

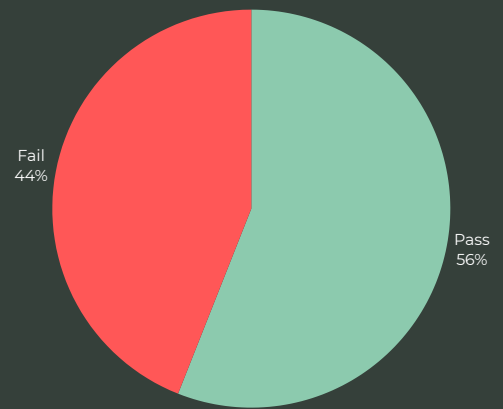
Swim Where It's Monitored

MOBILE BAYKEEPER 2023 SWIM REPORT

sponsored by: Dorothy D Trabits
Stephens Foundation

prepared by Mobile Baykeeper

Mobile Baykeeper exists to defend and revive the health of the waters of Coastal Alabama. One way we accomplish this is through bacteriological monitoring at several locations in Mobile and Baldwin counties and reporting our findings to the public. This document reports the data collected by the Mobile Baykeeper team at the **Dog River "Dog River Park" site**.



INTRODUCTION

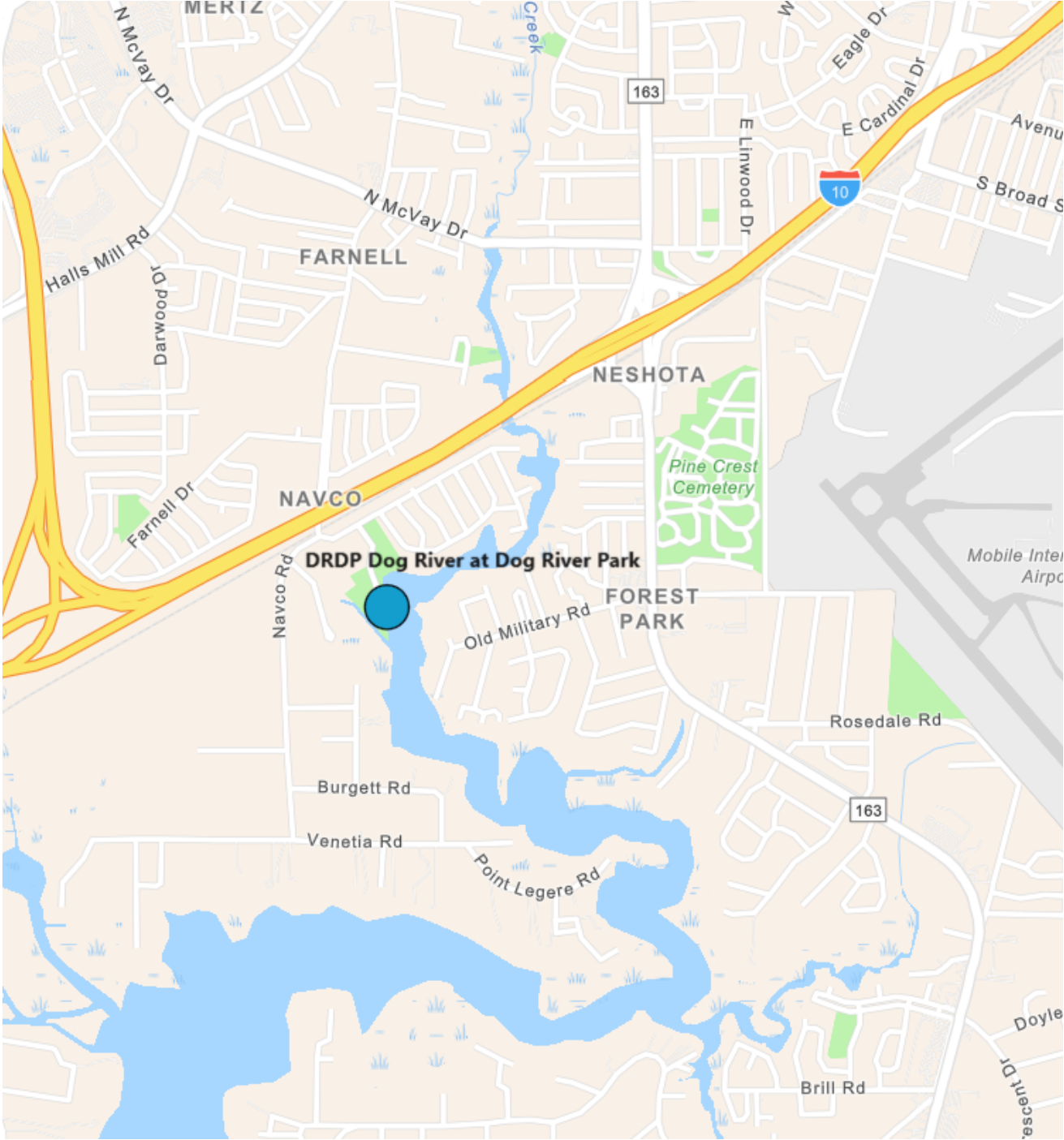
Purpose of the SWIM Program

The SWIM (Swim Where It's Monitored) Program's primary focus is to conduct bacteriological testing and report results of that testing to the public. Samples are tested for *Enterococcus* and *E. coli*. These bacteria are indicators of fecal pollution and pathogens. *Enterococcus* is the best indicator in saltwater systems while *E. coli* is the best indicator in freshwater systems. Mobile Bay was tested for *Enterococcus* because it is an area where saltwater and freshwater mix, also known as an estuary. Mobile Baykeeper's goal is to help citizens protect their health and that of their families by allowing them to make informed decisions on where to swim and play in the Mobile Bay Watershed. Mobile Baykeeper tests weekly from April 1st through September 30th, and monthly from October 1st through March 31st. Results are uploaded to our website and the SWIM guide app for Apple and Android smartphones.

Watershed Characteristics

Dog River is a tidally influenced river within Mobile County that stretches approximately 12 miles inland. The river and its tributaries drain most of Mobile, Alabama, eventually emptying into Mobile Bay. The Dog River Watershed encompasses approximately 95 square miles within Mobile County. Major tributaries of Dog River include Perch Creek, Alligator Bayou, Rabbit Creek, Halls Mill Creek, Moore Creek, Eslava Creek, and Robinson Bayou. Wetlands make up approximately 5,223 acres of the greater Dog River Watershed area. The health of the entire watershed depends on these wetlands, which mitigate pollution, recharge groundwater, recycle nutrients, and enhance biodiversity.

SITE MAP



The testing site in Dog River at "Dog River Park" is located near the blue circle.

Methods

Samples from Dog River Park were collected by Mobile Baykeeper to test for Enterococcus bacteria. Each sample was taken directly from the waterbody at the site following Mobile Baykeeper bacteriological standard operating procedures. The team tested for and quantified Enterococcus species using IDEXX's Enterolert test kit procedure, a test approved by the Environmental Protection Agency (EPA) for detection of Enterococcus. Samples were diluted 10x, which allows for a larger range of results and a more accurate representation of the actual concentration of Enterococcus existing in each waterbody. After a 24-hour incubation period, results were quantified by reading a sealed well-tray under UV light (365 nm) to record the number of fluorescent wells. A standardized calculation is used to approximate the most probable number of colony forming units per a 100 mL sample.

ADEM Data

The Alabama Department of Environmental Management (ADEM)'s "Water Use Classification" categorizes Mobile Bay as "Swimming", "Fish and Wildlife" and "Shellfish Harvesting". These classifications mean that protective standards for these waterbodies should allow for people to swim safely, and the water quality is suitable for fishing and the survival of wildlife. Water Quality Standards set for "Swimming" waters identify the acceptable ranges of water quality parameters. A table of standards applicable is below (Table 1).

ADEM Standards for Swimming Waters	
Temperature	< 90°
pH	6.0 - 8.5 s.u. (standard unit)
Dissolved Oxygen	> 4.0 - 5.0 mg/L
Enterococci	< 104 MPN /100 mL (most probable number per 100 mL) geometric mean
Turbidity	< 50 NTU (nephelometric turbidity units) above background

Table 1. ADEM Water Quality Standards for Swimming waters in Mobile Bay watershed

Federal standards of Enterococcus for designated swimming waters are determined by the EPA to be 104 most probable number (MPN) colony forming units (CFU) of Enterococcus per 100 mL of water. At this level it is estimated that approximately 3% of healthy adult swimmers will become ill. These rates may be higher for children, pregnant women, the elderly, or those with weakened immune systems.

Mobile Baykeeper Data

Testing of Dog River waters at "Dog River Park" has consistently shown high bacteria levels. (Table 2). 50 samples were collected during the SWIM season from April 2023 to September 2023. Of these samples, 22 resulted in being above the EPA threshold for safe swimming (Figure 1). The average Enterococcus level was 353 MPN/100 mL. The maximum Enterococcus level that was recorded was 6867 MPN/100 mL. Unsafe swimming condition advisories were issued anytime the site tested above the EPA threshold initially and when resampled the next day.

Below EPA Threshold	Over EPA Threshold	% of passing	# of failing	# of times sampled
28	22	56%	44%	50

Table 2. Summary of Dog River at Dog River Park Enterococcus sampling results

As stated before, the EPA threshold for safe swimming for Enterococcus is 104 MPN CFU Enterococcus per 100mL of water. Figure 1 shows this threshold compared to the sample results collected from April 2023 to September 2023. Mobile Baykeeper is currently working on a bacterial source tracking project in the Dog River watershed.

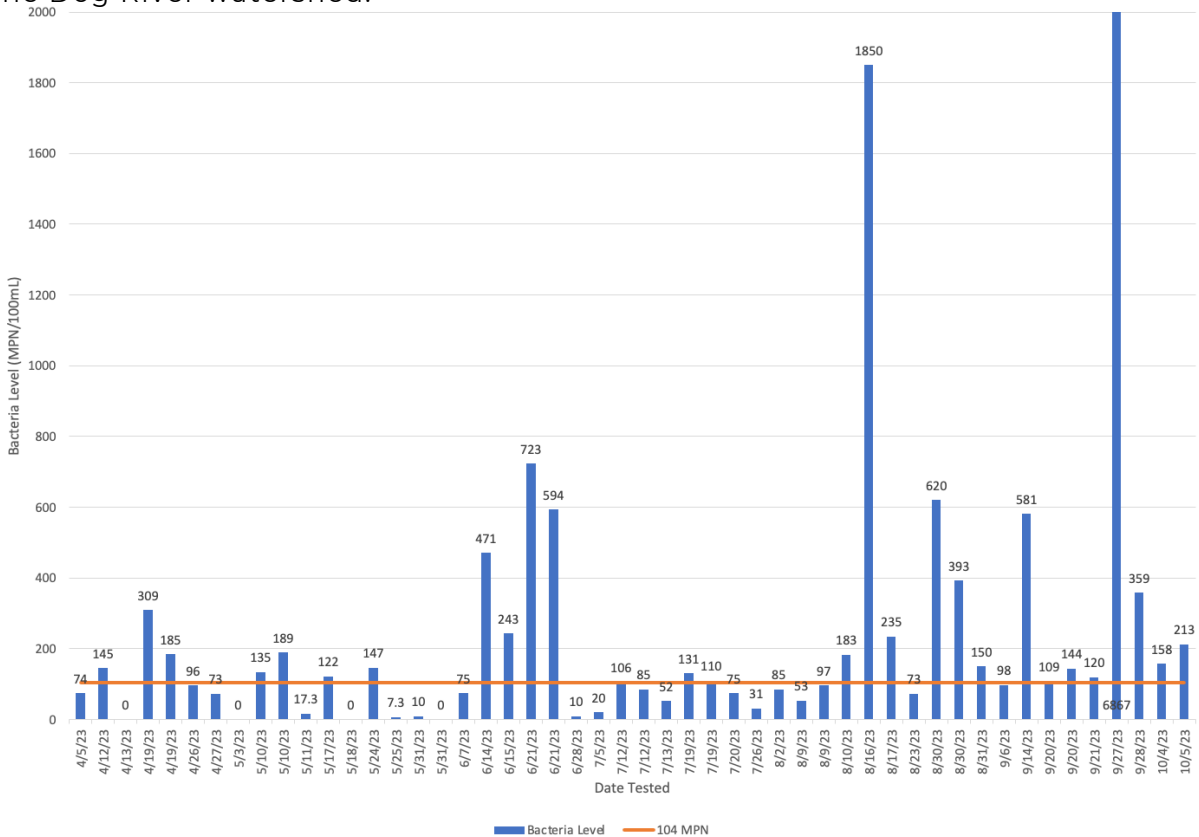


Figure 2 lists the dates sampled and the resulting *Enterococcus* levels. Green cells correspond to results below the EPA threshold, yellow cells correspond to an intermediate level above the threshold, but below 501 MPN, and red cells correspond to a high level above 501 MPN.

Date	MPN Enterococcus
4/5/2023	63
4/12/2023	86
4/12/2023	108
4/13/2023	1017
4/19/2023	41
4/26/2023	31
4/27/2023	6867
5/3/2023	<10
5/3/2023	<10
5/10/2023	591
5/11/2023	18.5
5/17/2023	1726
5/18/2023	1421
5/24/2023	74
5/24/2023	98
5/25/2023	4.1
5/31/2023	109
6/1/2023	51
6/7/2023	20
6/14/2023	20
6/14/2023	20
6/21/2023	1246
6/28/2023	<10
7/5/2023	108
7/5/2023	96
7/6/2023	10
7/12/2023	554
7/13/2023	279
7/19/2023	31
7/26/2023	1191
7/27/2023	41
8/2/2023	189
8/2/2023	295
8/3/2023	10
8/9/2023	63
8/16/2023	10
8/23/2023	10
8/23/2023	10
8/30/2023	545
8/31/2023	213
9/6/2023	359
9/20/2023	86
9/21/2023	235
9/27/2023	250
9/28/2023	84
10/4/2023	144
10/4/2023	171
10/5/2023	204

Figure 2. Dates of samples taken and resulting *Enterococcus* bacteria levels

Mobile Baykeeper Data

Mobile Baykeeper created SWIM in 2018 to provide our families, paddlers, and anglers with up-to-date water quality information at locations not currently tested by the state agency. SWIM provides concerned citizens, including civic groups, businesses, families, and local governments, an opportunity to sponsor water quality monitoring at the location most important to them. Test results allow sponsors and other community members to make informed decisions about whether it is safe to swim, fish, boat, or play near the tested location. If significant pollution is found, Mobile Baykeeper develops a source tracking plan to resolve it. Your sponsorship shows your commitment to clean water and the safety of your neighbors and customers.

By continuing your sponsorship of SWIM testing in Dog River at "Dog River Park", you are protecting the beauty, health, and heritage of the Mobile Bay Watershed and our coastal communities. Thank you for your continued support.

