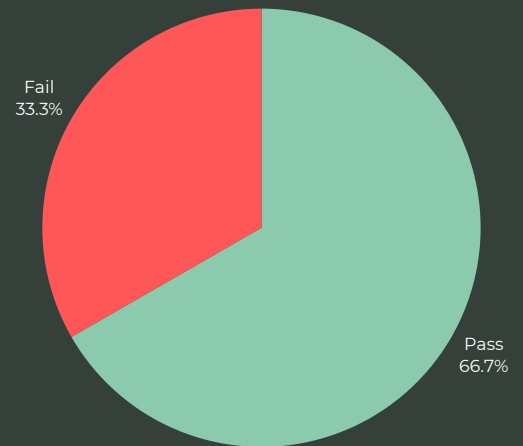




# MOBILE BAYKEEPER 2023 SWIM REPORT

sponsored by: South Alabama Land Trust  
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 **Fish Fiver - "Turkey Branch" site**.



# INTRODUCTION

## Purpose of the SWIM Program

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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

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The Fish River is a coastal river located in southwestern Baldwin County. The Fish River basin covers 158 square miles. Fish River is a major drainage of Weeks Bay and eventually empties into Mobile Bay. The Lower Fish River basin, where the Turkey Branch at Condor Circle SWIM site is located, covers approximately 34,500 acres of drainage. The major tributaries draining into the Lower Fish River watershed include Cowpen Creek, Waterhole Branch, Green Branch, Turkey Branch, Barner Branch, and Weeks Branch. A majority of its land use and land cover is categorized as agriculture and wetlands. Turkey Branch is a tributary of the Lower Fish River. The headwaters are near County Road 3 and Monk Rd. The branch flows through agricultural areas in the upstream portion before becoming more forested as it nears its confluence with the Fish River. The lower portion of the branch is tidally influenced and brackish especially during high tides. The branch flows into the Fish River just north of the U.S. HWY 98 bridge.

# SITE MAP



The testing site in Fish River at "Turkey Branch" is located near the blue circle.

## Methods

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Mobile Baykeeper collected samples to test for Enterococcus bacteria. Each sample was taken directly from the waterbody at each site following Mobile Baykeeper standard operating protocol. The team tested for and quantified Enterococcus spp. using Enterolert, a test procedure 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 total most probable number of colony forming units per a 100 mL sample.

## ADEM Data

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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

36 samples were collected during the SWIM season from April 2023 to September 2023. Of these samples, 12 resulted in being above the EPA threshold for safe swimming (Figure 1). The average Enterococcus level was 275.5 MPN/100 mL. The maximum Enterococcus level that was recorded was 3076 MPN/100 mL. Unsafe swimming condition advisories were issued anytime the site tested above the EPA threshold initially and when resampled.

Below EPA Threshold	Over EPA Threshold	% of passing	# of failing	# of times sampled
24	12	66.7%	33.30%	36

Table 2. Summary of Fish River at Turkey Branch 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.

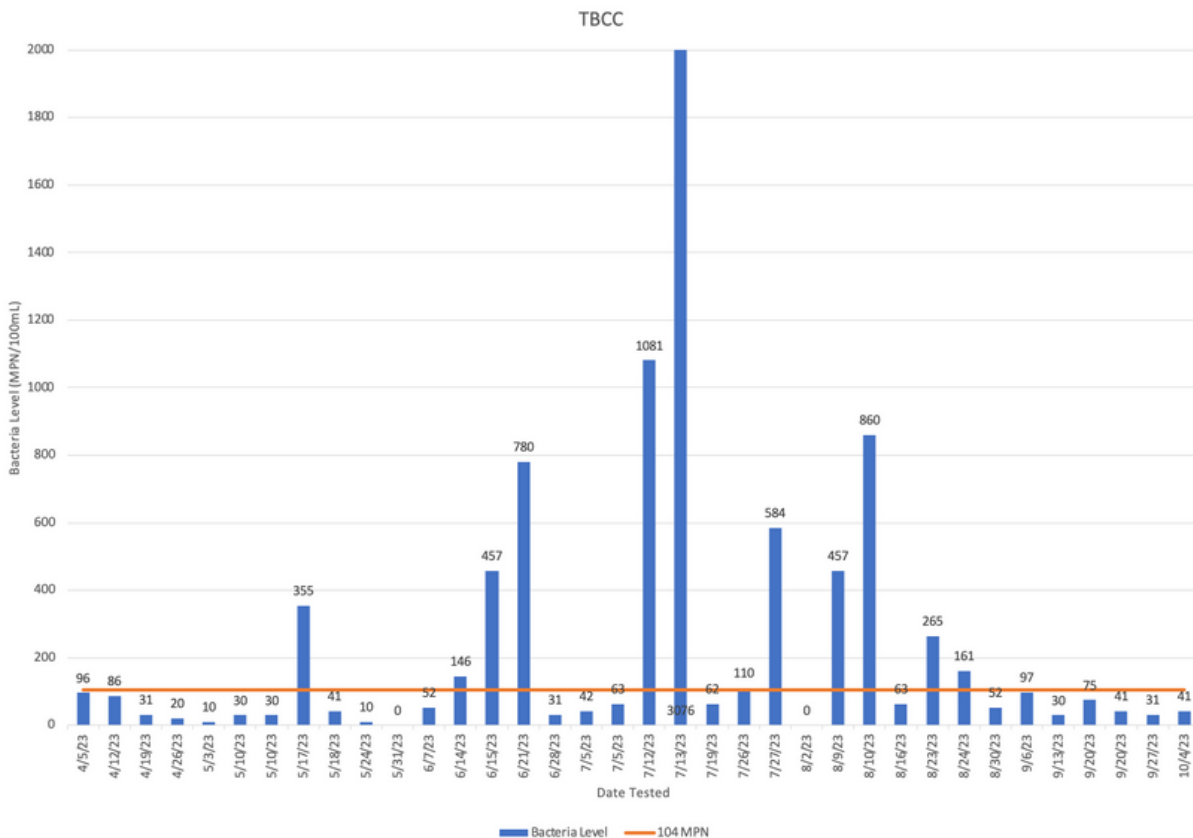


Figure 2 lists the dates sampled and the resulting *Enterococcus* levels. Green cells correspond to results below the EPA threshold, yellow cells correspond to an intermediate level above the threshold, but below 501 MPN, and red cells correspond to a high level above 501 MPN.

Date	MPN Enterococcus
4/5/2023	96
4/12/2023	86
4/19/2023	31
4/26/2023	20
5/3/2023	10
5/10/2023	30
5/10/2023	30
5/17/2023	355
5/18/2023	41
5/24/2023	10
5/31/2023	<10
6/7/2023	52
6/14/2023	146
6/15/2023	457
6/21/2023	780
6/28/2023	31
7/5/2023	42
7/5/2023	63
7/12/2023	1081
7/13/2023	3076
7/19/2023	62
7/26/2023	110
7/27/2023	584
8/2/2023	<10
8/9/2023	457
8/10/2023	860
8/16/2023	63
8/23/2023	265
8/24/2023	161
8/30/2023	52
9/6/2023	97
9/13/2023	30
9/20/2023	75
9/20/2023	41
9/27/2023	31
10/4/2023	41

# Mobile Baykeeper Data

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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 Fish River at “Turkey Branch”, you are protecting the beauty, health, and heritage of the Mobile Bay Watershed and our coastal communities. Thank you for your continued support.

