu/for-volunteers/training/>) and submit the data to NALMS (see next article, Lakes Appreciation Month—July 2020 Accomplishments). The Secchi Dip-In is a demonstration of the great potential of volunteer monitors to gather environmentally important information on our lakes, rivers, and estuaries. Volunteers have been submitting information during the annual Dip-In since 1994. This year please join everyone in this international effort to track changes in water quality!

Florida LAKEWATCH Director
Mark Hoyer

Lakes Appreciation Month - July

2020 Accomplishments



The History

It was 1998 when NALMS launched Lakes Appreciation Week to focus attention on lakes and reservoirs, their unique value as well as the management issues they face. Then in 2003 Lakes Appreciation Week grew into a month-long celebration thanks to the help of EPA's Year of Clean Water celebration that honored the 30th anniversary of the Clean Water Act. For the past 18 years, NALMS has been encouraging lake lovers to celebrate Lakes Appreciation Month during the month of July.

States & Provinces

(2020 Signed proclamations declaring July as LAM)

Arkansas
British Columbia
Colorado
Florida
Indiana
Oklahoma
Ontario
North Dakota
Pennsylvania
Utah
Washington
Wisconsin
Vermont

The Goal

To give back, say thanks in a way that helps improve and protect our nation's lakes and reservoirs. Lakes provide so much for each of us – from our daily cup of coffee to enjoying the aquatic sceneries. LAM is a time to learn about your lake and watershed and to help make a difference. July is a great time for LAM. It is when many people are on or near the water.

July is the best time to give back. Here are some ideas for a lake event in July: organize a shoreline clean up, hand out free fishing poles, arrange for free boat rides and canoe lessons, hand out free t-shirts with the new Lakes Appreciation Month design, find volunteers to participate in the **Secchi Dip-In**, and free food is always a hit. There are many other ideas that can be found at www.nalms.org or www.epa.gov/lakes.

Poster Contest

NALMS brought the popular LAM poster contest back in 2020. NALMS received nearly 60 entries from elementary to high school. Eliot Lundt from East High school in Denver, CO was the winner. The online poster contest was a great success.



Thank you to our 2020



Sponsored by the North American Lake Management Society (NALMS)

Lakes Appreciation Month - July

2020 Accomplishments

Events

July was a time to participate in LAM events across North America. Many organizations put on annual LAM events while maintaining social distancing. The Secchi Dip-In, a citizen-based water clarity data collection, occurs every July. Thousands of water clarity readings were collected in July 2020.

Highlight – Barr Lake State Park

Over 200 volunteers showed up for the 15th annual LAM event. A shoreline cleanup resulted in removal of over 2 tons of trash from Barr Lake.



What you can do in 2021

LAM can happen in any month. There are daily actions that help lakes and your watershed. Here is a short list of LAM ideas that you can help plan for July of 2021:

- Become a LAM sponsor (www.nalms.org/lakes-appreciation-month)
- Organize a shoreline cleanup
- Spread the word about the online LAM poster contest
- Get your government officials to sign a LAM proclamation for July
- Get local dignitary to take an official Secchi depth reading for the Secchi Dip-In
- Write an article about how your community can help your lake
- Learn something new about lakes and reservoirs
- Get a restaurant to donate a percent of their proceeds to a local lake association
- Join NALMS and/or your local lake association
- Find local sponsors to support a LAM event
- Use phosphorus-free lawn fertilizers
- Team up with lake user groups (fish, swimmers, boaters, birders, watersheds, science based, etc...)
- Mark storm drains that lead to local water ways
- Participate in a local citizen-based science group to help collect water quality data
- Visit www.nalms.org to see what is happen with lake and reservoir management
- Join existing July events based around lakes and reservoirs



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WATER LETTUCE, *Pista stratiotes*: NATIVE, INVASIVE, OR DOES IT REALLY MATTER? (PART 1 OF 2)

BY DR. JASON FERRELL



DR. JASON FERRELL,
UF/IFAS Center for Aquatic
and Invasive Plants Director

Water lettuce is an extremely common floating plant in Florida. This leafy plant can be observed from north to south and has the tendency to reach high and

dense populations. Because of its ability to multiply rapidly, water lettuce is one of the most commonly targeted plants for management in state waters. The guiding principle behind plant management is to reduce the population of invasive plants and therefore promote the growth of native plants. The controversy lies in the fact that experts disagree on whether water lettuce is native or invasive. Some excellent genetic data seems to imply it originated from the near east region many millions of years ago and ancient fossil records show the plant occurring in India, Germany, and other European locations. Conversely, William Bartram clearly documented this plant in Florida in the 1700's and fossil records have also been found in Wyoming. So, which is it? Native?

Invasive? Or does it really matter? To discuss this, let us start with an understanding of what invasive plants really are.

Invasive plants are not just troublesome, they are the most damaging plants in any ecosystem. By definition, an invasive plant originates from a foreign habitat and is known, or likely to cause, environmental or economic harm or harm to human health. Some have said next to construction/development, invasive plants are the greatest threat to natural environments and biodiversity. This sentiment is believed because invasives have the tendency to take over and dominate ecosystems (e.g. environmental harm). Conversely, native plants originated in a given ecosystem and are often observed to live in harmony with a great diversity of other species.

Based on these definitions and the desire to promote biodiversity, biologists have successfully promoted the concept that invasive plants are bad and native plants are good. It is a simple, black and white message. Although this message is generally true, reality is often more nuanced than this. Are all invasive plants 100% bad with no redeeming qualities?



Well, not necessarily. In certain, limited situations, invasive plants can provide habitat for native animals. Can some native plants be weedy and troublesome? Sure. Crabgrass seems to be present in lawns and sidewalks in every neighborhood. Carolina willow and cattail commonly require management when they overgrow and cause problems in lakes and streams. Rather than just seeing plants in terms of native = good and invasive = bad, a 3rd type of plant should be considered: the nuisance species. A nuisance plant is one that causes management issues, possesses a threat to public safety or is an annoyance. Nuisance plants often require management and can be either native or invasive.

So back to water lettuce. Is it native or invasive? Honestly, this fact is unknown and may never be known. A better question is this: is water lettuce a nuisance species? To me, this is much clearer and easier to

answer. Let us circle back to Bartram, where he describes the plant like this:

“ It is remarkable that at the entrance of the river into the great lake there floats prodigious quantities of the pistia, which grows in great plenty most of the way from hence to the head of the river, and is continually driving down with the current, and great quantities lodged all along the extensive shores of this river and its islands, where it is entangled with a large species of water-numularia, persicaria, water-grass, and saxifrage...growing all matted together in such a manner as to stop up the mouth of a large creek, so that a boat can hardly be pushed through them, though in 4 foot water; these by storms are broke from their natural beds and float down the river in great patches...”

Based on Bartram's description, an infestation of this size can easily harbor millions of mosquito larvae, impede water

flow and increase the potential for flooding, while also shading out acres of desirable submersed plants – thus reducing biodiversity. So, is water lettuce native or invasive? We don't know. Is it a nuisance species? Clearly. Should it be managed to reduce the impact on the environment? For a plant capable of such massive proliferation, management is essential.

This naturally sets up the next question. If water lettuce has been in Florida since Bartram's days when no management was conducted, why does it need to be managed now? Should nature take care of

itself? These are excellent questions, but the answers will have to wait for the next article.

<https://academic.oup.com/sysbio/article/53/3/422/2842865>

Diary of a Journey through the Carolinas, Georgia, and Florida from July 1, 1765, to April 10, 1766. – John Bartram and Francis Harper. P 39. Transactions of the American Philosophical Society, Vol. 33, No. 1 (Dec., 1942).

Dr. Jason Ferrell, UF/IFAS CAIP Director, wrote this piece. Any questions should be directed to Shelby Oesterreicher at soesterreicher@ufl.edu. For more information about the UF/IFAS Center for Aquatic and Invasive Plants, please visit <http://plants.ifas.ufl.edu>. Be sure to follow us on social @UFIFASCAIP.

UF/IFAS CAIP, Turning Science Into Solutions.

Part 2 of this article will be published in the next LAKEWATCH Newsletter

WATERBODIES IN NEED OF VOLUNTEERS

The table below lists some of the lakes requested to be monitored by the Florida Department of Environmental Protection.

Waterbody Name	County	Latitude	Longitude
WATERMELON POND	Alachua	29.5504	-82.615
DEAD LAKE (WEST ARM)	Gulf	30.1340	-85.1983
LAKE LINDSEY	Hernando	28.6299	-82.3664
COMPASS LAKE	Jackson	30.5961	-85.3843
MCCORMICK LAKE	Jackson	30.6365	-85.3329
LAKE IDA	Putnam	29.6302	-81.8573
MILL DAM LAKE	Marion	29.1797	-81.8403

PAINT, POLLEN, OR OTHER?

BY JASON “MO” BENNETT

LAKEWATCH receives many interesting questions/observation about lakes, rivers and estuaries from observant Citizen Scientists while they take their monthly samples. Occasionally, we get reoccurring questions from multiple volunteers that are worth sharing with our whole LAKEWATCH family. For example, in February of this year we were contacted by a volunteer in northern Florida about an orange substance pooling up along the shoreline of their neighborhood pond.

A few of the benches along the shoreline of this pond had recently been repainted and to our volunteers eye the color of the substance in the water matched the color of the new paint. So he asked the painters if any of the paint from the benches could have gotten into the water. The painters

replied that all benches were taken back to the shop to be painted, that no painting had occurred at the pond, and that the paint was completely dry before the benches were reinstalled. Unconvinced our volunteer took a scrap piece of wood, dipped it into the orange colored water, compared it to the bench, and sent the photos on to LAKEWATCH to get our opinion.

While accidents and spills sometimes happen, they are extremely rare and large color changes in waterbodies can happen for several natural reasons. In the case above, LAKEWATCH has seen similar pictures over the years (especially in early spring) and in each case the change in color was caused by an algal bloom by a species called *Botryococcus sp.* This is a green alga that contains orange, yellow, and/or brown pigments. When the cells die and rupture, they release these pigments that can create a colored “sheen” across the top of lakes and ponds. Thus, the painters were innocent of spilling paint in the pond and just unlucky enough to pick a color similar to that of a *Botryococcus* bloom. After hearing this answer from LAKEWATCH, the volunteer used a microscope for a final test to confirm that the color was indeed from a living organism floating around in their pond!



PHOTO CREDIT: JOHN SHEPARD



Similarly, every spring LAKEWATCH also receives several calls about lakes turning yellow. During spring and early summer, trees such as pine and oak release pollen in large quantities. Pollen grains are very small, and are easily carried with the wind to water surfaces. This surface cover is yellowish in color, and may appear like a paint slick or algae bloom from a distance. It can also appear as clumps, and may collect in coves, or stain rocks as water levels drop later in the summer. On the water surface, the pollen grains eventually become waterlogged, and sink to the bottom. In fact, it is this annual release and settling of pollen that allows scientists to determine past climate conditions using lake sediment cores by determining what tree species the pollen originated from,



If you want to learn more about *Botryococcus* visit our website for more articles:

<https://lakewatch.ifas.ufl.edu/media/lakewatchifasufledu/extension/newsletter/FLWNewsletterVol16.pdf> (Page 8)
<https://lakewatch.ifas.ufl.edu/media/lakewatchifasufledu/extension/newsletter/FLWNewsletterVol58September2012.pdf> (Page 4)

and in what quantities it is present. LAKEWATCH enjoys the questions from observant Volunteers, so keep them coming!

OUR RECENT PUBLICATIONS

Restoration of Lake Okeechobee, Florida: mission impossible?

Daniel E. Canfield Jr. , Roger W. Bachmann & Mark V. Hoyer

Link to this article: <https://doi.org/10.1080/10402381.2020.1839607>

ABSTRACT

Legally mandated eutrophication restoration goals for Lake Okeechobee (FL) are unachievable, therefore assigning managers a “mission impossible.” Since the 1970s, restoration efforts have focused on reducing pelagic total phosphorus (TP) to ~40 µg/L. A total daily maximum load (TMDL) of 140 metric tons (t)/yr was adopted by the Florida Department of Environmental Protection in 1999 (effective date 2015) to restore the lake’s balance of flora and fauna. Phosphorus (P) loads (1975–2018) averaged 516 t/yr with no significant change over time, yet average TP significantly increased from 51 µg/L (1974–1977) to 146 µg/L (2015–2019). Greater TP values in 2019 were due to Hurricane Irma and an early June storm event. Annual P-loads and pelagic TP were not significantly correlated. Instead, TP was strongly correlated with turbidity ($R^2 0.85$), which is generated by wave-driven resuspension of P-rich unconsolidated sediments. Since 1973, >13,000 t of TP has been added to Okeechobee’s sediments that have accumulated over the past century due to the lowering of water levels and the construction of the Herbert Hoover Dike. Prior to settlement, high water levels allowed turbid lake waters to flood large areas of adjacent wetlands, where suspended sediments were removed from the lake. With the minimization of this self-cleansing mechanism after construction of the Herbert Hoover Dike, P-rich fine sediments accumulated, and periodic hurricanes disrupted consolidated sediments. Unconsolidated sediments are easily resuspended into the water column, raising TP. Efforts to reduce Okeechobee’s pelagic TP through reductions of P-loads alone will not work due to sediment accumulation and resuspension.



**SCHOOL OF FOREST,
FISHERIES, AND
GEOMATICS SCIENCES**

Legacy herbicides in lake sediments are not preventing the growth of submersed aquatic plants in Lake Istokpoga

Mark V. Hoyer, William T. Haller, Jason Ferrell, and Dean Jones

Link to this article: www.apms.org/2020/01/journal-of-aquatic-plant-management-volume-58-2020/

ABSTRACT

Stakeholders concerned about the lack of submersed aquatic vegetation (SAV, primarily hydrilla [*Hydrilla verticillata* (L. F.) Royale] in Lake Istokpoga, FL, have hypothesized that legacy herbicides in sediments were the possible cause of reduced SAV growth for the past 3 yr. Bioassay experiments were conducted from sediments collected from nine stations located around Lake Istokpoga in areas identified by stakeholders in which hydrilla had previously grown. These were compared with sediments collected from three stations in similar Lake Tohopekaliga, FL, where hydrilla was currently growing. Tomato (*Solanum lycopersicum* L.) seeds were germinated in sediments from all stations in both lakes and control soils. Bare-root tomato transplants (3.8 cm [1.5 in] tall) planted in sediments from both lakes continued to grow and, when harvested, plant dry weights were similar to transplants planted in two control soils (pure sand and 1:1 ratio potting soil:sand). Hydrilla tubers were also planted in sediments collected from three stations in both lakes and control soils. Tubers germinated in sediments from both lakes and control soils, and the percentage of germination was not significantly different between lake sediments and control soils. Sediment samples from all nine stations in Lake Istokpoga were sent to laboratories for chemical analyses of the nine aquatic herbicides used in Lake Istokpoga during the past 10 yr, and all results were “nondetect.” Sixty cores were collected from areas with a history of hydrilla growth in Lake Istokpoga, and no hydrilla tubers were collected, suggesting little or no propagules are present for resumed growth of this SAV. Bioassays and sediment analyses indicate that legacy herbicides are not the cause of the decreased abundance of SAV in Lake Istokpoga.



MAINTAINING YOUR BOAT TRAILER

Now that the weather is warming up, it is important to remember your boat trailer maintenance! Thanks to The South Florida Aquatic Plant Management Society (SFAPMS) for the timely reminder. To learn more about SFAPMS you can visit their website at www.sfapms.org



1. Clean Your Trailer Regularly

You need to clean your boat trailer regularly, especially in marine applications. Salt, water, oxygen plus metal is a recipe for corrosion. Take some time to rinse your trailer with fresh water and dry it off; it could save you big time in the long run! Bear in mind that mud against metal can also lead to corrosion. Depending on the roads you travel on, you may need to give your trailer another bath back at home! Make sure the drain holes throughout the frame are clear, allowing water to drain effectively.

2. Treat Rust Properly

Remove any rust you find with a wire brush and treat this area with a galvanizing compound (75% zinc is best).

Joins and welds are particularly vulnerable to corrosion, so pay careful attention to these areas as you inspect the trailer.

3. Maintain the Suspension

While it is easy to spot problem areas on the general body of the trailer, the not-so-obvious parts of the trailer (like the suspension components) need to be checked for cracks and corrosion, too. Vibrations and friction during use can cause the protective coating on the springs to wear off, making them brittle and vulnerable to corrosion. Wash the suspension regularly and treat these components with a protective galvanizing compound when they're clean and dry; a few minutes of work can add years of life to this essential hardware!

Check and maintain the springs and axles at least twice a year, making sure to tighten all the bolts and U-bolts and replace any springs that are badly corroded.

4. Check the Coupling

A failure of the coupling could be disastrous! The ball should fit snugly in the hitch. Make sure the hitch is free of grit and is adequately greased (marine grease is usually your best option as it doesn't break down when exposed to saltwater). You'll most likely need to re-grease it every six months (roughly) or when you can't see any grease on the shaft. Don't forget to check that the fastener pin is secure, and the surrounding bolts are tight at the same time!

5. Maintain Hardware: Spindles, Rollers, Brackets and Split Pins

The moving parts of your trailer need to be checked and maintained regularly. Rollers that aren't functioning properly can drastically reduce the performance of your trailer making you dread launching and retrieval! Check that they're rolling freely (without any grit between the spindles and rollers) – a thorough cleaning should prevent this. Plan to replace any broken/worn ones you come across – with the correct tools; this shouldn't take you more than a couple of hours. Just do it – you'll thank yourself when your boat slides in and out of the water with ease! And of course, protect these moving parts from corrosion and wear with marine grease to prolong their lifespan (and reduce your maintenance work!).

Maintaining Boat Trailer Wheels

Wheels are a pretty big part of boat trailer maintenance and often the reason behind trailer breakdowns! Here's how to keep rolling.



6. Check and Re-grease Wheel Bearings

Your wheel should spin freely, quietly and shouldn't wobble when pushed sideways. To maintain your wheel bearings, keep them well-greased with marine grease. Before each trip, top up the grease, don't overdo it though as you might push out the back seal letting water get in. Routinely inspect and repack your wheel bearings – especially before prolonged storage, this will only take you about an hour. If your hubs are warm to the touch after use indicating internal friction (check this when you're filling up with gas), you know it's time to service your wheel bearings.

7. Re-tension Wheel Nuts

Make sure your wheel nuts are tight – you can't afford to have your wheel come off on the freeway! This is something you must check before each trip. There have

MAINTAINING YOUR BOAT TRAILER (CONTINUED)

been some cases of vandalism (locals weren't too happy with visitors discovering their secluded lake) where wheel nuts have been loosened/removed purposefully. Take care to check these (and count them!) before heading home, or you could be in for a nasty surprise!

8. Check the Tire Pressure (don't forget the spare!)

Sometimes giving your tire a good kick is enough to tell you if it needs pumping but it's still a really good idea to have the pressure checked before each trip – remember that your trailer tire pressure is higher than that of your vehicle's tires (typically pump them up to 50 PSI).

9. Check the Tire Tread

The tread should wear evenly. Uneven wear could mean your wheels need balancing or adjusting. Worn tires are extremely dangerous, especially in wet conditions so replace heavily worn tires as soon as possible (and keep the spare in good shape too!). Tires aren't cheap – a practical way to extend the life of your tires is to rotate them every 6 -12 months.

10. Treat the Wall of Tire (in Sunny Climates)

If your boat trailer tends to bake in the sun while you're out on the water, you'll need to protect the rubber on your tires from UV exposure. Just a quick protective

spray on the tires could prevent the rubber from perishing and dry rot setting in on the sidewalls.

11. Treat Wheel-Arches and Mudguards

Your wheels are almost always exposed to moisture and dirt during a boating trip. While these parts of your trailer aren't as crucial as others, it's still worth looking after them. Rust can sneak in on these parts so keep them clean and sprayed with a galvanizing compound to prolong their lifespan. If you've discovered any areas of rust on your boat or trailer, marine specific products, such as high grade marine rust remover, will help remove rust and oxidation from all metal surfaces.

12. Check the Brakes (if applicable)

Some boat trailers have their own brake system. If yours does, routinely check the pads, the brake fluid reservoir and test the breaks before a long trip (not on the freeway!). Something as simple as painting the wires can prolong their life significantly!

Hope these tips help keep your trailer safe and in tip top shape!

Happy boating!!!

Have a great photo from a day out on the water?

An inspiring story to share?

A fun fact or recipe?

We would love to see what you've got. Send your submissions to:

FL-LAKEWATCH@UFL.EDU



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