

LAKE WATCHER

The Newsletter of Lake Watch of Lake Martin
by Eric Reutebuch

No. 58, February 2022

2021 Achievements:

- 31 sites monitored for water chemistry and bacteria in Lake Martin and its Watershed
- Added 4 new upper lake sites to assess bacterial contamination
- 280 data records submitted to the AWW water quality database
- Contributed data to ADEM 303d list
- Recruited 11 new water monitors
- Partnering with AU on watershed bacteria investigation
- Investigated graphite processing operation coming to Kellyton

Lake Watch Officers*:

Eric Reutebuch...President
Matt Campbell....Vice-president
Dianna Porter.....Secretary
Janne Debes.....Treasurer

LW Board of Directors:

Joanne Walker	Dick Bronson
Myrna Lehman	Laurie Barrett
Tom Collier	Jesse Cunningham
Bill Butler	

(*Lake Watch officers also serve on board)

Annual Meeting

The Lake Watch annual meeting will be held on:

Sunday, April 24, 2022

1-3:30 pm (registration 1-1:30 pm; program 1:30-3:30 pm)

Red Ridge United Methodist Church

8091 Co Rd 34, Dadeville, AL

We are pleased to have Dr. Bill Deutsch, founder and long-time director of Alabama Water Watch, as our guest speaker, who will give us an overview on 30 years of watching the water on Lake Martin. The meeting is contingent upon covid conditions, we will meet if we can do so safely. We are looking forward to some new faces on our board, as some folks that have served for many years are rotating off. Masking will be encouraged. I'll keep you posted as the time grows near.

Letter from the President

It goes without saying that 2021 was another very challenging year! I hope and pray that all of you and your families made it through safely! In spite of the pandemic, Lake Watchers were busy in their efforts to protect our treasured lake.

Matt and Ann Campbell continue watershed monitoring above the lake, now into its third year. The effort is focused on streams, Crooked, Emuckfaw, Timbergut, and Hillabee, flowing into the Tallapoosa River (which flows into Lake Martin) that are being populated with chicken houses (at last count two years ago, around 120 houses). Data thus far shows:

- high bacterial concentrations in the water after significant rainfall/runoff events,
- high *E. coli* and high levels of yet unidentified bacteria characterized by turquoise colonies during these events.

The Auburn University bacteria study led by Dr. Yucheng Feng began last September to help verify bacterial loading into streams above the lake, and to help identify the sources of the bacteria. Dr. Feng and her graduate student Wenjing Ren have been sampling alongside Matt and Ann in the watershed above the lake. We are eagerly awaiting their microbial source tracking results from the streams and the river to shine some light on the sources of the bacterial contamination.

As you may recall, we measured high bacterial concentrations downstream, in the upper end of Lake Martin last fall (see *E. coli prompts call for swim alerts*, Alexander City Outlook, 12/21/2021). This event, which occurred after a high rain event, made us realize two things: 1) the need for more monitors and monitoring; and 2) the need for an efficient way to get the word out to the public when we find high *E. coli* in the lake and other water-recreation areas. I put out a call for help to Lake Watch members, and Harry DeNegre, Lake Martin HOB0 president, sent the call out to the HOB0 membership. I was very pleased at the response – nearly 30 folks offered to help monitor! Eleven got trained by Alabama Water Watch in December and will begin monitoring this spring. THANK YOU to AWW, HOB0, and to all the folks that stepped up to protect our lake!

We are focusing on Swim Guide as the medium to broadcast our bacteriological test results to the Lake Martin community. Swim Guide is a web-based one-stop shop for swimming-area water quality information. I added two swim beaches on Lake Martin – Wind Creek and Dare Park, several years ago, see www.theswimguide.org/find/. We plan to add several more, monitor them regularly, and post the results on Swim Guide. The postings will be made available on various websites so that the Lake Martin community can access the information easily. We believe this will help keep everyone safe as we work to resolve bacterial contamination issues that arise.

In addition to the watershed monitoring, our monitors continue to diligently test sites throughout the lake. This is not only crucial for detecting any negative impacts from pollutants coming from the watershed down the Tallapoosa River, but also crucial for detecting impacts from potential sources from streams that flow directly into the lake.

In response to the Alabama Department of Environmental Management (ADEM) call for input for compiling their 2022 303(d) list of impaired streams, we pulled together our Lake Watch data and sent it to ADEM, along with recommendations to consider adding several watershed streams above the lake to the 303(d) list, since we have measured high *E. coli* in them on several occasions. The

Draft 303(d) List (see www.adem.alabama.gov/programs/water/303d.cnt) was recently released by ADEM, and one of those streams is now listed – Hillabee Creek. We are pleased that Lake Watch data is being used to alert ADEM to pollution issues in our watershed and will continue our interactions with ADEM to resolve these issues. We are also concerned to see that Blue Creek has been added to the draft list for *E. coli* – we need to investigate this further. Other listings include Coley Creek for excess nutrients (presumably from the wastewater treatment plant discharge there) resulting in high chlorophyll *a*/algae concentrations, and Elkahatchee Creek for mercury prompting a fish consumption advisory from the Alabama Department of Public Health.

Assessment Unit	Waterbody Name	River Basin	County	Causes	Basis for Addition to the List	Source / Date of Data
AL03150109-0203-200	Pigeonroost Creek	Tallapoosa	Chambers	Pathogens (<i>E. coli</i>)	Records at ADEM station PGRC-1 from 2019 show that <i>E. coli</i> criterion was exceeded in 3 out of 7 samples.	ADEM 2019
AL03150109-0405-102	Hillabee Creek	Tallapoosa	Tallapoosa	Pathogens (<i>E. coli</i>)	Records at ADEM station HILT-2 from 2017-2020 show that the <i>E. coli</i> criterion was exceeded in 4 out of 18 samples.	ADEM 2017-2020
AL03150109-0602-100	Blue Creek	Tallapoosa	Tallapoosa	Pathogens (<i>E. coli</i>)	Records at ADEM station BLCT-1 from 2020 show that the <i>E. coli</i> criterion was exceeded in 3 out of 8 samples.	ADEM 2020
AL03150109-0802-311	Coley Creek (Lake Martin)	Tallapoosa	Tallapoosa	Nutrients	Records at ADEM station MARE-7 from 2015, 2018, and 2020 show dissolved oxygen concentrations ranging from 5.9 mg/L to 10.2 mg/L. The median pH value during this period of record was 7.7 s.u. and the maximum value was 8.8 s.u. During this time, the median Total Nitrogen concentration was 0.712 mg/L with a maximum concentration of 2.398 mg/L. The median Total Phosphorus concentration was 0.036 mg/L with a maximum value of 0.133 mg/L. In addition, a maximum chlorophyll <i>a</i> value of 29.40 µg/L was recorded.	ADEM 2015, 2018, 2020
AL03150109-0803-111	Elkahatchee Creek (Lake Martin)	Tallapoosa	Tallapoosa	Metals (Mercury)	A fish consumption advisory issued by the Alabama Department of Public Health in 2021 based on records from ADEM station MARE-8.	ADEM 2021

We were very concerned last fall when we learned that the graphite mining operation in the Weogufka area to the west would be processing their ore in Kellyton and the processing wastewater would flow to Lake Martin. I contacted Mayor Baird to discuss our concerns and learn about the proposed operation. We had a very productive meeting with city officials and Alabama Graphite and got all of our questions answered. We came away feeling that the lake will not be adversely impacted as long as construction and operation go as planned and wastewater contaminants stay within permitted limits – we remain observant.

In closing, after serving two terms, I am hanging up my spurs as president. I feel that new blood is needed to continue the good work of the group. I will rotate to the Lake Watch board and continue working to advance the goals of lake and watershed stewardship as best I can. I am optimistic that 2022 is going to be a productive year for Lake Watch and for our lake. I've seen a growing interest in protecting our treasured lake and hope to see a growth in our membership and watershed stewardship activities. Y'all stay safe and I hope to see you at our annual meeting!

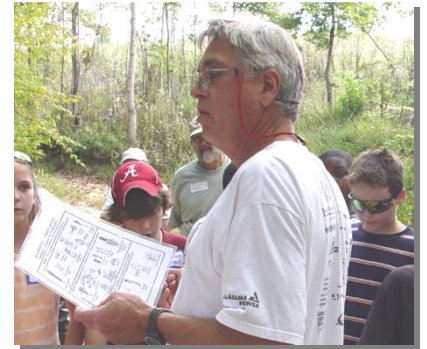
Elections

The Lake Watch board met via Zoom on January 24, 2022 to discuss our plans for this year. We had a good meeting to discuss our goals and objectives to strengthen Lake Watch and to continue the protection of our Treasured Lake. We had three board members retire from the board: Jesse Cunningham (with his better half Barbara, left picture) and Tom Collier (middle picture) and Laurie

Barrett (right picture). I extend my heart-felt appreciation to Jesse, Tom and Laurie for their many years of service) – THANK YOU!



The Lake Watch board received the nomination of MATT CAMPBELL (pictured on right) for our new president! Matt and Ann have monitored for years. Matt has served on the board, led our Legal Committee, advocated for our lake at ADEM in Montgomery, and is leading the monitoring efforts in our watershed bacteriological monitoring of watershed streams above the lake. THANK YOU Matt for stepping up!



The Lake Watch board also received nomination of Bill Butler (pictured on left) for vice-president. Bill has monitored for several years, served on the board and worked on the Legal Committee. THANK YOU Bill for stepping up!

And THANK YOU to all of our officers and board members that re-upped for another term: Dianna Porter, Janne Debes, Dick Bronson, Myrna Lehman, Joanne Walker for your efforts, ideas and actions in advancing our Lake Watch goals!

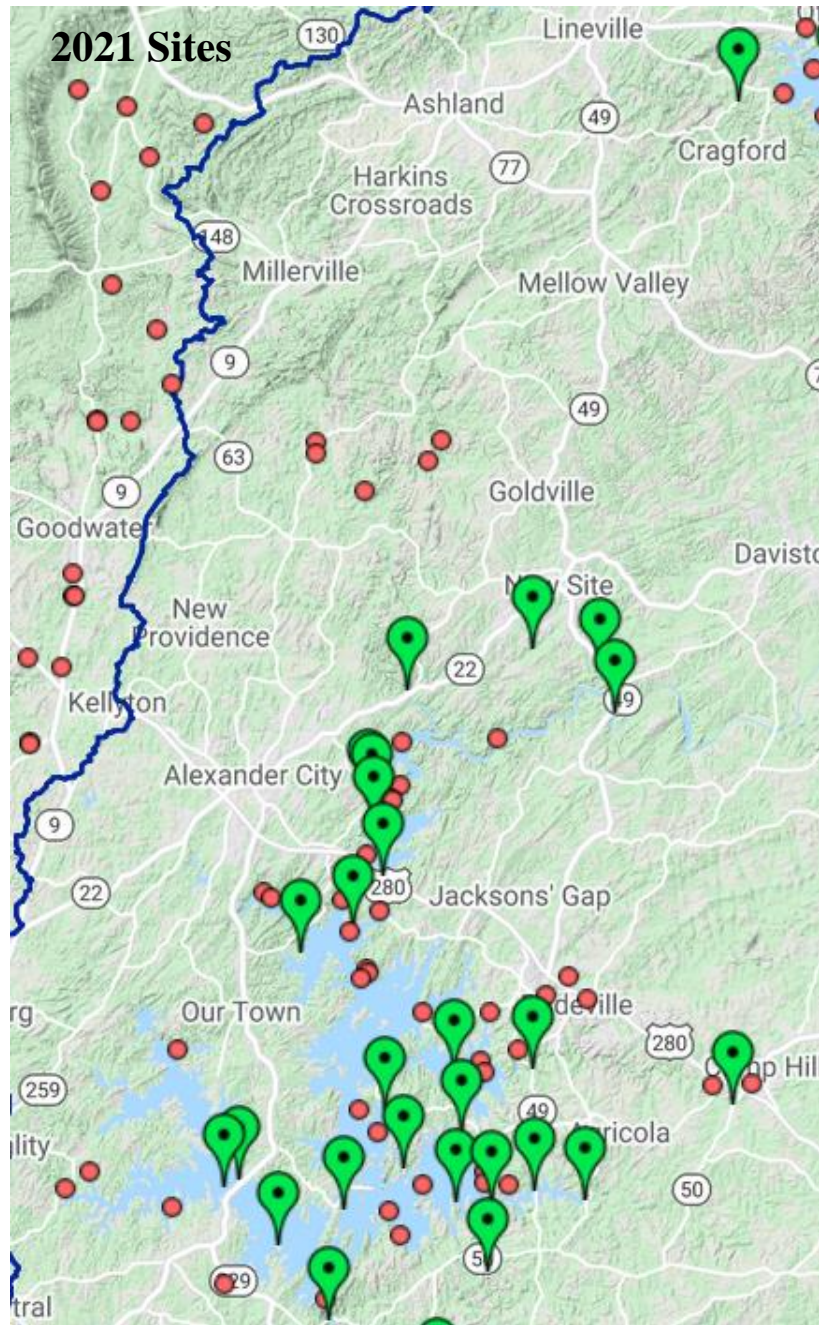
Budget

At our January board meeting, our Treasurer, Janne Debes, reported that for 2021 Lake Watch had more funds come in but we had bigger expenses. We had 126 dues-paying members. We started 2021 with \$5,768 and ended the year at \$5,570. The biggest expense, as usual, was our monitoring supplies, \$2,478. The second largest expense were contributions in support of Dr. Feng's bacteriological study, \$2,155 (to support the study plus additional testing in upper Lake Martin).

We anticipate additional expenditures this year for: supplying our 11 new monitors with testing supplies, conducting some new tests for other pathogenic bacteria (Salmonella, Enterococcus), and possibly having Dr. Feng run more microbial source tracking analyses beyond the scope of the current study. Thus, we will be actively seeking more funding this year – all contributions are most welcome. **A big THANK YOU to all who support Lake Watch through annual dues and donations**, especially our Silver, Gold and Platinum donors! We couldn't operate without your support!

Water Monitoring

The Lake Watch volunteer water monitors continue to watch over our lake through their diligent monthly water testing. They conducted 280 water tests (167 water chemistry records and 113 bacteria records). Our 31 Lake Watch monitoring are mapped below; green=active sites, red=inactive sites; a few of our new sites have not yet been updated to green on the map), from Crooked Creek (the lake's headwaters near Lineville) down to the Martin Dam. I am happy to report that our volunteer water monitors' data, for the most part, showed good water quality throughout the boundaries of the lake. There were however some violations of ADEM water quality standards.



The violations were all due to fecal contamination measured as elevated *E. coli* levels in the water. *E. coli* measurements ranged from 0 – 6,700 *E. coli* per 100 mL of water (or 3 ½ ounces, about half a cup). Of the 113 *E. coli* measurements, 26 (23%) were above the ADEM standard: 235 *E. coli*/100 mL maximum for waters used for swimming and other whole-body contact (see table below showing dates when *E. coli* were above the standard).

1	AwwSiteCode	Location	SampleDate	AirTemp	WaterTemp	E.coli/100 mL	Collectors
2	07001030	Blue @CR 39 Barrons Bridge		22.0	18.0	933	Bill Butler
3	07001046	Blue Cr, Hwy 49	31-May-21	28.5	27.0	400	Janne Debes
4	07001062	Crooked off Berwick Rd	18-Mar-21	22.0	15.0	1,300	Matt Campbell,Ann Campbell,Eric Reutebuch
5	07001060	Emuckfaw @ Hwy 49	18-Mar-21	22.0	16.0	1,567	Matt Campbell,Ann Campbell,Eric Reutebuch
6	07001060	Emuckfaw @ Hwy 50	17-Aug-21	25.0	24.0	2,767	Matt Campbell,Ann Campbell,Eric Reutebuch
7	07001013	Hillabee @ Hwy 22	18-Mar-21	22.0	16.0	533	Matt Campbell,Ann Campbell,Eric Reutebuch
8	07001005	Lake @ Kowaliga boat ramp	11-Sep-21	28.0	28.5	1,400	Janne Debes
9	07001067	Lake @ Kowaliga Marina	27-Jun-21	26.0	28.0	267	Janne Debes
10	07001067	Lake @ Kowaliga Marina	11-Sep-21	25.0	29.0	433	Janne Debes
11	07001067	Lake @ Kowaliga Marina	16-Oct-21	17.0	25.0	300	Janne Debes
12	07001069	Lake above Andrew Jackson	01-Sep-21	28.0	25.0	900	Eric Reutebuch
13	07001038	Lake above Coley Cr	01-Sep-21	29.0	25.0	800	Eric Reutebuch
14	07001058	Lake at Gatewood Dr (Blue Cr)	30-Aug-21	26.0	28.5	400	Bill Butler
15	07001053	Sandy @ CR 49	26-Apr-21	20.0	17.0	367	Janne Debes
16	07001050	Sandy @ CR 50	25-Apr-21	18.3	15.9	700	Allen Sneed
17	07001050	Sandy @ CR 50	15-Jul-21	31.1	23.5	300	Allen Sneed
18	07001050	Sandy @ CR 50	18-Aug-21	31.1	23.7	667	Allen Sneed
19	07001050	Sandy @ CR 50	17-Sep-21	25.6	22.4	267	Allen Sneed
20	07001050	Sandy @ CR 50	19-Oct-21	21.7	14.0	1,067	Allen Sneed
21	07001053	Sandy @ CR 50	16-Oct-21	20.0	20.0	600	Janne Debes
22	07001053	Sandy @ CR 51	16-Nov-21	15.5	11.0	433	Janne Debes
23	07001053	Sandy @ CR 52	28-Dec-21	20.0	15.0	1,700	Janne Debes
24	07001001	Tallaposa @ HSB	18-Mar-21	22.0	13.0	333	Matt Campbell,Ann Campbell,Eric Reutebuch
25	07001001	Tallaposa @ HSB	17-Aug-21	25.0	25.0	333	Matt Campbell,Ann Campbell,Eric Reutebuch
26	07001061	Timbergut @ CR 100	18-Mar-21	22.0	16.0	6,700	Matt Campbell,Ann Campbell,Eric Reutebuch
27	07001061	Timbergut @ CR 100	17-Aug-21	25.0	24.0	5,833	Matt Campbell,Ann Campbell,Eric Reutebuch

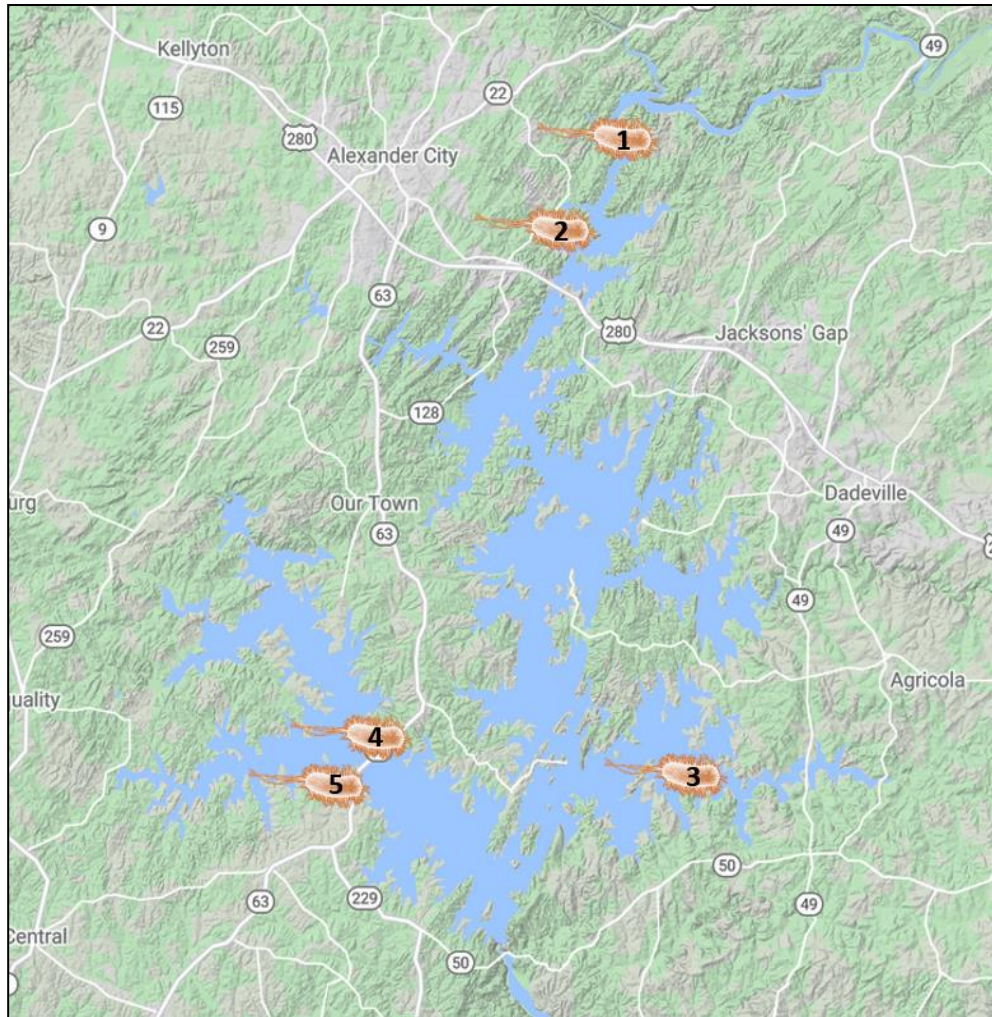
Most of these high *E. coli* measurements occurred in streams (not the lake), which also showed the highest levels of contamination. Very high values (ranging from 1,067 – 6,700) were measured in Timbergut, Emuckfaw, Crooked, Little Sandy and Sandy creeks.

E. coli concentrations above the ADEM standard were occasionally measured in the lake at five different locations (see map below):

Lake above Hwy 280 bridge: 1. above Andrew Jackson & below confluence with Hillabee Creek
2. above the confluence of the lake with Coley Creek

Lake below Hwy 280 bridge: 3. at Gatewood Dr on Blue Creek Embayment
4. at Kowaliga boat ramp near Kowaliga Bridge
5. at Kowaliga Marina near Kowaliga Bridge

We are continuing our work to not only identify areas in the lake and its watershed that are contaminated with fecal matter (*E. coli*), but also working to identify where the contamination is coming from and get the perpetrators to clean up their act.



Five locations in the lake where *E. coli* levels were measured in 2021 above the ADEM standard for swimming and other whole-body contact.

As you may know, we've expanded our sampling into the watershed above the lake, led by Matt and Ann Campbell. Last year, we worked with Dr. Feng, an AU professor specializing in microbiology, and her graduate student Wenjing in securing a grant to study bacteria in streams and the Tallapoosa River above the lake. They are employing microbial source tracking (MST) to aid in identifying where the bacteria are coming from (see *Lake Watch goes hi-tech with AU microbiologist*, July 2021 Lake Magazine, www.lakewatch.org/Lake-Magazine-Articles). They have been sampling alongside Matt and Ann since September of last year.

Side-by-side testing has thus far verified that high levels of *E. coli* are flowing down the streams above the lake, particularly after rain events; and that the *E. coli* are flowing down the Tallapoosa River into the upper end of Lake Martin (see *E. coli prompts call for swim alerts*, Oct 21, 2021 Alexander City Outlook, www.lakewatch.org/News).

We also have preliminary source tracking data that indicate humans, cattle and chickens were the sources of the *E. coli* entering the upper lake last fall. We will have a much better picture of sources when we get the full MST dataset from the various streams being test – Crooked Creek, Emuckfaw

Creek, Timbergut Creek, Hillabee Creek, and the Tallapoosa River at Horseshoe Bend. We'll keep you posted.



Matt, risking life and limb for our lake.



Ann and Wenjing sampling Timbergut Creek.

Let's look at water chemistry data. Examination of the 167 water chemistry data records indicated no issues with dissolved oxygen (DO) in the lake or in any of the streams being monitored. DO measurements ranged from 5.2 – 11.1 parts per million (ppm; which is the same as mg/Liter). DO is critical in maintaining aquatic life. If DO drops below 5 ppm, aquatic life suffers, and if the drop is severe (down to ~ 1 ppm) fish will die.

Water hardness and alkalinity generally indicate the amount of limestone dissolved in the water. Hardness and alkalinity measurements can be dramatically increased from point source (for example, textile mill effluent) and nonpoint source pollutants (for example, ag lime washed off fields). Hardness in the lake and streams ranged from 10 – 40 in the lake and streams with a single high value of 70 in Sandy Creek. The lake typically ranged from 10 – 30, indicating a soft-water lake. The higher values occurred in some of the streams that were influenced by pollutants.

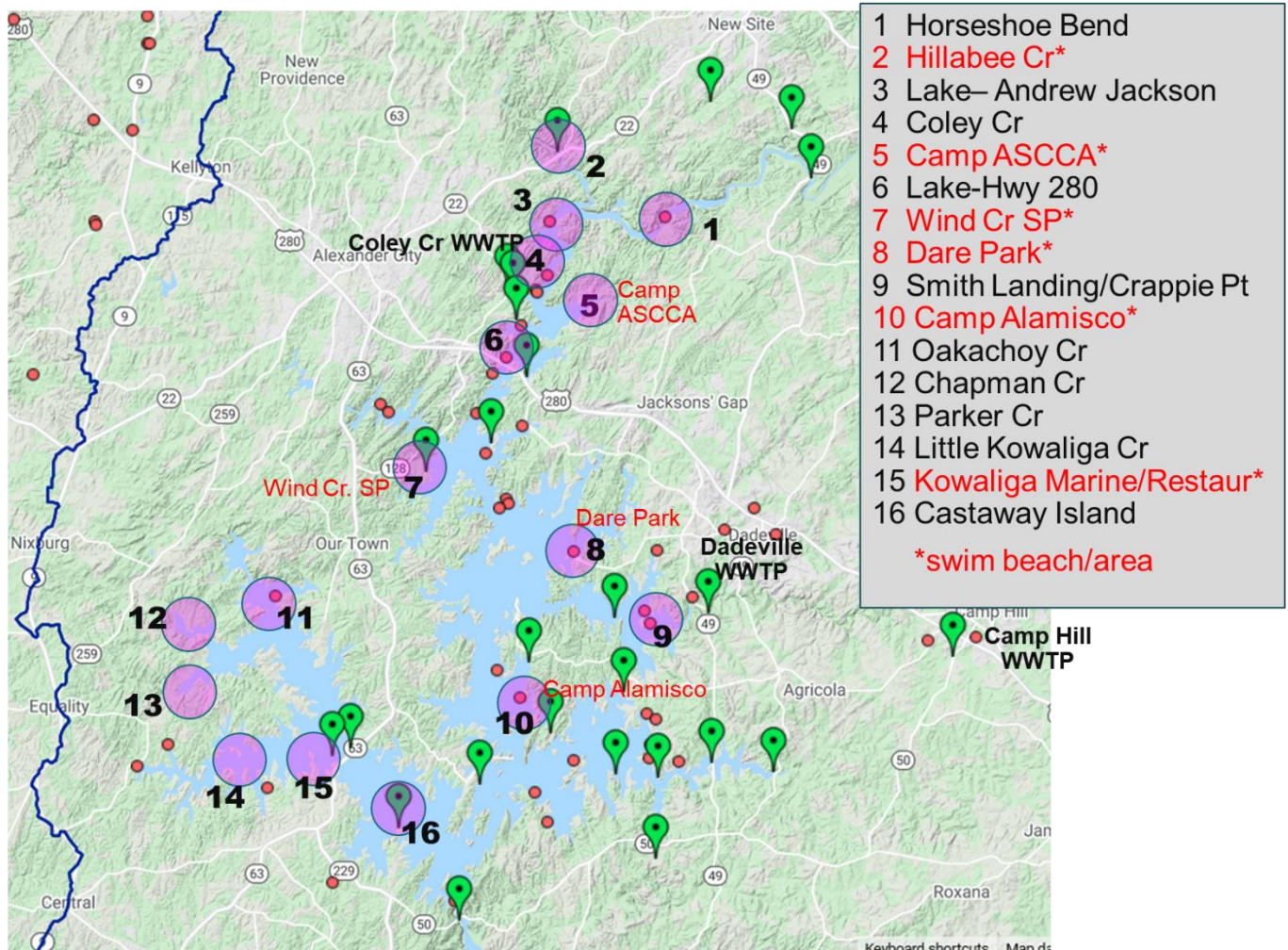
Alkalinity ranged from 15 – 50 ppm. The lake typically ranged from 15 – 30 ppm, which also indicates a soft-water lake. The higher values occurring in some of the streams.

pH, the measure of the acidity or basicity of the water, ranged from 6.5 – 8.5 in the lake and streams. This range falls within the optimal range for healthy fish and other aquatic critter growth.

Turbidity and Secchi disk measurements indicated that the water was turbid/muddy on occasion, typically in the streams and embayments, and in the mainstem lake after heavy rains.

Overall, water chemistry measurements indicated a healthy lake with no significant water quality issues relative to the water chemistry parameters measured.

We are excited about our 11 new water monitors that will start monitoring this spring. We have worked up a list of priority sites for them on the lake and on streams flowing into the lake, especially emphasizing swimming areas such as DARE Park, Wind Creek State Park, Camp Alamisco, and Camp ASCCA. These areas are particularly important since lots of folks swim at these places all summer long (see map below).



Join me in giving a big **THANK YOU** to all of our 2021 Lake Watch volunteer monitors:

- ◆ Allen Sneed
- ◆ Bill Butler
- ◆ Matt & Ann Campbell
- ◆ Joanne Walker
- ◆ Edwin Eiswerth
- ◆ Kathryn Braund
- ◆ Mike Guillot
- ◆ Janne Debes
- ◆ Eric Reutebuch
- ◆ Connie Wheatley
- ◆ Paul Sullivan

Swim Alert

When we detected high *E. coli* in the upper lake for the first time last September, we realized that we needed an efficient way of getting our results out to the Lake Martin community to help protect the public from contacting pathogenic fecal bacteria and getting sick. The Coosa Riverkeeper has been using the Swim Guide (www.theswimguide.org) as their medium to efficiently post their bacteria test results and disseminate them to the public (see coosariver.org/swimguide). We plan to do the same for priority sites like swim beaches (DARE Park, Wind Creek State Park, etc.) starting this year. We are working on identifying all priority sites that we want to include as our Lake Watch Swim Guide sites and recruiting monitors to test them regularly for *E. coli* so that we can post them on Swim Guide and get the results out to the public in a timely manner. We'll keep you posted.

Lake Watch Environmental Education Efforts

As you can imagine environmental education efforts were stifled last year because of the pandemic. None-the-less, efforts will resume when it is safe to once again gather with students and community members. We'll keep you posted.

Closing Thoughts

YOU are what makes Lake Watch of Lake Martin work! We urge each of our Lake Watch members to spread the word about Lake Watch, to support our programs and to participate – give your neighbor a Lake Watch brochure and a pep talk. Help sign up new members to our team! Consider becoming a monitor or a trainer. Consider an additional donation to Lake Watch! Not everyone can get out and monitor water, or teach in a classroom, or give a presentation, but each member is essential to our success. We welcome your suggestions/ideas on how to better protect our lake from emerging threats.

Together, we can make a difference in the protection of our lake, in water conservation and clean water advocacy, and in the world we leave for our children. If every Lake Watch member encourages one or two friends to join in our efforts, it will go a long way toward ensuring the continuation of the good work we've accomplished over the past 30 years. Go visit your neighbor and convince him or her to sign up. Signing up is easy, just go to our website, www.lakewatch.org and click the menu item 'Get Involved', you'll be glad you did!



Dues Reminder

Take the plunge, if you haven't already!

- Protect Lake Martin by supporting Lake Watch!
- And ask a neighbor to do the same!



For the many faithful Lake Watch members who already paid their dues for 2022, **THANK YOU!**
And for those who haven't yet, don't forget to pay/join online (preferred) or send your check to:

P. O. Box 72, Alexander City, AL 35010

Membership levels are listed below:

Regular dues (annual): **Student \$15 Individual \$20 Family \$30**

Lake Martin Steward: **Silver \$50 Gold \$100 Platinum \$250**

We also welcome donations of any amount. Don't forget – a donation in someone's honor/ memory is a lovely tribute.



P. O. Box 72
Alexander City, AL 35010

