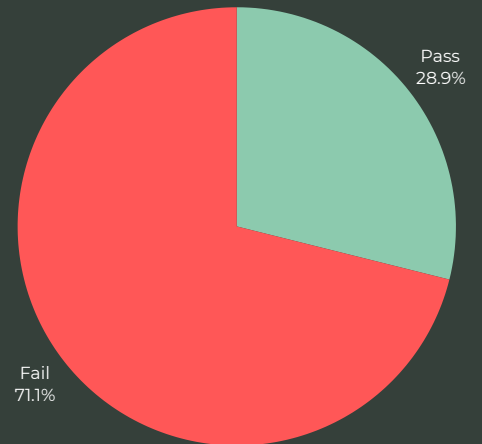


Swim Where It's Monitored

MOBILE BAYKEEPER 2023 SWIM REPORT

sponsored by: Skipper Tonsmeire
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 **Fly Creek- "Sea Cliff Drive" 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

Fly Creek is a perennial stream that drains much of Fairhope, portions of unincorporated Baldwin County and a small area in Daphne. The watershed area is roughly 2 miles wide and 4 miles long, encompassing approximately 5,018 acres. The lower end of Fly Creek (estimated 1 mile) is within the tidal influence associated with Mobile Bay and the Gulf of Mexico, with the remaining water courses consisting of approximately 18 miles of perennial stream, intermittent streams, and 20 man-made lakes/ponds. Swimming and boating take place frequently downstream of the Scenic Highway 98 Bridge and a marina is located at the mouth of the creek. According to the National Land Cover database from 2019, the majority of the watershed is developed area (36%) with forests (22%) and wetlands (20%) making up much of the rest of the watershed. As the population of Fairhope increases, developed area will continue to increase. Fly Creek has been a subject of persistent interest for Mobile Baykeeper up to and following a 2018 report conducted by our organization that was commissioned by the City of Fairhope. The conclusions of that report were that overall, Fly Creek exhibits relatively good water quality with exception to a few sites with bacteria levels surpassing Environmental Protection Agency (EPA) threshold standards. Current collaborative efforts to locate sources of high bacteria input are of great interest.

SITE MAP



The testing site in Fly Creek at "Sea Cliff Drive" is located near the blue circle.

Methods

Samples were collected by Mobile Baykeeper to test for Enterococcus bacteria. Each sample was taken directly from the waterbody at the site following Mobile Baykeeper standard operating protocols. The team tested for and quantified Enterococcus spp. using IDEXX's Enterolert test kit procedure, 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 Enterococci existing in the 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

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 Fly Creek waters at "Sea Cliff Drive" has consistently shown high bacteria levels during both dry and wet weather (Table 2). 45 samples were collected during the SWIM season from April 2023 to September 2023. Of these samples, 32 resulted in being above the EPA threshold for safe swimming (Figure 1). The average Enterococcus level was 636 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
13	32	28.90%	71.10%	45

Table 2. Summary of Fly Creek at Sea Cliff Drive 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.

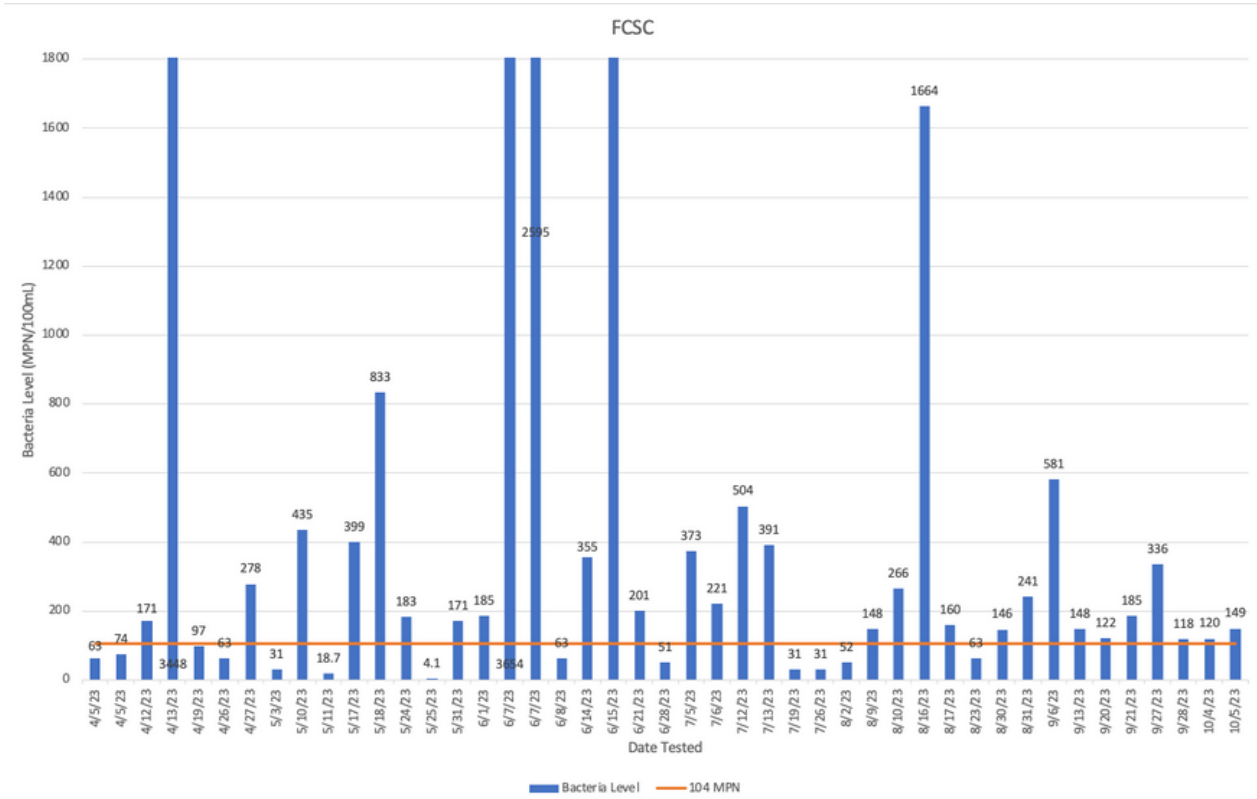


Figure 2 lists the dates sampled and the resulting *Enterococcus* levels. Green cells correspond to results below the EPA threshold, yellow cells correspond to an intermediate level above the threshold, but below 501 MPN, and red cells correspond to a high level above 501 MPN.

Date	MPN Enterococcus
4/5/2023	63
4/5/2023	74
4/12/2023	171
4/13/2023	3448
4/19/2023	97
4/26/2023	63
4/27/2023	278
5/3/2023	31
5/10/2023	435
5/11/2023	18.7
5/17/2023	399
5/18/2023	833
5/24/2023	183
5/25/2023	4.1
5/31/2023	171
6/1/2023	185
6/7/2023	3654
6/7/2023	2595
6/8/2023	63
6/14/2023	355
6/15/2023	9208
6/21/2023	201
6/28/2023	51
7/5/2023	373
7/6/2023	221
7/12/2023	504
7/13/2023	391
7/19/2023	31
7/26/2023	31
8/2/2023	52
8/9/2023	148
8/10/2023	266
8/16/2023	1664
8/17/2023	160
8/23/2023	63
8/30/2023	146
8/31/2023	241
9/6/2023	581
9/13/2023	148
9/20/2023	122
9/21/2023	185
9/27/2023	336
9/28/2023	118
10/4/2023	120
10/5/2023	149

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 Fly Creek at “Sea Cliff Drive”, you are protecting the beauty, health, and heritage of the Mobile Bay Watershed and our coastal communities. Thank you for your continued support.

