

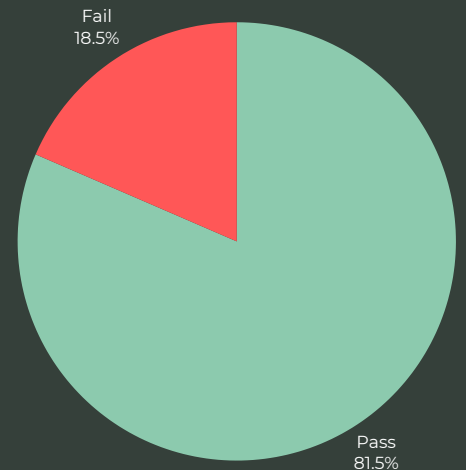
Swim Where It's Monitored

MOBILE BAYKEEPER 2023 SWIM REPORT

sponsored by: Stephanie Middleton &
Family

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 **Mobile Bay - "It'll Do" site**.



INTRODUCTION

Purpose of the SWIM Program

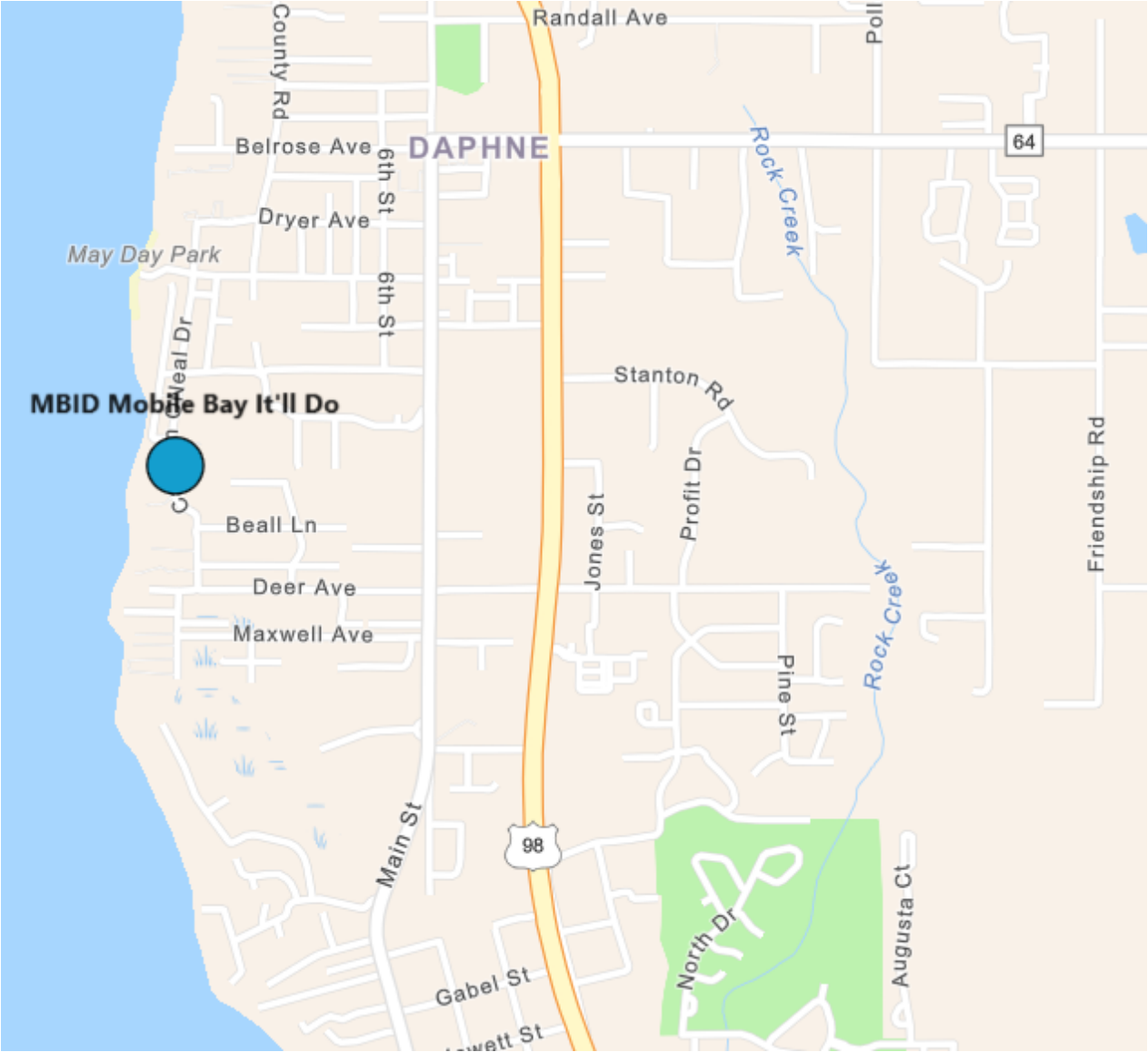
The SWIM (Swim Where It's Monitored) Program's primary focus is to conduct bacteriological testing and report results of that testing to the public. Samples are tested for *Enterococcus* and *E. coli*. These bacteria are indicators of fecal pollution and pathogens. *Enterococcus* is the best indicator 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

The Mobile Bay Watershed encompasses 65% of the land area for the state of Alabama, along with portions of Mississippi, Georgia, and Tennessee. On average, 33.5 trillion gallons pass into Mobile Bay annually, making it the fourth largest drainage basin in North America. Mobile Bay is the end-point for the Mobile, Tombigbee, Black Warrior, Alabama, Coosa, and Tallapoosa Rivers. The watershed is a vast network of more than 250 separate waterways. The waterways that flow toward Mobile Bay form the Mobile-Tensaw Delta, a 40-mile-long braid of rivers and bayous that spreads over cypress swamps, bottomland forests, marshes, and bogs. The expansive Delta is considered one of the most biologically diverse ecosystems in North America - "North America's Amazon." It opens into the northern end of Mobile Bay in an area called Five Rivers, which consists of the Mobile, Spanish, Tensaw, Apalachee, and Blakeley rivers.

"It'll Do" is a name given to the home and property of volunteer bacteriological monitor Stephanie Middleton. The site is located in Montrose, a small area between Fairhope and Daphne. Many of the homes in the area were built in the mid- to late-1800s as summer vacation homes for residents of Mobile. Montrose was added to the National Register of Historic Places on June 3, 1976.

SITE MAP



The testing site in Mobile Bay at "It'll Do" is located near the blue circle.

Methods

Samples were collected by volunteer bacteriological monitor, Stephanie Middleton, to test for Enterococcus bacteria. Mrs. Middleton has been trained to collect samples according to Mobile Baykeeper's bacteriological sampling SOPs. After collection, samples were held on ice until the Baykeeper Field and Research team retrieved them. Our team tested for and quantified Enterococcus spp. using Enterolert, a test approved by the environmental Protection Agency (EPA) for detection of Enterococcus. 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 total most probable number of colony forming units in 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 Mobile Bay waters at "It'll Do" has consistently shown low bacteria levels during both dry and wet weather (Table 2). 27 samples were collected during the SWIM season from April 2023 to September 2023. Of these samples, 5 resulted in being above the EPA threshold for safe swimming (Figure 1). The average Enterococcus level was 327 MPN/100 mL. The maximum Enterococcus level that was recorded was 3654 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
22	5	81.50%	18.50%	27

Table 2. Summary of Mobile Bay at It'll Do 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.

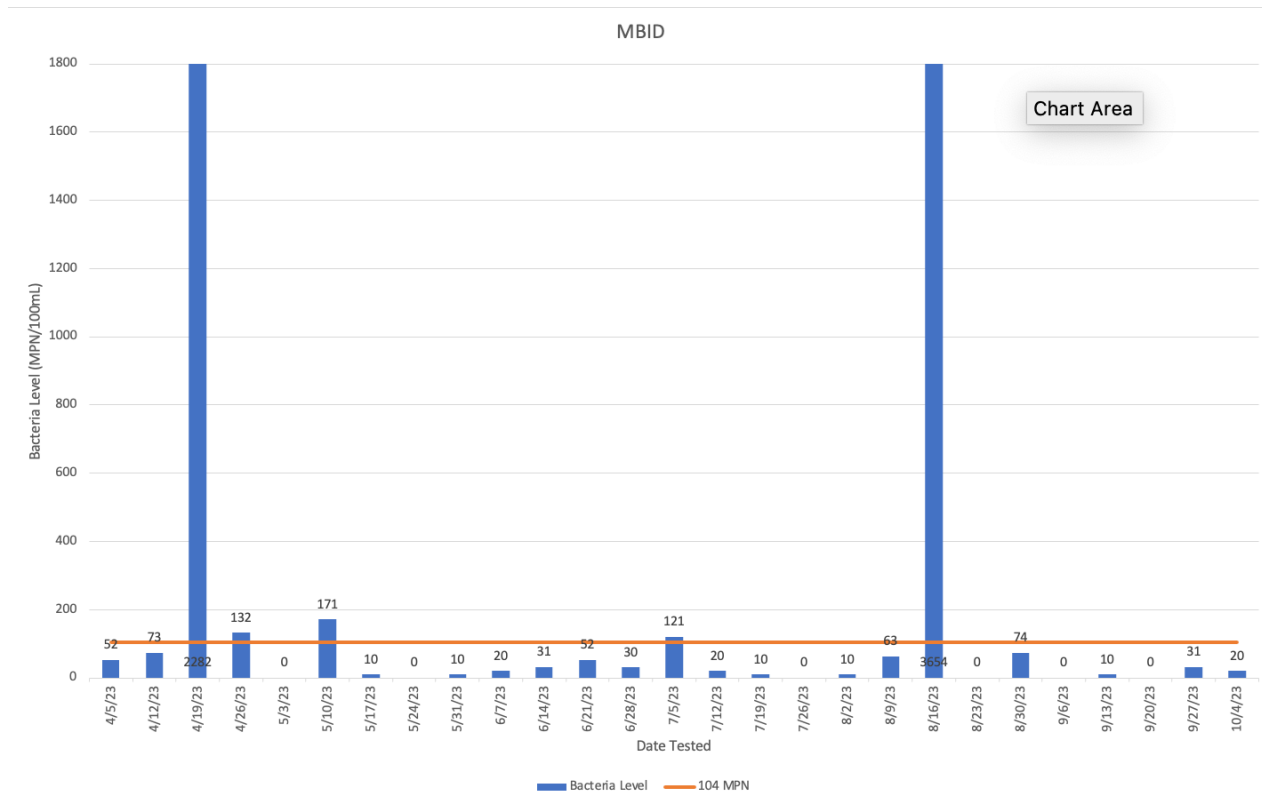


Figure 2 lists the dates sampled and the resulting *Enterococcus* levels. Green cells correspond to results below the EPA threshold, yellow cells correspond to an intermediate level above the threshold, but below 501 MPN, and red cells correspond to a high level above 501 MPN.

Date	MPN Enterococcus
4/5/2023	52
4/12/2023	73
4/19/2023	2282
4/26/2023	132
5/3/2023	<10
5/10/2023	171
5/17/2023	10
5/24/2023	<10
5/31/2023	10
6/7/2023	20
6/14/2023	31
6/21/2023	52
6/28/2023	30
7/5/2023	121
7/12/2023	20
7/19/2023	10
7/26/2023	<10
8/2/2023	10
8/9/2023	63
8/16/2023	3652
8/23/2023	<10
8/30/2023	74
9/6/2023	<10
9/13/2023	10
9/20/2023	<10
9/27/2023	31
10/4/2023	20

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 Mobile Bay at "It'll Do", you are protecting the beauty, health, and heritage of the Mobile Bay Watershed and our coastal communities. Thank you for your continued support.

