

THE LAKE JACKSON VOICE

Dedicated to your appreciation, enjoyment and stewardship of “The Jewel of Leon County”



This drone photo of Lake Jackson, courtesy Sean Ruane, was taken from the very dry northern part of Meginniss Arm on 02/27/22, while investigating the possible effect on Lake Jackson of a Feb.5 sewage spill in the southern part of Meginniss Arm. See the Ecological News column for more on the spill. See the Arts & Culture column for more on the Meginniss spelling.

The views expressed in the articles in this publication represent the views of the various authors writing in their individual capacities. The articles are chosen for the purpose of informing the community of issues relevant to Lake Jackson and its drainage basin, as part of the Education mission of the Friends of Lake Jackson. The content is provided “as is”; no representations are made that the content is error-free.



FRIENDS OF LAKE JACKSON

to preserve, enhance, & maintain

www.friendsoflakejackson.org

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November 2022

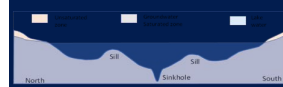
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FEATURE ARTICLES



Smallfruit
Beggarticks:
Adding gold to
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Next Publication will feature
articles on :

- Wetland Protection
- Lake Jackson Management

STATE OF THE LAKE

Water level

In the absence of a major tropical storm dumping enough water on Lake Jackson to durably “refill” it, water levels have been yo-yoing with rainfall, evaporation and bottom drainage over the last months, so as to alternately cover and uncover the Porter Hole Sink basin.



View from Faulk Dr. Landing, looking northeastward at sunrise on July 10



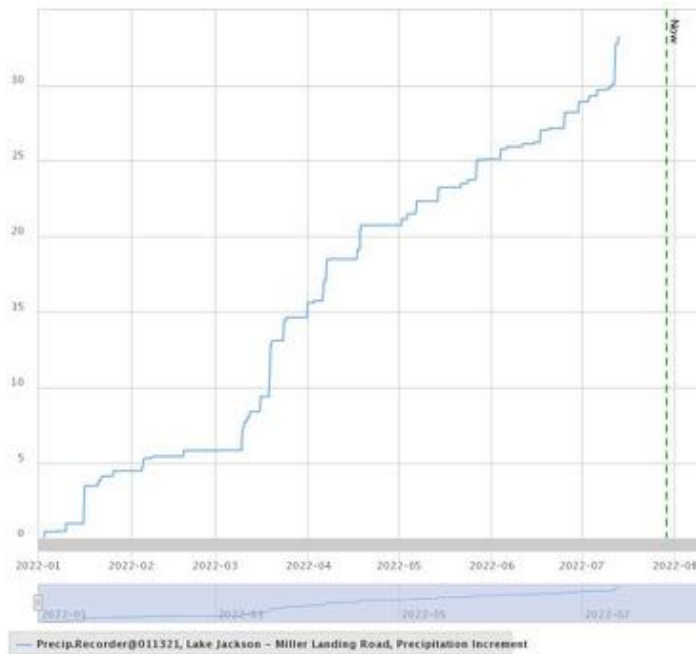
Same view on July 15, 22 after 2 ¾ in of rain fell on July 11

Consider the following figures, featuring the water level – stage – (first figure) and the precipitation (next figure) at the Miller Landing Northwest Florida Water Management District (NFWMD) gauge from January to mid July 2022 and generated from the NFWMD portal.



Values for the water level are in feet above mean sea level, aka ft msl (referenced to NAVD88, do not ask). The mean elevation over the whole period was roughly 79 ft, and changed by less than 1 ft above and below that value, from a minimum of 78.35 ft in the first half of March to a maximum of 79.9 ft in mid-April.

For context, the mean lake elevation at “full pool” is around 86 ft, whereas, around 78 ft, the lake is separated into distinct sub-basins with distinct elevations, dramatically so when the Porter Hole Sink basin goes dry. (See bathymetric map in the Ecological News column.) The mean January-July elevation was thus 7 ft below full pool. Porter Hole Sink was exposed during most of February, and then again in early July.



Values for precipitation are in inches and plotted as an accumulation, which is why the curve is always going up. When the curve is flatter, there is little or no rain, and the stage curve (above) goes down because of unabated evaporation and bottom drainage. See the mid January to beginning of March period, and the mid April to beginning of July period.

During heavier rains, the curve of precipitation increments becomes more vertical, and the stage curve goes up (despite unabated evaporation and bottom drainage). See the small mid January event, and the sustained series of events from beginning of March to mid April that amounted to over a foot of rain and thus over a foot in elevation gain.

Data source: <https://nwfwmd.aquaticinformatics.net/AQWebPortal>

On Nov. 2, the lake bottom got exposed again off Faulk Landing, showing the outlines of the steep topography around Porter Hole Sink. The canyon itself was exposed a few days later.

Read more on water levels and precipitation in the feature article “The Lake Jackson Dry-Down”.

Boat Landings

More water should have favored boating temporarily, but paradoxically the one remaining landing with enough water to launch vessels larger than a kayak, Crowder Landing, has been closed for repair and improvements. Vehicles and foot traffic are all impossible as Crowder Rd itself is closed ahead of the landing. The Leon County Department of Public Works, in charge of the landings, is working on:

- replacing the Boat Launch Ramp
- replacing failing pipes and retaining walls
- stabilizing the western shoulder of Crowder Road to reduce sediment load into the lake
- sprucing up the landscape and adding a shelter

For more details, a description of the project, called “Crowder Road Boat Landing Drainage Improvement Project”, can be downloaded from the Leon County website:

<https://cms.leoncountyfl.gov/Home/County-Projects>

On that document, completion is scheduled for 09/06/22. We are told that, after delays due to supply chain issues, it is now scheduled for the end of November, hopefully on time for part of the duck-hunting season.



Crowder Landing Rd closed to allow repair and improvement work at Crowder Landing. Expected completion end of November 2022.

We mentioned in our February issue that a gate had been installed at Faulk Dr. Landing to discourage driving on the lake bottom during dry-downs. Since then a gate has also been installed at Rhoden Cove Landing for the same purpose, as well as for discouraging unauthorized dredging.



The scenery off Rhoden Cove Landing resembles a wet prairie more than to a lake.

ECOLOGICAL NEWS

As mentioned in our State of the Lake column, water level (measured in feet above mean sea level -msl-) has been hovering a little over and a little below 79 ft msl since February, so on average about 7 ft below the 86 ft line generally recognized as “full pool” for Lake Jackson. The lake is thus still squarely in dry-down mode. As far as its ecological health is concerned, there are good news and not so good news, as presented below. On the bright side, there have been great sightings of birds and native plants. On the not so good side, there was a major sewage spill into Meginniss Arm and an Algal Bloom in Fords Arm. As anecdotally reported for years, the northern part of the lake, surrounded by less development, looked healthier than the southern part.

August 24 reconnaissance trip

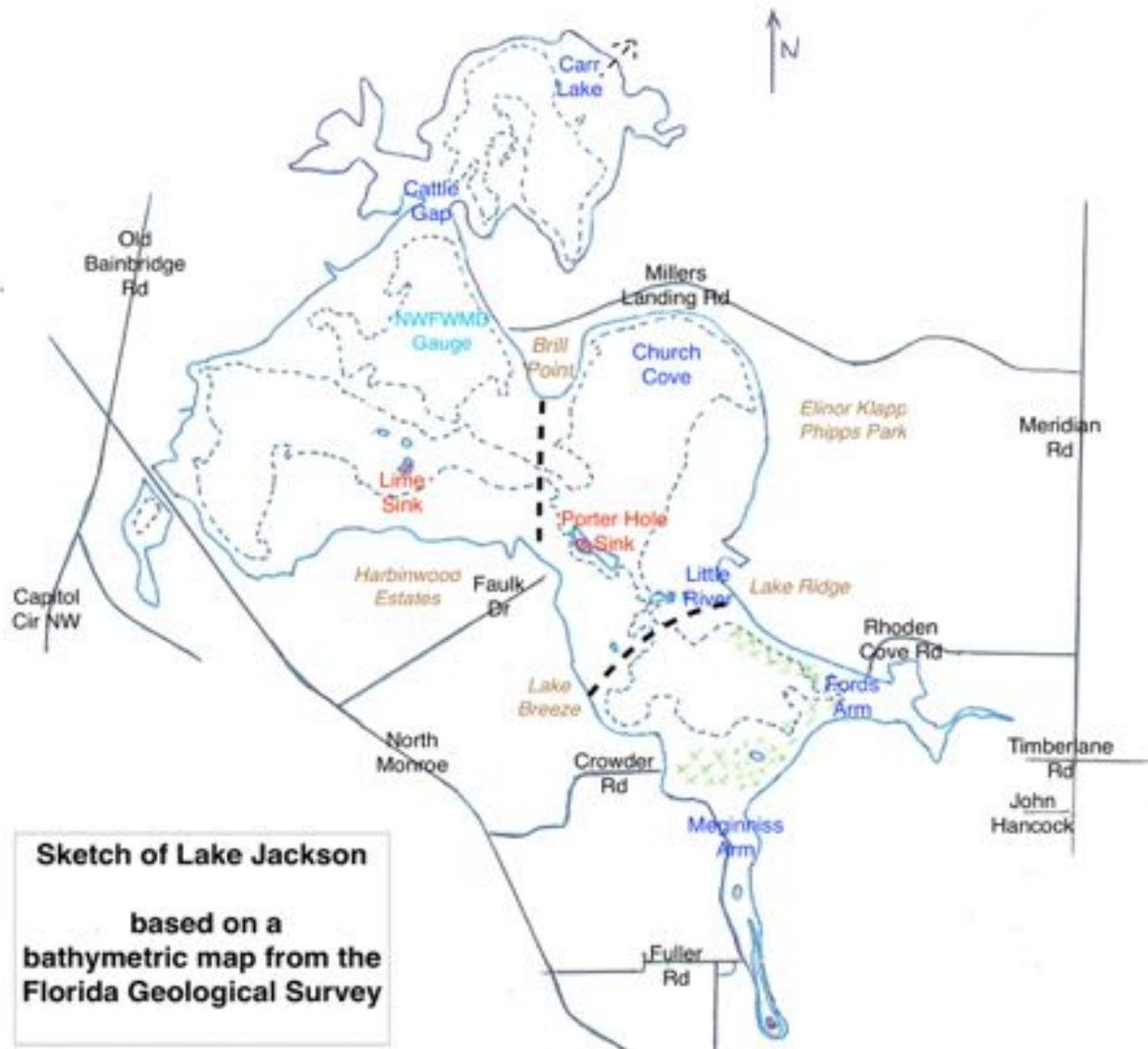
On Aug. 24, 2022, the water level at the Northwest Florida Water Management District (NFWMD) gauge near Miller Landing was 78.65 ft msl. At that level, the lake bottom sills, or “saddles”, of the main lake were barely submerged. Water depth on top of these was as little as a fraction of a foot, so there likely was minimum water exchange between the various sub-basins. Some of the saddle areas were heavily overgrown with both aquatic and emergent wetland plants, and navigation was hindered. The entrances to both Meginniss Arm (southernmost end) and the Cattle Gap (northernmost) visually appeared blocked by flooded dense emergent vegetation and were not accessed on this airboat trip. See map next page.

Boats were notably absent with the exception of the occasional airboat. Overall, the lake was beautiful. The lushness and variety of vegetation was memorable and many different wading and other birds could be seen. A splendid scene, although very different from scenes of the many fishermen, sailors, skiers and boats towing children about on floats that have characterized summers of the past when water was at full pool or higher.

An extensive shallow area extends diagonally across the mid-lake from the Lake Breeze neighborhood shoreline on the southwest to the undeveloped shoreline adjacent to the Lake Ridge Drive neighborhood and the southern portion of “Little River” to the northeast (southern thick black dashed line on map). These shallows are about a quarter mile wide and, on Aug.24, had much of the flooded surface covered by vegetation, including many tall and dense stands of dog fennel (a sign that part of the area was only recently flooded). These stands visually isolated the northern and southern sections of the lake, and the vegetation likely reduced flow between north and south, but the area could still be crossed via a few very narrow boat channels.



Narrow channel across the central lake vegetated barrier



- The continuous blue line represents the mean lake level, around 86 ft msl.
- The dashed blue line within represents the contour line 9 ft below mean lake level, or close to 77 ft msl. Areas between the continuous line and the dashed line, or between two dashed contours are shallower. On Aug. 24, water filled the sub-basins within the dashed lines, and flooded some of the shallower areas by about 1 ft. Thick black dashed lines show the saddles and shallows mentioned in the text.
- Depressions, such as around Porter Hole Sink, or in South Meginniss Arm, are represented by closed blue contours. Sinkholes that are presently active (Porter Hole) or inactive (Lime, Meginniss) are patterned red.
- Continuous black lines represent roads.
- Green markings refer to algal bloom and vegetation mentioned in the text.

The feature article “The Dry-Down of Lake Jackson” talks more about the lake’s bathymetry.

The lake north of the central shallows was visually open with most of the surface covered with aquatic vegetation and occasional limited stretches of open clear (low turbidity) water. Watershield (dollar bonnet) pads dominated with patches of American White Waterlily and Maidencane. There was a high diversity of other aquatic plants with only a few narrow open water channels maintained by boats. The west and south shorelines were obscured by dense dog fennel. A few invasive water hyacinths were observed along the shoreline of the Harbinwood Estates neighborhood west of Faulk Dr. Relatively large areas of open water were encountered over both Lime and Porter Hole sinks. Only over a sizable area near the center of Church Cove, east of Brill Point, did one find the pink flowers of topped-out fanwort (*Cabomba caroliniana*). In previous summers, coverage was far more extensive and reached into the lake section west of the Brill Point Saddle, a presently flooded and non-vegetated sill that extends south from Brill Point to the opposite shore (northern thick black dashed line on map). Coontail was observed over a large area in the east portion of Church Cove.



Dollar weed and American Lilly pads on North Lake Jackson



Open water over Porter Sink

The portion of Lake Jackson south of the central shallows looked less healthy. The water was turbid, probably due to silt-laden water originating from Lexington Creek, a tributary that flows into Fords Arm (silty water from Lexington Creek flowing into a recently built stormwater pond at John Hancock and Meridian Rd, and then into Fords Arm after rain events, has been observed and documented for several years). The turbid aspect could also indicate a suspended algae bloom. For the most part the central water surface was free of vegetation, but mats of algae (more on this below) lined a large fraction of its periphery, especially along the northern shore into the Rhoden Cove area of Fords Arm as well as along the southeastern shore. Between Fords Arm and Meginniss Arm, topped-out Hydrilla was mixed with the algae mats. Another patch of Hydrilla was found north of the Lake Breeze shore, and scattered algal mat clumps occurred among the stretch of emergent and aquatic plants that cover the central shallows at the northern end of Southern Lake Jackson (see green crosses on map).



Topped out hydrilla along shore of the Southern Lake

Blue Green Algal Bloom in Southern Lake Jackson

The algae mats observed in the Rhoden Cove area and elsewhere in the southern part of Lake Jackson (green crosses on the map) looked like a blue-green algae bloom, aka a Harmful Algal Bloom (HAB) or cyanobacteria bloom (i.e. not technically related to an alga). Because such blooms can release toxins, there is an online procedure to report them for testing to the Florida Department of Environmental Protection (FDEP), using their Algal Bloom Dashboard, <https://floridadep.gov/AlgalBloom>. This procedure was followed, FDEP went onsite on Sept. 7, confirmed the Algal Bloom, identified the dominant taxon as a genera of cyanobacteria called *Plectonema wollei* (*P. wollei*), took a sample and had it tested.

Thankfully no toxins were detected, as posted on Sept. 9. By the time FDEP went onsite again on Oct. 13, the weather was cooler and about 2.5 in of rain had fallen. No HAB was observed, a sample was nevertheless taken and no toxin was detected.



Algae mats in Fords Arm – August 23, 2022

For context, *P. wollei* is common in southeastern US lakes, where it often forms dense filamentous free-floating mats especially in summer and early fall as higher temperatures favor growth. In some phases, these mats can release offensive odors as well as potent toxins, thus compromising the safety of recreational waters. In Lake Jackson, a similar bloom was observed and reported in 2018, also in the Rhoden Cove area, also dominated by *P. wollei*, with no toxins detected. Blooms are stimulated by nutrient over-enrichment, so it is significant that such blooms have been observed in the southern and not the northern part of Lake Jackson, as the southern part is known for elevated nutrients values, especially phosphorus. Also, low water levels are conducive to increased water temperature, decreased water circulation and possibly increased concentration of nutrients and pollutants.

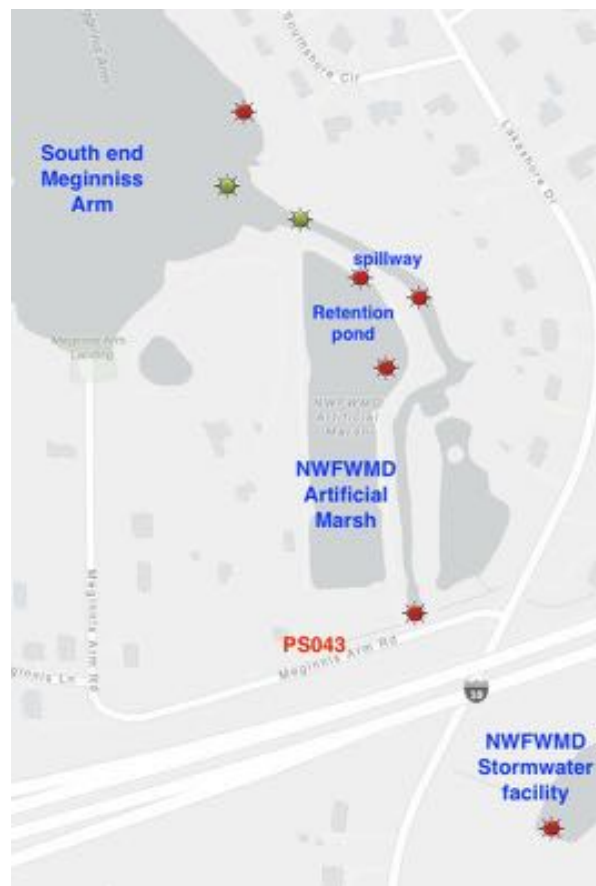
For more information on *P. wollei*, see:

<https://www.sciencedirect.com/topics/agricultural-and-biological-sciences/plectonema>

Sewage Spill in Meginniss Arm

As our February issue was in press, we learned of a major sewage spill off Meginniss Arm Rd that occurred on Feb. 5, 2022, following a leak at Pump Station 43. Fortunately for Meginniss Arm and Southern Lake Jackson, the discharge was close to the part of the NFWMD stormwater facility located north of I10 and most of the spill went through the artificial marsh into the retention pond at its northern end, while some of it flowed directly into the canal that flanks the eastern side of the facility, and from it into Southern Meginniss Arm.

Thanks to a prompt remediation response by the City, the canal entrance was blocked, a very large amount of polluted water was pumped out of the system, and the area was cleaned. Nevertheless, a fish kill was reported near the source of the spill and microbial samples showed extremely high values of *E. coli* contamination in the artificial marsh over several days, eventually concentrated in the retention pond at the end of the system. Initially, high *E. coli* values were also measured in the canal and in Meginniss Arm beyond. On Feb. 14, the City declared values back to normal in Meginniss Arm (red dot within south end of Meginniss Arm) and monitoring stopped.



Area near spill (PS043)

red dots: City *E. coli* sampling
green dots: FoLJ *E. coli* sampling

E. coli (*Escherichia coli*) are bacteria found in the intestines of people and animals and routinely monitored in the environment because some strains are harmful. Small values of *E. coli* can be due to the presence of animals, but large values typically indicate wastewater contamination. *E. coli* values (measured in number of colonies per 100 mL) are supposed to be 0 for drinking water and less than 400 for recreational water, such as the water of Meginniss Arm. The middle part of Meginniss Arm (near Fuller Landing) is routinely sampled and analyzed by Leon County and FDEP, with parameters values stored in the WIN system, FDEP Watershed Information Network. *E. coli* values retrieved from WIN between 2016 and 2022 are typically 1-digit or 2-digit numbers (numbers such as 2 or 15). On Day 1 of the spill, the City measured a background value of 62 upstream of the spill, and a value of over 2 millions downstream. Values measured by the City in the retention pond were still in excess of 400,000 on Feb. 9, when sampling there was discontinued, perhaps on the grounds that what remained of contaminated water after pumping would remain contained there.

We were puzzled by the discontinuation of monitoring in the retention pond. Our main concern (communicated to City staff) was that high *E. coli* values likely still existed in the pond and could escape in bursts into the canal via the pond spillway when it rained. On Feb. 20, a week after City monitoring had stopped, and a few days after a minor rain event, we sampled 3 locations (green dots on the maps), one just downstream of the spillway (better seen on map above), one just outside the canal exit (close to the location where the City had measured a 1-digit value on Feb. 14), and one north of Fuller Landing. Our concern was not alleviated as we found 4-digit *E. coli* values at the first two locations, and a 3-digit number larger than 400 at the northern location (400 being the threshold for safe recreational water, as stated above).

We were also puzzled by the City's conclusion that no contamination had reached the southern part of Lake Jackson. A City crew had taken the precaution to explore the area at the mouth of Meginniss Arm on Feb. 8, found it dry, and concluded that there was no connection between Meginniss Arm and the open lake, even though an *E. coli* sample taken by the City crew in the area returned a value of 376, just short of the 400 threshold. It is worth noting that FDEP measured a value of 134 in the vicinity on Mar. 8, 22 (station G1TLHR0124), a month after the spill. Values usually measured there (as retrieved from WIN) are typically 1 or 2 orders of magnitude smaller. A kayak trip and a subsequent drone flight showed that a small, narrow but continuous flow did connect Meginniss Arm to the open lake, with an outlet apparently east of the area explored by the City. See the drone photo on the front cover of this issue.

Based on the elevated *E. coli* values found north of Fuller Landing within Meginniss Arm and in the open lake beyond, the bad news is that some contamination is likely to have reached the open lake. The good news, however, is that samples taken near Porter Hole Sink by a third party returned 1-digit values, so it does appear that an ecological catastrophe was avoided as far as the open lake is concerned.



Zoomed-out map of Meginniss Arm with the extra more northern sampling locations mentioned in the text to the left.

In February, the area north of Fuller Rd had turned into a swamp, then (farther north) into a dry expanse of wetland cut only by a very shallow and narrow channel connecting to Lake Jackson proper.

Notable bird sightings

Lake Jackson has continued to be an exciting place for birdwatching these past months, as the periodic draining of Porter Hole Sink and its basin creates suitable habitat for shorebirds habitually not seen when the lake is at full pool. Unusual sightings, often reported on the eBird app of the Cornell Lab of Ornithology, have attracted a steady stream of expert birders, often at earlier and later hours, with the dry lakebed providing them at times with miles of walking and tracking.

Two American Woodcocks were briefly seen a number of times flying across and even landing about thirty minutes before sunrise at Miller Landing. The closest sightings have been one in Gadsden County FL., and one in Georgia; no others in the region.

In February, a couple of Short-eared Owls was seen mostly at Faulk Dr. Landing (photos below). More recently, a Barn Owl was also reported for the first time in eleven years in Leon County at Faulk Dr. Landing, Miller Landing and Rhoden Cove Landing. These are in addition to the more common Barred Owls, Great Horned Owls, and rarer Eastern Screech-Owls, also reported.

Colorful warblers have recently been spotted, including a rare Blue-winged Warbler hybrid as well as a Blue-winged Warbler, and the more common Yellow Warblers, American Redstarts, Prairie Warblers, Black and White Warblers, Hooded Warblers, and others.

There was also a report of a rare Reddish Egret, and several of a White-faced Ibis. For more sightings, one can go to the site <https://ebird.org/region/US-FL/hotspots> and select Faulk Drive Landing (#82), no eBird account necessary.



Short-eared Owl, photos courtesy E. Hawkins

Flora and Fauna of Lake Jackson Aquatic Preserve

For more information on the fauna and flora encountered at Lake Jackson, members of the iNaturalist community can search Lake Jackson Aquatic Preserve and select "View Observations" after "Flora and Fauna of Lake Jackson Aquatic Preserve", a project created in August 2021 by Caitlin Snyder, LJAP manager.

FISHING & HUNTING NEWS

With low water levels hampering fishing, and the duck-hunting season started, this column is devoted to hunting this time.



A Brief Guide to Hunting Season on the Lake

Lake Jackson has a long tradition of waterfowl hunting that continues to today. As far back as 1000 AD, Native Americans who lived around the lake hunted waterfowl and other game across varying water levels. In recent times, duck hunting is still enjoyed as part of local family traditions as well as in plantation culture. There are several species of diving ducks that inhabit the lake during the winter season, but ring-necked ducks are arguably the most popular species to hunt.

Across Florida, shooting hours are one-half hour before sunrise until sunset. The appropriate state waterfowl hunting licenses and Federal duck stamp are required. For 2022-23, the season dates are: Sept. 17-21 (teal and wood duck only); Sept. 22-25 (teal only); Nov. 19-27; and Dec. 10 - Jan. 29. In Leon County, duck hunting is allowed only on Wednesdays, weekends and holidays like Thanksgiving and Christmas Days (Lake Talquin and the Ochlockonee River you can hunt daily). There are also motor size restrictions for boats on some of the area lakes, such as Miccosukee, Iamonia, and Carr Lakes, but not on Jackson.

Perspectives on the activity can be divided. One conflict on public lakes that are more urbanized, like Jackson, is noise disturbance. This includes motorboat or airboat noise as well as the sound from the actual shooting (particularly in the morning). At this time, there is no noise ordinance within the county to mitigate noise from these activities, as both hunting and boating are approved uses of Lake Jackson Aquatic Preserve. Hunters should minimize noise by using appropriate mufflers for their engines, especially on the ever-more popular “mud motor” boats and airboats.

Another issue is duck blind location and shooting direction. Wetlands fall under the jurisdiction of the State (e.g. the riparian zone), and sovereign submerged state lands (i.e. the lake bottom) are also owned and managed by the Board of Trustees and therefore are public. Wetland jurisdiction not only applies when the water is high, but also during dry down conditions. As far as projectile management goes, everyone is responsible for gun safety. There are no official setbacks or a legally defined distance a hunter must be from a dwelling on the lake within the jurisdiction of Leon County, but statutes do prohibit discharging a firearm “into or across” a dwelling (including docks).

Should you feel that duck hunting is a public safety issue? Duck shot is lethal to a medium-sized duck within a max range of ~40 yards (120 ft). Up to ~100 yards (300 ft), a duck may or may not be injured (“crippled”). By ~150 yds (450 ft), the shot has likely fallen out. However, shot travel distance can be affected by humidity, rain, wind, angle of shooting, and the gun. Duck hunting accidents are statistically very rare due in part to the short travel distances of shotgun pellets and the fact that hunters tend to shoot upward. Center-fire rifles are not allowed on lakes or lake bottoms because the projectiles travel much farther than shot and can even skip across the water at the right angle.

Duck hunters are overall ethical and legal and do not want to draw attention to themselves because they know it’s a fine line to getting hunting privileges lobbied-away. However, if any of these above conditions are blatantly violated or shooting is occurring from a moving vessel, please report it immediately to FWC’s Wildlife Hotline at 1-888-404-FWCC. And when you can’t beat them, join them by purchasing a Federal duck stamp and state license to support conservation initiatives in Florida and law enforcement. With a little respect, common sense, and polite communication, homeowners and duck hunters alike can share common ground to enjoy all that Lake Jackson has to offer.

<https://myfwc.com/license/recreational/do-i-need-one/>
<https://myfwc.com/license/recreational/hunting/>



THE LAKE JACKSON AQUATIC PRESERVE

Feb-August 2022 Updates from Caitlin Snyder, LJAP manager



The Aquatic Preserve (AP) has continued to be busy conducting stewardship activities around the lake with the ongoing dry down state. Here is a summary of the 4 main priorities and associated activities. The arc of the conservation universe is long, but it bends toward progress with every small action! The AP does not do any project alone and works closely with many partners who have local staff on the ground.

Resource Management

- Documenting and controlling invasive species in uplands in spring, focus on Chinese tallow tree
- Coordinating with Florida Fish and Wildlife Conservation Commission (FWC) on upcoming aquatic plants management, adapting to low lake levels
- Fostering prescribed burning around the periphery of the lake during the dormant season
- Documenting and reporting AP violations during low water conditions
- Discussing hog and vegetation management options with adjacent landowners
- Coordinating continued debris removal around the lake (large and small)

Education & Outreach

- Promoting the lake's biodiversity by distributing the new *Field Guide to the Flora and Fauna* and encouraging the use of LJAP's iNaturalist project
- Keeping Aquatic Preserve websites, brochures, media and field presence current with lake conditions and developing new content
- Organizing public events like cleanups and fostering different types of recreation during the dry down (like birding)
- Giving presentations to local groups and participating in meetings as requested

Public Use & Access

- Conducting site checks around the lake public access points, and coordinating with Leon County on landing issues and improvements
- Promoting dry down event and sinkhole visitation safety, education and awareness
- Working with Law Enforcement agencies on lake activities
- Reviewing recent permits

Science & Species

- Installing and maintaining 22+ wood duck boxes with FWC this past winter
- Collaborating with managing agencies on the Meginniss Arm treatment facility study which started this spring
- Communicating with partners on water quality sampling schedules and issues during the dry down
- Getting involved in a statewide bat monitoring project at Lake Jackson with FWC
- Growing and maintaining a GIS (Geographic Information System) database for LJAP

Caitlin is willing to answer questions you may have regarding the Aquatic Preserve.

Send questions to: info@friendsoflakejackson.org

Or direct to: Caitlin.M.Snyder@FloridaDEP.gov

November update:

A new automated WeatherSTEM meteorological station was installed near Porter Hole Sink and started its monitoring on Nov. 3, 22.

Direct link:

<https://leon.weatherstem.com/fswnlakejackson>

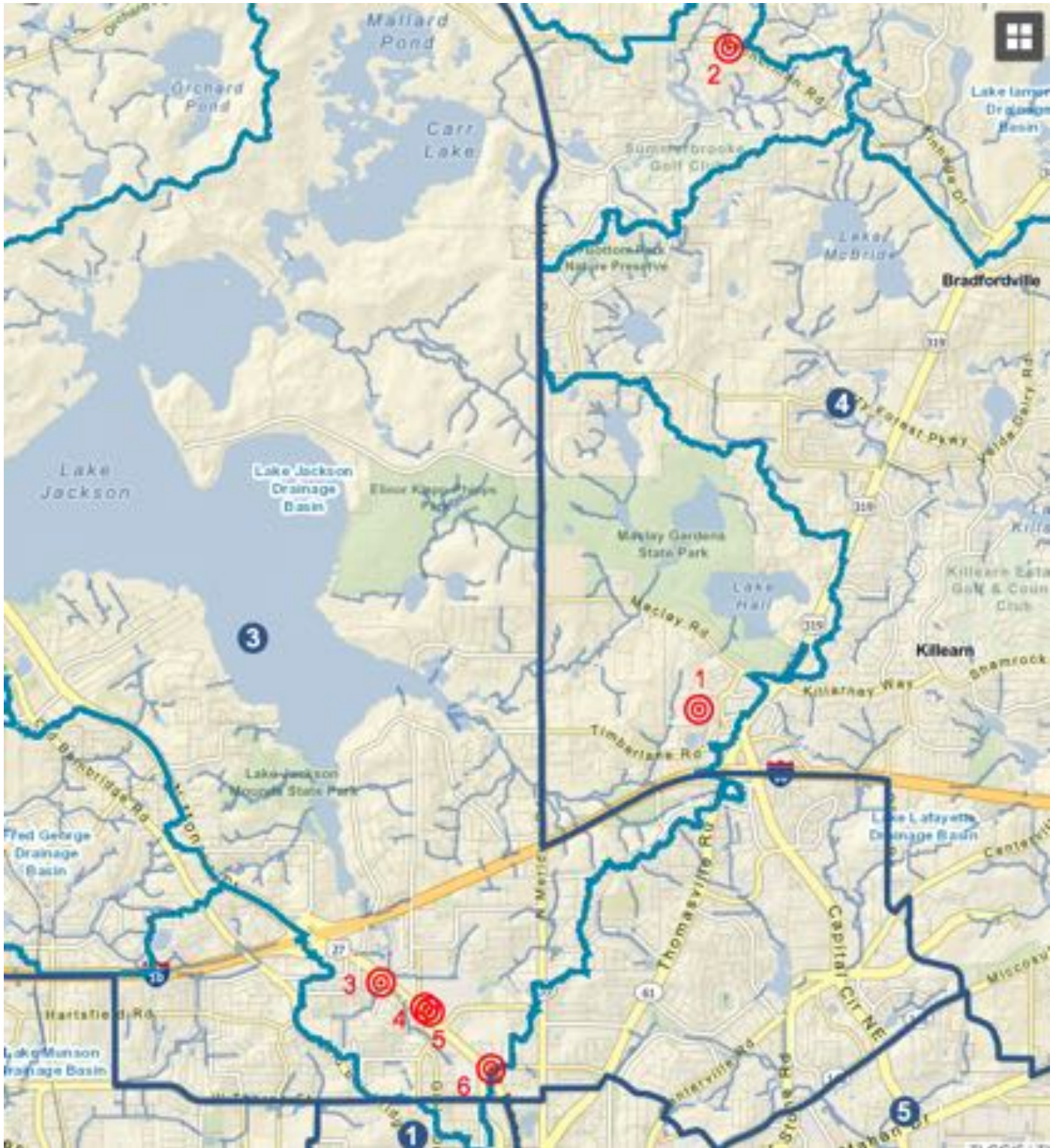
The unit is equipped with 2 cameras, the northeast one pointed towards Porter Hole Sink and the west one towards Lime Sink. The link allows access to still photos (a great way to check on water level without rubber boots) as well as a set of constantly updated meteorological parameters such as wind and rainfall. To see the Live View, one needs to register and get a “token”. There is also a “Data Mining” tool to access recorded data.

WeatherSTEM was launched in 2014 initially as an educational tool installed at various schools. It was developed by Edward Mansouri, who got a Masters degree in Meteorology from FSU. See:

<https://wake.weatherstem.com/about>



NEWS FROM THE WATERSHED



This map, created using the Natural Features map available on the Tallahassee Leon County GIS portal (<https://tlcgis.leoncountyfl.gov/NaturalFeatures/index.html>) shows as red bullets the locations of current infrastructure and development projects within the Lake Jackson Drainage Basin. The drainage basin is delimited by the thick teal line. Also shown, as thick dark blue lines, are the boundaries of Leon County Commission Districts.

District 4 projects

Project 1 concerns the construction of the Market District West Stormwater Facility.

The Market District Multi-Purpose Stormwater Project as a whole will include a park on either side of Maclay Blvd (<https://www.talgov.com/page/md-stormwater>). The West Stormwater Facility is the feature labeled West Pond on the left of the figure. Construction for this section began in March 2021, with completion currently expected in December 2022. One of its purposes is to “improve the quality of stormwater flowing to Lake Jackson”.



Stormwater from that area reaches Lake Jackson via Lexington Creek, the stream to the left of the red bullet on the map above, which flows into Fords Arm. That stream has been observed for years to carry large amounts of silty water into the lake following large rain events, even after a small stormwater feature was built at the corner of Meridian Rd and John Hancock. The creek also has a history of periodic E-coli contamination (see Leon County Water Quality Report for Lexington Creek <https://cms.leoncountyfl.gov/Home/Departments/Public-Works/Engineering-Services/Stormwater-Management/Water-Quality-Data>.)

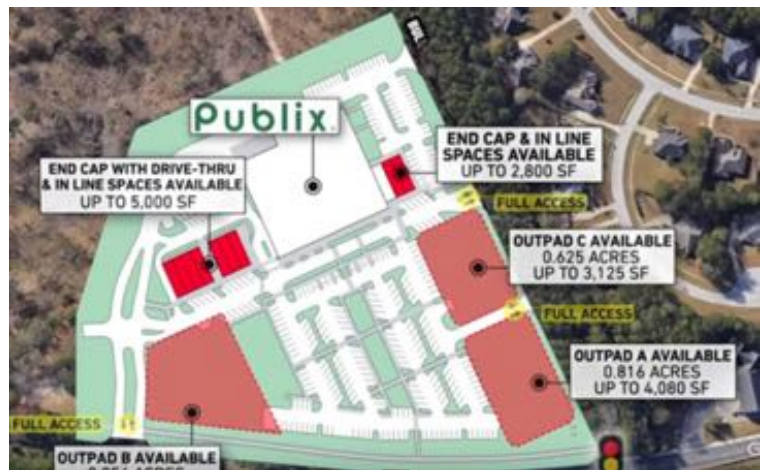
Project 2 refers to the Multi-Family / Commercial project called Bannerman Village. It is located at the southeast corner of Bannerman Rd and Bull Headley Rd. The images below were extracted from the July 2021 video found at:

<https://www.youtube.com/watch?v=YZ6HIsOhyeY>.

Details may ultimately differ from what is shown in that video. Note that Bull Headley Rd is drawn extending south from Bannerman Rd. Presently, it only exists north of Bannerman Rd.



looking in the southeast direction



looking more southward

The project covers about 170 acres. The commercial and multi-family portion lies in the Lake Protection Node. Stormwater from this area drains into Carr Lake. The Friends of Lake Jackson are concerned about the project because it requires a sizeable stormwater infrastructure to avoid contaminating Carr Lake. We have been advocating with the county for regulations insuring that stormwater facilities for any development located in the Lake Jackson Basin be completed and tested before the construction of any other structure starts. County staff has assured us that was done in the Lake Protection Node portion of the project. We are concerned that construction has started elsewhere before the necessary stormwater facilities have been finished.

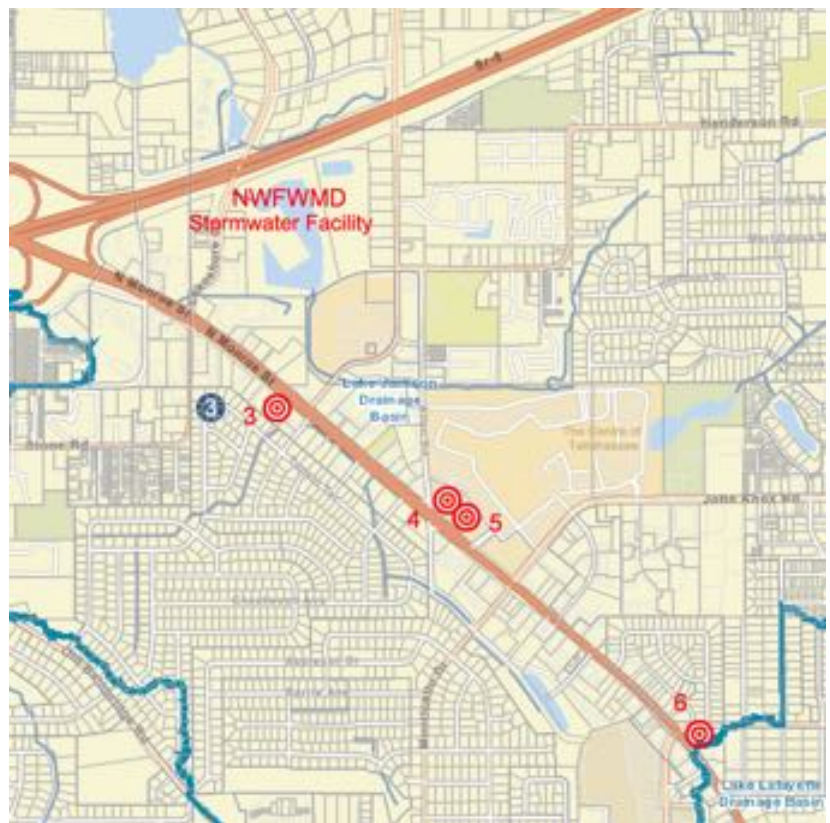
District 3 projects

The other projects all lie along N. Monroe St between Tharpe St. and I-10. Stormwater in that area drains into Meginniss Arm after going through the Northwest Florida Water Management District (NFWFMD) stormwater facility and artificial marsh that straddle I-10 and Lakeshore Dr. (see our Ecological News column for a larger map of the facility). Because a lot of attention has been given to the stormwater infrastructure in that area, our group does not anticipate that these redevelopment projects will impact the lake negatively. It is worth noting, however, that the City of Tallahassee is presently conducting a study of the stormwater facility in collaboration with NFWFMD and FDEP to determine the facility's current efficiency and potential need for updates.

Project 3, located at 2698 N. Monroe St.: an application has been submitted to demolish an existing restaurant and construct a Car Wash and Quick Service Restaurant with drive through.

Projects 4 and 5, located respectively at 2447 (corner with Allen Rd) and 2441 N. Monroe St (next to it), are both under construction: there will be a 5,000 square feet Cumberland Farms Convenience store and canopy for fuel dispensing pumps next to a 3,500 square feet Slim Chickens quick service restaurant with drive through.

Project 6, located at 1925 N. Monroe St. (Planet Fitness Shopping Center): an application has been submitted to build a 2,400 square feet restaurant with a drive through.



ARTS & CULTURE

Writing The Land

Friends of Lake Jackson are honored to be part of the *Writing the Land-Currents* anthology created by the organization Nature Culture based in Massachusetts.

We collaborated with Sandy Beck of St. Francis Wildlife Rescue to create our chapter in this publication. She took a group of young students to write about the lake and they created a beautiful set of poems. Sandy's photos are also featured, along with information about the lake and additional photographs. The anthology will be available for purchase in March 2023.

Contact info@friendsoflakejackson for details.



Finch, Ellis. Two boys fishing on Lake Jackson in Leon County. 1965. State Archives of Florida, Florida Memory

"Writing the Land is a collaborative outreach and fundraising project for land protection organizations. Through our anthologies, poets help raise awareness of the importance for land conservation."

"*Writing the Land*' is an attempt to honor nature and our relationship with it in a way that is as equitable and transparent as it is deep and entangled. We intend to be as inclusive—to humans and places—as we hope the mantle of protection that land trusts offer can be. Our work will never be complete but gains strength, depth, beauty, and energy in a multitude of voices."

—Lis McLoughlin, editor

<https://www.writingtheland.org>

<https://www.nature-culture.net>



Board member and famed local poet Michael Rothenberg passes

We are pained to report that Michael passed on Nov. 21st, following a battle with lung cancer. Since 2016, he lived on the shores of Lake Jackson, which inspired one of his poems. An excerpt from that poem "On Lake Jackson" can be read in the previous issue of this magazine.

RIP Michael

<https://www.lifesongfunerals.com/obituaries/Michael-Rothenberg-3/>

Submit your photos, poems, art, about Lake Jackson for the next issue! Featured artist will appear in the Arts & Culture column of the print edition (best photo on the cover.)

On the spelling of Meginniss Arm

Meginnis?
8 Letters

Megginnis?
9 Letters w/2 g's

Meginniss?
9 letters w/2 s's

Just how should one spell the name of Lake Jackson's southernmost arm?

The old Tallahassee family from whom these names originate is the one and only **Meginniss** family (<https://www.tallahasseemagazine.com/the-legacy-of-two-tallahassee-families/>), the **9 letters w/2 s's** spelling one would think should have subsisted at least for the houses where members of the family lived at some point.

Online street maps refer to the **8 letter** version, Meginnis Arm Road and Meginnis Lane. The TLCGIS Park Finder map mentions **8 letter** Meginnis Arm Landing but labels the arm itself using 2 g's Megginnis Arm. The 2 g version is also the spelling used in a 2006 report devoted to the restoration of its shoreline following the construction of Interstate 10.

If one "googles" Megginnis Arm, Tallahassee, FL., the search engine returns "meginnis arm landing," provides an entry on the Meginnis-Munroe house on Gadsden Street (<https://www.lemoyne.org/meginnis-munroe-house.html>), but also provides a 2 s's entry on the Meginniss-Dorman house (<https://www.floridamemory.com/items/show/10374>) on East Call Street.

Various other spelling combinations have shown up from time to time. The Northwest Florida Water Management District has used different spellings over the years in publications, and made some headway in using "Meginniss" as spelled by the family, but the spelling has been inconsistent. In the most recent Lake Jackson Aquatic Preserve Management Plan, the Department of Environmental Protection used the **8 letter Meginnis** over 35 times, including references in maps and other reference materials.

Despite the widespread use of the **8 letter** Meginnis spelling, this group, on the suggestion of one of its members who prefers to see things set straight, will do its best, from now on, to consistently use the **9 letters w/2 s's** spelling **Meginniss** in our own documents, while honoring the differences that appear in the records.

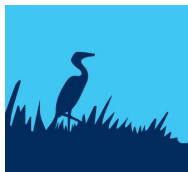


The Meginniss-Dorman House

Florida Memory, the State Library and Archives of Florida

EVENTS & MEETINGS

FRIENDS OF LAKE JACKSON MONTHLY MEETING



Every **second Wednesday** of the month at 7:00 pm the FoLJ has their **BOD Meeting**, which is open to all members and the general public. Unless otherwise specified, the meetings are presently being held both in person at the Lake Jackson Community Center and on **ZOOM**. Meetings run for 2 hours or less depending on the agenda.

If you are interested in attending by ZOOM, email us at: info@friendsoflakejackson.org and we will send you the link.



RECENT ACTIVITIES OF THE FOIJ

- As a member organization of the Big Bend Environmental Forum (BBEF), the FoLJ is pleased to have recently participated in two forums at City Hall where candidates to local and State elections were grilled on environmental topics. The first was conducted on August 4 ahead of the primary elections, the second on October 13, ahead of the November election. These public forums are a great way to meet the candidates and learn about their knowledge and priorities re. environmental issues.

For more on the BBEF, its mission, goals and member organizations, see <http://www.bbef.org/>

- FoLJ members had contacts with City staff re. the Feb.5 Meginniss Arm sewage spill and the Market District West Stormwater Facility, with Country staff re. Lexington Creek, and with FDEP staff re. the August algal bloom and various news re. the lake and its management.

We appreciate to have interlocutors who help us learn, clarify some issues, give us feedback and celebrate the lake with us. A special appreciation goes to Caitlin Snyder, the Lake Jackson Aquatic Preserve manager, for her work and support.

FEATURE ARTICLES

WILD WEDNESDAY! PICKERELWEED

Wild Wednesday is a weekly series in conjunction with:

Herbalists Without Borders of the Big Bend/Green Folk Herbs.



Small-fruit beggartick, aka bur-marigold (*Bidens mitis*) occurs nearly statewide in Florida, except for the extreme southern tier of counties. Outside Florida, it is confined to the Atlantic Gulf Coast - the one-state-wide row of states from Texas to Maryland. Throughout this region, it is an herbaceous obligate wetland wildflower, common to a very wide variety of fresh and brackish habitats. It is growing all around Lake Jackson at the moment, along with a few other varieties of *Bidens*, like *Bidens alba*, which grows on the upland areas in dry sandy soil.

Biden mitis is also similar to its close cousin, *Bidens laevis*. Which also grows on Lake Jackson. Both are found statewide, but only *B. mitis* occurs in brackish systems as well as freshwater ones. They may occur on the shore of wetland systems, but more often occur in the shallow water edge, 4-6 inches deep.



Bidens mitis is an annual with a tap root. Stems are 1-3 feet in height. The stems are branched primarily from above the middle and are square. Leaves are opposite, petiolate, ovate to lanceolate in outline, and once pinnately divided. The flowers are a beautiful bright yellow.

Both the ray and disk flowers are similarly colored. Each is about 1 inch across. Multiple flowers are produced on the long wiry stems and their many side branches



B. mitis, is a common weedy multi-purpose native plant. It is the third-largest source of pollen for the honey industry in Florida, and is a great nectar plant for many butterflies as well as a larval host plant for the dainty sulphur butterfly. Wild bees love it as well!

Like all members of this genus, *Bidens mitis* produces seedheads full of small dark seeds (achenes) covered by tiny spikes that cause the seeds to stick to clothing and hair.

Sound familiar? In this way, they move about to new habitats and sometimes earn the ire of both hikers and pet owners. *B. mitis*, unlike other species of this genus in Florida, do not have long "horns" at the end of their seeds that further enable them to stick, just many small spiny "hairs".

Medicinally it has a lot of history. The Seminoles used it to treat “sun sickness” and “fire sickness”.

The entire plant was administered in 16th and 17th century Europe for its astringent, diaphoretic, and diuretic properties, virtues endorsed by nearly all contemporary apothecaries.

English botanist, herbalist, physician and astrologer, Nicholas Culpeper (1618–1654) had a lot to say about it...

"It healeth and drieth, cutteth and cleanseth thick and tough humours of the breast ... it helps the cachexia or evil disposition of the body, the dropsy and the yellow jaundice; it opens the obstructions of the liver, modifies the hardness of the spleen, being applied outwardly; it breaks imposthumes, taken inwardly, it provokes urine and the terms: it kills worms, and cleanseth the body of sharp humours, which are the cause of itch and scabs; the herb being burnt, the smoke thereof drives away flies and wasps. It strengthens the lungs exceedingly ... Country people give it to their cattle when they are troubled with the cough, or broken winded." Culpeper also noted that beggarticks was prescribed for "the fever-the gravel or stone of both kidney and bladder [and as a] styptic in bleedings."

So go out and explore all the *Bidens*. Take a walk on the wild side.

Look for those glowing patches of yellow out in the distance. And watch them appear around a corner when you least expect it. They are hard to miss and a beautiful sight to behold among the Fall colors and textures that surround them.

And remember those spiky seeds.

They will get you.



<http://hawthornhillwildflowers.blogspot.com/2012/05/small-fruited-bur-marigold-bidens-mitis.html>

<https://flawildflowers.org/flower-friday-bidens-mitis/>

<https://www.jacksonville.com/entertainmentlife/20180302/is-it-weed-edible-or-both>

<http://atlas.uwa.edu/Plant.aspx?id=593>

http://friendsoflakejackson.org/folj/wp-content/uploads/2017/01/Lake_Jackson_plants_LJAP-lecture_10-17-17.pdf

THE LAKE JACKSON DRY-DOWN



Figure 1 - Lake Jackson water surface level (ft msl) at the Miller Landing gage (based on data from the Northwest Florida Water Management District - <https://nwfwmd.aquaticinformatics.net>)

After a long period of declining water level which began in March 2019, Lake Jackson entered into a prolonged dry-down in early June 2021. Figure 1 shows that since then the water levels recorded by the Northwest Florida Water Management District's gauge near Miller Landing has varied in a narrow range between elevations just under 78 ft and just over 79 ft relative to mean sea level (msl). Boating is restricted when the lake level is below about 81 ft msl and many docks become unusable. During this period the Porter Hole Sink emptied completely several times.

Dry-down mechanisms for a simplified lake

To understand these observations, a simplified representation of a lake is illustrated in a series of cross-sections. Like Lake Jackson, the bottom of this lake is uneven with shallow "sills" dividing it into a north, central and south basin.

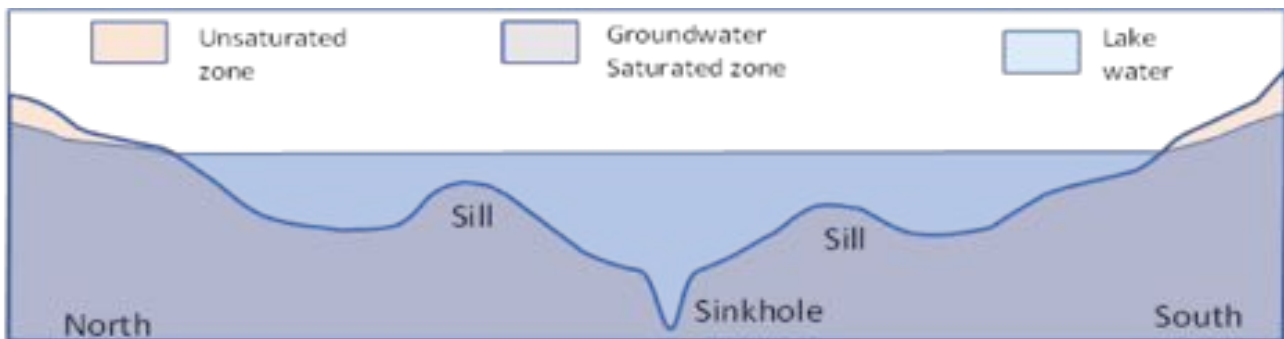


Figure 2 – Cross-section of a lake divided into three

When the water level is at normal pool level the sills are covered and the water surface is continuous. This is shown on Figure 2. Although this simplified cross section is not of Lake Jackson it has similarities because sills divide the bottom of Lake Jackson into separate basins with an active sinkhole in one of them, as shown later in this article.

As a dry-down period develops the lake level drops and in major events the level drops below the elevation of the sills as shown in Figure 3. The lake is divided into a series of ponds which can be at different levels depending on the elevation of the sills. As shown in Figure 3, the basin with the sinkhole can dry completely while the other ponds remain. This is the case in Lake Jackson.

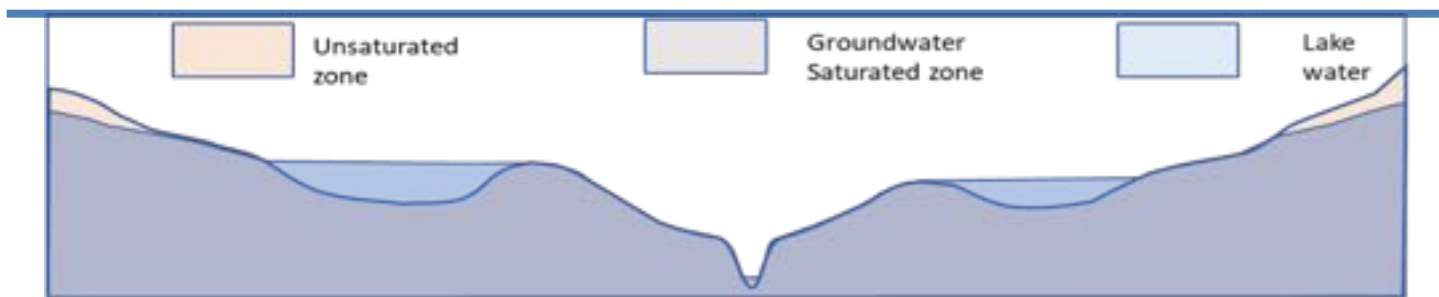


Figure 3 - Illustration of a dry-down event in lake with shallow basins divided by sills

Figure 4 shows that, as the conditions of the dry-down continue the individual ponds respond independently. Ponds adjacent to relatively large upland drainage areas tend to remain near the level of their sill. Other areas of the lake bottom can dry completely and these tend to quickly become vegetated. In the idealized cross-section of the figure the central basin, which has the

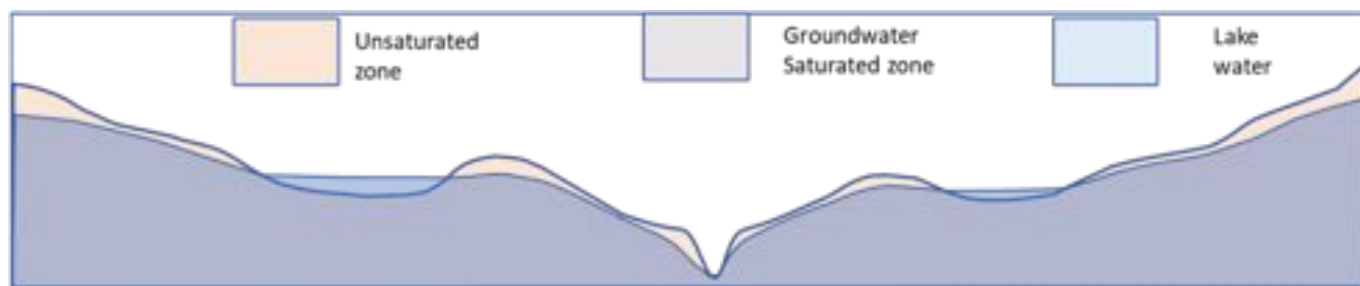


Figure 4 - Additional drying of lake bottom during prolonged dry-down.

sinkhole, is clearly of smaller volume than the whole lake. The sinkhole can drain this pond completely. However, rain events can cause adjacent ponds to overflow their sills and the central basin to fill quickly. This has happened several times in the last year and a half, with Porter Hole Sink and its basin flooding and the water level there rising more than 10 ft. We explain later how little rain it takes to accomplish that.

Figures 2 through 4 have been used to illustrate the overall behavior of a natural lake with no exiting stream, a lake-bottom sinkhole and an uneven bottom. These same features characterize Lake Jackson, which, however, has many more basins separated by sills. Nevertheless, the simplified representations used in the figures serve to illustrate the overall processes during prolonged dry-downs in Lake Jackson.

Dry-down events and Lake Jackson bathymetry

Figure 5 shows the more complex bathymetry of Lake Jackson, using a Florida Geological Survey map produced in 2000 to illustrate the 1999 dry-down event (Balsillie, Evans, Wagner). Red lines have been drawn over the various sills (or “saddles”), which begin to emerge when the water level drops below 79 ft, thus segmenting the lake into distinct sub-basins. The saddles are generally broad features, 100s to 1000s of feet across. The redlines are placed along the “drainage divides” at the very crests of the saddles.



Figure 5 – Lake Jackson bottom configuration

With further drying these basins develop individual responses to both rain events and longer patterns of drought. The sills of the Porter Hole Sink Basin enclose a relatively small area so that once the dropping water level exposes them the basin is much more strongly impacted by the drainage through the sinkhole. This basin can dry down completely, exposing the bottom of the sink, in a week. It can also refill rapidly with only one moderate rain event. On the other hand, other basins tend to have more stable low water levels because they can overflow to adjacent basin in heavy rains or remain as very shallow pools. This explains why the Northwest Florida Water Management District (NFWMD) automatic recording water level gauge never reads down to the elevation of the bottom of Porter Hole Sink

even when the sink is exposed. The sills surrounding the Miller Landing Basin keep the water about 10 to 12 feet above the very bottom of the sink. Because of this, the multiple complete draining events of Porter Hole Sink during the present dry-down were not recorded by the gauge.

How a moderate rain is enough to refill Porter Hole Sink

In the "State of the Lake" column earlier in this issue, two photos of Lake Jackson taken from Faulk Dr. Landing in July showed that less than 3 in of rain were enough to fill the Porter Hole Sink basin and bring a fundamental difference in the landscape. It all has to do with the fact that a deep but overall small area of the lake doesn't contain any more water than a shallow but large area, so that the smaller area is easily filled by a local rain over the larger area. An extra film of water over the flatter bottom around the sink feature is enough for the whole area to look "full". For a (rough) quantitative estimate, consider again the juxtaposition of different sub-basins separated by saddles (Fig. 5) that constitute the lake bottom. The mean surface area of the whole lake is estimated to be about 4,000 acres, or 6.25 square miles, at full pool, becoming less as water levels drop. Water flowing toward the sinkhole area comes from different directions, depending on water levels. Unless the whole southern basin dries out, the Meginniss and Fords Arm areas constantly drain toward the sinkhole via narrow channels. As water levels drop, the flow from the north is typically stopped by a sill before the flow from the south. So, even when the depression is dry, it is not just rain right over it that feeds it, but rain over a larger area. Based on Fig.5, let us assume that that larger area is about 1/5th of the whole, or 1.25 square miles. The depression around Porter Hole Sink (the canyon-like topography uncovered when the sinkhole empties) is about 50 times smaller than that (or 700,000 square feet). So 2 inches of rain falling over 1.25 square miles easily become 100 in (2in x 50, or 8 ft) of water level rise over the Porter Hole Sink and it "canyon".

The same reasoning explains why a large-scale tropical storm or hurricane, with sustained rain over the whole drainage basin, can dramatically raise the water level everywhere in the lake. The lake's drainage basin is estimated to cover about 42 square miles, almost 7 times the mean area of the lake (estimated at about 6.25 square miles). So if all the rain falling over the drainage basin makes it to the lake, 6-12 inches of rain over the basin (typical for a tropical storm) becomes 3.5 to 7 feet over the whole lake, a massive step toward returning the lake to its mean level of 86 ft above msl. Consider this a rough order of magnitude, as there are complicating factors at play, such as evaporation within retention ponds, but it is a useful idea to keep in mind. Although some of the past dry-down events have had their water level recovery rates dramatically boosted because of a sudden intense rain from a tropical storm, the overall recovery of dry-down events is more significantly controlled by long-term (months to years) patterns of enhanced rainfall.



Rain falling over a narrower area is also why “1 inch” of rain is taller at the bottom than at the top of your rain gauge if the gauge has the tapered look of the one to the left. By contrast the scale does not change on cylindrical rain gauges such as the one on the right.



When will Lake Jackson be full again?

During the dry-down, recreational use of the lake is very restricted. There is much interest as to whether and when refilling may occur. As best as is known, the dry-down to refill cycles are entirely controlled by subtle long-term patterns in the rainfall. The cause and control of these patterns is not known but it is clear that there have been many of these cycles within the past decades. It is reasonable to examine the rainfall and lake level cycles to gain insight into the range of time intervals experienced in these previous cycles. An article in the previous issue of this magazine has shown that most of the falling limb of the dry-downs occur in a remarkably consistent interval of approximately 600 days. Here we can examine the duration of sustained dry-downs of the past.

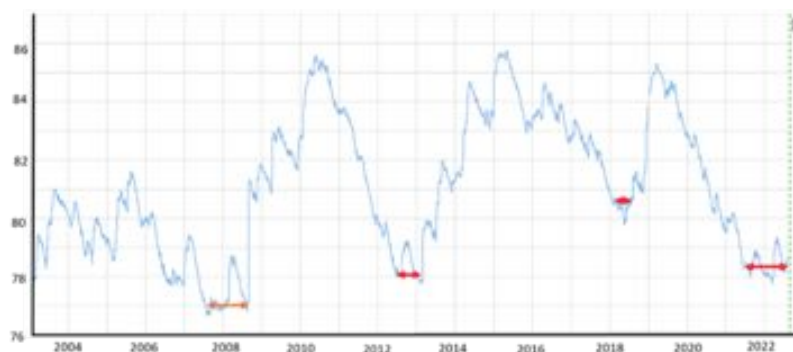


Figure 6 – Lake Jackson water levels (ft msl) with red arrows highlighting dry-down low-stand periods

Figure 6 is a time-series record of water levels measured at the NFWMD gauge near Miller Landing. Clearly each of the preceding dry-downs has been followed by a refilling episode so there can be some confidence that Lake Jackson will once again have a normal amount of water in the future. Red arrows on this figure indicate the duration of the prolonged dry-down stage of the present conditions and three previous cycles.

The choice of where these arrows begin and end is subjective based on judgement of when the falling and rising limbs of the cycle can be distinguished. However, precision is not necessary as this information is intended only to give a general idea about the duration of dry-downs.

Lake level records going back into the 1980s have been examined for similar dry-downs. Table 1 displays these results with the last row showing the present dry-down which is not yet completed. The average duration of the seven full events is 342 days – say on the order of a year. The present prolonged dry-down has lasted 440 days (as of the time this article was written). This is somewhat longer than many of the previous prolonged dry-downs but still within the experience of previous events.

These results suggest that the current prolonged dry-down may end in the near future because the long-term period of heavier rainfall should develop.

Table 1		
Duration of Drydowns		
Begin Date	End Date	Duration
1/1/1982	1/1/1983	365
3/1/2000	7/1/2001	487
6/12/2007	8/22/2008	437
8/1/2007	8/7/2008	372
6/21/2012	2/26/2013	250
3/14/2018	8/4/2018	143
6/8/2021	8/22/2022	440
Average		342 days

It is notable that this discussion of Lake Jackson water levels has not included the possible contribution of parameters other than long-term rainfall patterns. The lake does not have an exiting stream to stabilize its level. Instead the lake level at any time represents a balance between sources and losses. The sources are direct rainfall on the lake surface, run-off from its watershed and inflow from the groundwater in the shallow surficial aquifers. Losses result from evapo-transpiration at the lake surface and throughout its watershed along with discharge through Porter Hole Sink as well as potentially unknown others.

Several years ago the discharge rate of Porter Hole Sink has been measured by divers working with Dr. Sean McGlynn. These few spot measurements were of the order of 10 cubic feet per second, which is equivalent to a small shallow stream a little wider than you might jump across. Compared with evapo-transpiration over a 4,000 acre lake with a 42 square mile watershed, this sinkhole discharge is relatively small. However, if there is a significant collapse resulting in an enlargement of the sinkhole bottom orifice the whole source versus loss balance could shift. Observations during previous prolonged dry-downs confirmed that the size and exact location of this orifice shifted during the duration of the dry-down. However, unless that very bottom of the sinkhole is entirely dry it is very difficult to determine the exact location and size of the orifice because of water burbling in. At this time there is no indication of a significant change in the orifice size but there are no systematic measurements.

In closing, a comment about the use of the term ‘dry-down’ is in order. The terms ‘dry-down’ and ‘draw-down’ are often taken as being interchangeable. In this case, the term ‘dry-down’ has been used to distinguish this natural process from ‘draw-downs’ which are usually controlled by the managed release of flow at a dam or weir.

November update: On Nov. 30, 22, the dry-down is continuing and has now lasted about 570 days, making it the longest of the last 4 decades.



FRIENDS OF LAKE JACKSON

to preserve, enhance, & maintain

www.friendsoflakejackson.org

<https://www.facebook.com/FriendsofLakeJackson/>

ABOUT US

- Founded 1998
- About 100 members strong
- Board meets the 2nd Wednesday of the month (open to members and the general public).

Mission Statement:

- Preserve, protect and enhance Lake Jackson and the Lake Jackson Basin ecosystems, habitats and natural functions;
- Promote and support stewardship of Lake Jackson for recreation and use consistent with its ecological health;
- Educate ourselves, residents, visitors and government agencies how to promote recreation that provides economic value while preserving, protecting and enhancing the lake's ecological health;
- Coordinate private citizens, businesses and organizations, local, state and federal agencies to preserve and enhance the lake's ecological, recreational and economic value.

SUPPORT FOLJ

Become a Friend

The following are annual membership levels that may serve as a guide to giving.

Individual Member \$20

Lake Family Member \$50

Lake Steward Member \$100

Lake Sustainer Member \$250

Lake Champion Member \$500

You can mail us a check made out to Friends of Lake Jackson.

Or visit FriendsofLakeJackson.org to pay via [Paypal!](#) on our membership page.

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Thank you for your continued support and membership in FOLJ!