

# Guide to Mississippi Community Markers: High Water Marks

**Hancock**      **Harrison**      **Jackson**

Stennis Space Center, Diamondhead, Long Beach, Gulfport, Biloxi, Ocean Springs, Moss Point, Pascagoula, Bay St. Louis, Waveland, Pass Christian, Gautier

1 427 Highway 90 Waveland, MS 39576	2 335 Coleman Ave Waveland, MS 39576	3 301 Coleman Ave Waveland, MS 39576	4 125 North Beach Blvd Waveland, MS 39576	5 87 Ponce de Leon Boulevard Pass Christian, MS 39571	6 701 S Cleveland Avenue Long Beach, MS 39560
7 720 S Cleveland Avenue Long Beach, MS 39560	8 1177 20th Avenue Gulfport, MS 39501	9 96 Courthouse Road Gulfport, MS 39507	10 2375 Beach Boulevard Biloxi, MS 39531	11 1669 Beach Boulevard Biloxi, MS 39531	
12 1050 Beach Boulevard Biloxi, MS 39530	13 10383 Automall Parkway D'Iberville, MS 39540	14 3366 Bayshore Drive D'Iberville, MS 39540	15 710 Beach Boulevard Biloxi, MS 39530	16 115 1st Street Biloxi, MS 39530	17 1705 Harbor Drive Ocean Springs, MS 39564



# Introduction

Flooding is a threat to buildings, property, and lives. Floods are the most common and widespread of all weather-related disasters. Storm surge is an abnormal rise in water level in coastal areas, over and above the regular tide, generated from a severe storm's wind, waves, and low atmospheric pressure. Along the Gulf Coast, storm surge is often the greatest threat to life and property from a hurricane. The Gulf of Mexico coast is low-lying, and we are highly vulnerable to sea-level rise impacts.

The “Know Your Line: Be Flood Aware” High Water Mark Initiative was created by the Federal Emergency Management Agency (FEMA) and seven other federal agencies: the National Oceanic and Atmospheric Administration, National Park Service, U.S. Army Corps of Engineers, U.S. Department of Agriculture, Natural Resources Conservation Service, U.S. Department of Housing and Urban Development, U.S. Geological Survey, and U.S. Small Business Administration.

The goal of the High Water Mark Initiative is to raise flood-risk awareness by posting high water markers in prominent places within a community to show where flood waters have risen in the past. The signs are meant to encourage the community to take steps to reduce their risk to future flooding. In addition, the communities that participate in the program (as well as generate ongoing outreach around flood risk), are eligible for flood insurance premium discounts through an incentive program called the Community Rating System.

In coastal Mississippi, there are 12 visible markers in communities from Waveland to Ocean Springs. The Mississippi markers were organized by FEMA, the Mississippi Emergency Management Agency, Mississippi-Alabama Sea Grant, and the Coastal Hazard Outreach Strategy Team (C-HOST), a regional outreach team that consists of representatives from 12 coastal Mississippi communities. All of the markers were revealed in ceremonies along the coast on the 10th anniversary of Hurricane Katrina.

All of the original high water marks cannot be found. Not everyone wants to highlight previous disasters, as many people are concerned it could deter new businesses coming to the area. Others do not want to be reminded of the negative side of coastal living. How to discuss risk and conduct dialogue around flooding and flood risk can be tricky. There are many important factors to consider, such as maintaining a strong tax base and building to minimize damages.

The high water marks are physical signs with three colored lines (Figure 1). Red shows how high the water was from Hurricane Katrina, which made landfall as a category 3 hurricane on August 29, 2005, at 10 a.m. Blue shows how high the water was from Hurricane Camille, which made landfall as a category 5 hurricane on August 17, 1969, at about 11:30 p.m. Black indicates the base flood elevation (BFE), which is how high water is expected to rise in a mid-sized flood event for that area.

The BFE is a regulatory benchmark used by federal, state, and local governments to set standards for the elevation and floodproofing of structures. BFE is set by the expected water surface elevation resulting from a flood that has a 1 percent chance of occurring in any given year. Because 1 percent can also be termed as a 1-in-100 chance, it is sometimes called the 100-year floodplain; however, it is important to remember that each year at a spot within the 1 percent annual chance floodplain has a 1-in-100 chance of flooding. For example, a house in the 1 percent annual chance floodplain has a 26 percent chance of seeing a flood as deep as the BFE over the life of a 30-year mortgage.



FIGURE 1. High water marks at two locations showing the colored lines. Corresponding colored arrows point to the colored high water mark lines. Red indicates Hurricane Katrina, blue indicates Hurricane Camille, and black indicates the base flood elevation (BFE).

High water markers are designed to bring awareness to how high the water levels were in past storms and remind residents about local flood risk. These visual reminders spark community engagement and illustrate how residents and communities can benefit by preparing for future storms. It is important to understand your community flood risk and changing conditions. For example, in some locations, the base flood elevation is far below the Katrina storm surge because Hurricane Katrina was larger than a mid-sized flood.

Figure 2 shows a coastal home in a 17-foot BFE zone. This home has freeboard, which means it was built higher than BFE. The term “freeboard” refers to the space between BFE and the first floor. With our changing climate and sea-level rise, coupled with changes in land use and impenetrable surfaces, our historic flood patterns are changing. Over time, the 1 percent annual chance floodplain has and will continue to include a larger area. By understanding our risk, we are able to prepare our communities, homes, and businesses for current and future flooding.

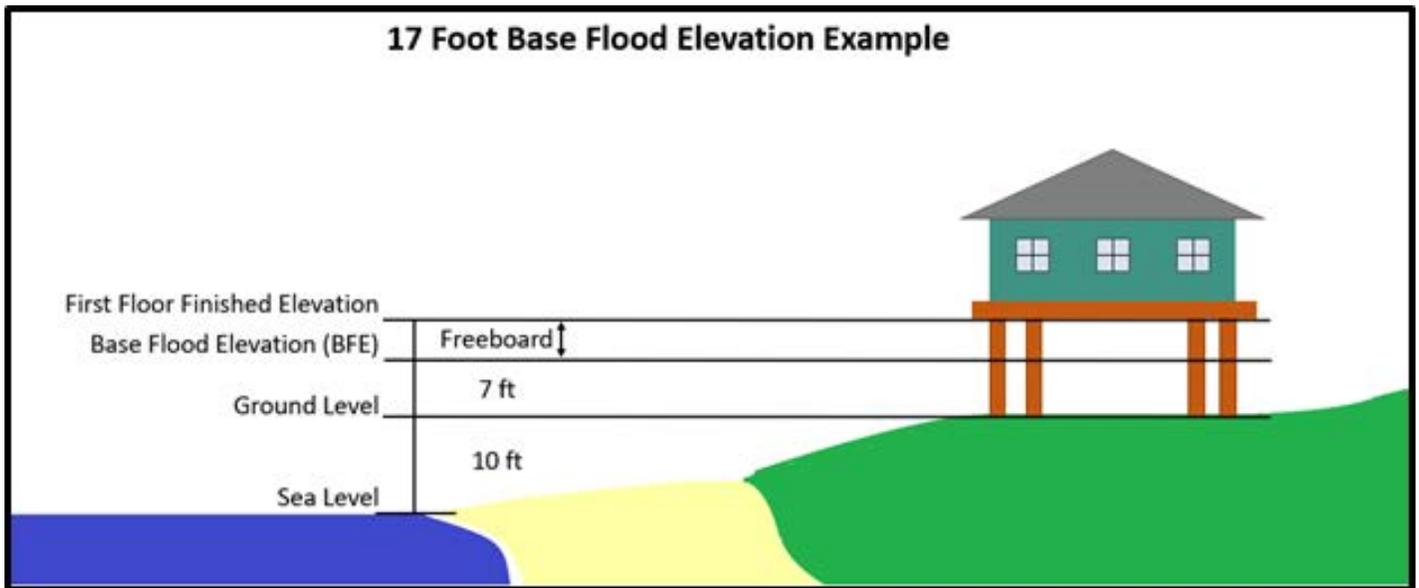


FIGURE 2. A 17-foot base flood elevation example.

# On Your Visit

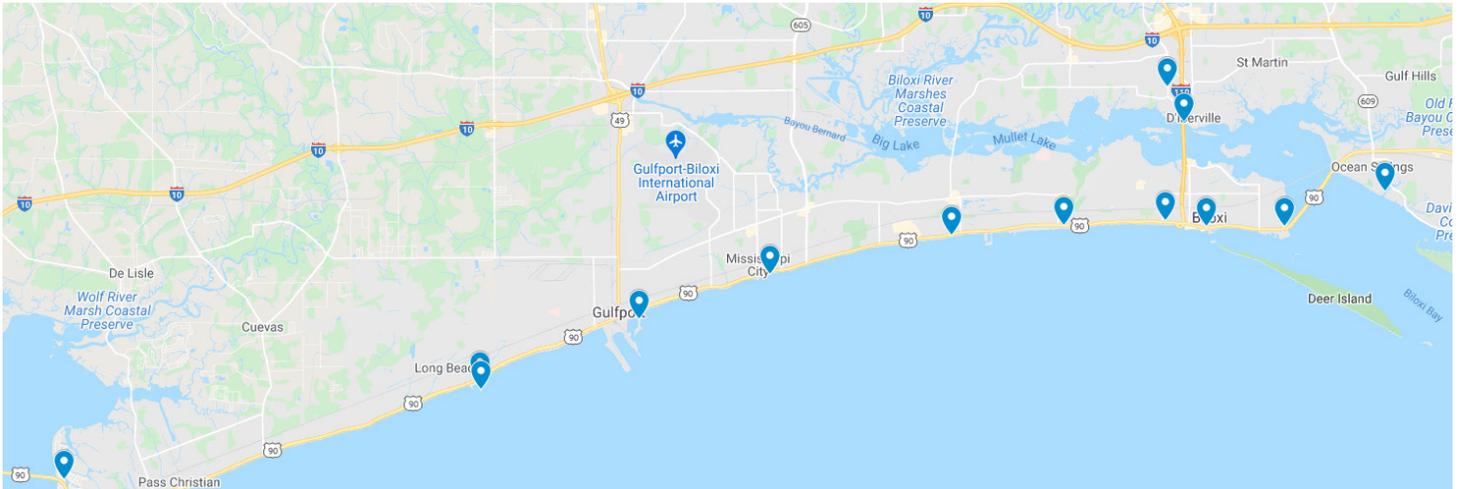
## WHEN YOU VISIT

While at each location, look around at the surroundings and reflect with yourself or your group:

- What is the difference in heights between the high water marks for base flood elevation, Hurricane Camille, and Hurricane Katrina?
- What would be underwater if the water was that high right now?
- How would it affect the beach sand, grasses, and plants?
- Would any buildings be partially or fully submerged? What is the function of those buildings, and would water damage them beyond repair?
- What level of water would impact transportation? Would any buildings or roads be completely cut off?
- If the water were this high at this spot, how far inland do you think the water would be?
- Is there anything that would move with the water as it rises?
- What conditions change storm surge?
- Who is impacted by storm surge? Who uses this area for work, lives nearby, or comes here for recreation?
- Are you prepared for future storm surge and flooding? Do you know where to find resources to prepare your home and your community?
- What actions can you, your family, and your community take to be resilient to future flooding?
- What does being resilient mean to you?

# Locations

High water marks are discussed in order of location along the coast from west to east.



- **87 PONCE DE LEON BLVD., PASS CHRISTIAN - HENDERSON POINT PARK**
- **701 S. CLEVELAND AVE., LONG BEACH - COMFORT STATION**
- **720 S. CLEVELAND AVE., LONG BEACH - MARINA**
- **1177 20TH AVE., GULFPORT - BARKSDALE PAVILION**
- **96 COURTHOUSE RD., GULFPORT - COMFORT STATION**
- **2375 BEACH BLVD., BILOXI - COMFORT STATION**
- **1669 BEACH BLVD., BILOXI - COMFORT STATION**
- **1050 BEACH BLVD., BILOXI - BILOXI VISITORS CENTER**
- **10383 AUTOMALL PKWY., D'IBERVILLE - D'IBERVILLE CITY HALL**
- **3366 BAYSHORE DR., D'IBERVILLE - BOAT RAMP**
- **710 BEACH BLVD., BILOXI - KATRINA MEMORIAL**
- **115 1ST ST., BILOXI - MARITIME AND SEAFOOD INDUSTRY MUSEUM**
- **1705 HARBOR DR., OCEAN SPRINGS - OCEAN SPRINGS HARBOR AND BOAT RAMP**

# Henderson Point Park

87 Ponce de Leon Blvd., Pass Christian, MS 39571

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are plaques located on a support on the underside of US-90 by the kids' play structure in Henderson Point Park. To get to the high water marks park in the west lot, to the left of Ponce de Leon Boulevard, walk toward the anchor statue and the large gazebo to see the play structure and high water marks to the left.

## ADDITIONAL DETAILS

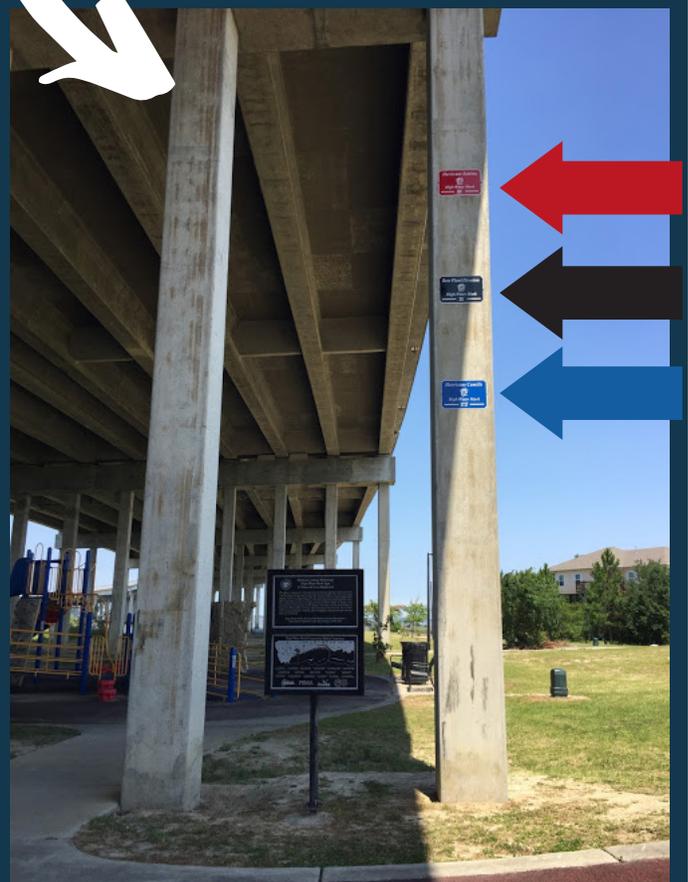
This location is in a park with a play structure and water access for fishing, making it a good location for families and children.

## PARKING

Parking lot.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# Comfort Station #1

701 S. Cleveland Ave., Long Beach, MS 39560

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are plaques on the comfort station, located south of US-90 on the east side of South Cleveland Avenue. The address may direct you incorrectly across the intersection. You can walk up the stairs to be level with the markers and look out on the surrounding area. There is a parking lot that includes large spaces for boats/buses. Public restrooms are available.

## ADDITIONAL DETAILS

This location is on the beach and on the same road as the following high water mark at Long Beach Marina. It is a good location for groups, beachgoers, and boaters.

## PARKING

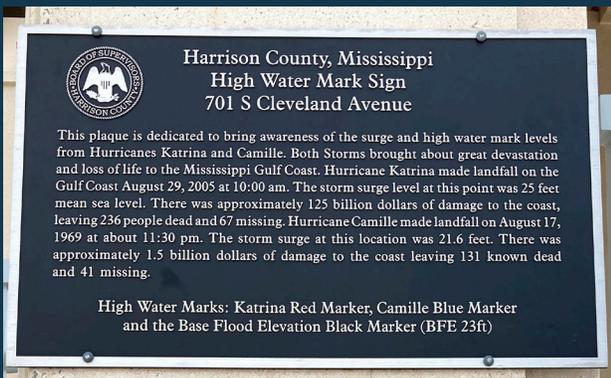
Parking lot.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# Long Beach Marina

720 S. Cleveland Ave., Long Beach, MS 39560

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are lines on a support post for the Harbor Master building in the marina. This is right next to Willie's Fuel and Bait. There is a parking lot by the marina.

## ADDITIONAL DETAILS

This location is in a marina near the beach. It has water access for fishing and swimming, making it a good location for boaters and beachgoers.

## PARKING

Parking lot and street parking.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUES

# Barksdale Pavilion

1177 20th Ave., Gulfport, MS 39501

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are plaques on the southwest corner of the Barksdale Pavilion in Jones Park. This is next to the Gulfport Harbor Master's Office. There are parking lots nearby.

## ADDITIONAL DETAILS

This location is in a park with pavilion coverage, water features, bike/walking paths, and a marina. This is a good location for large groups, families, and boaters.

## PARKING

Parking lot.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# Comfort Station #2

96 Courthouse Rd., Gulfport, MS 39507

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are plaques on the comfort station. This is located south of US-90 and is on the east side of Courthouse Road. You can walk up the stairs to be level with the markers and look out on the surrounding area. There is a parking lot that includes large spaces for boats/buses. Public restrooms are available.

## ADDITIONAL DETAILS

This location is on the beach and near a boat ramp. It is a good location for groups and families.

## PARKING

Parking lot.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# Comfort Station #3

2375 Beach Blvd., Biloxi, MS 39531

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are plaques on the comfort station. You can walk up the stairs to be level with the markers and look out on the surrounding area. This is located south of US-90 along the beach. It is across from the Mississippi Coast Coliseum. Street parking is available approaching from the west of the building. Public restrooms are available.

## ADDITIONAL DETAILS

This location is on the beach and is a good location for groups and families.

## PARKING

Street parking.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# Comfort Station #4

1669 Beach Blvd., Biloxi, MS 39531

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are plaques on the comfort station. You can walk up the stairs to be level with the markers and look out on the surrounding area. Parking is available in a parking lot in front of the building. To access, approach from the west and pull into the lot before the building. It is next to Snapper's Seafood Restaurant. Public restrooms are available.

## ADDITIONAL DETAILS

This location is on the beach and is a good location for groups and families.

## PARKING

Parking lot.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# Biloxi Visitors Center

1050 Beach Blvd., Biloxi, MS 39530

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are lines on the flagpole on the southwest side of the building next to the statue of Pierre Le Moyne d'Iberville. Turn into the parking lot from Porter Avenue. The Biloxi Visitors Center is a museum with exhibits telling the story of Biloxi, its people, its connection to the water, and its cultural diversity. The building is built to resemble the Dantzler House with two-story porches, a grand staircase, and floor-to-ceiling windows. The Dantzler House was a two-story city-owned structure that stood on the site until August 29, 2005, when it was destroyed by Hurricane Katrina.

## ADDITIONAL DETAILS

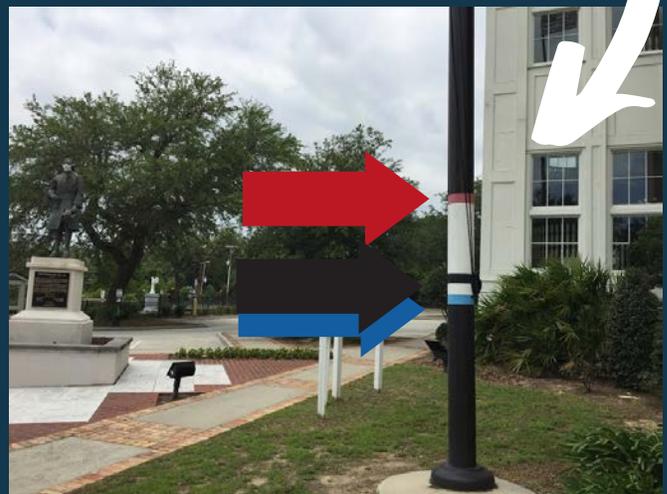
This location is across the street from the beach and is a good location for groups and families.

## PARKING

Parking lot.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# D'Iberville City Hall

10383 Automall Pkwy., D'Iberville, MS 39540

## LOCATION

The high water mark plaque is on the side of the building next to the door to the D'Iberville Water and Sewer Department on the south side of the main building. There is a parking lot.

The sign indicates the Katrina high water mark, but no lines are visible.

## ADDITIONAL DETAILS

This location is by City Hall. It is a good location for groups and families, and anyone visiting D'Iberville Water and Sewer, City Hall, the Civic Center, or the post office.

## PARKING

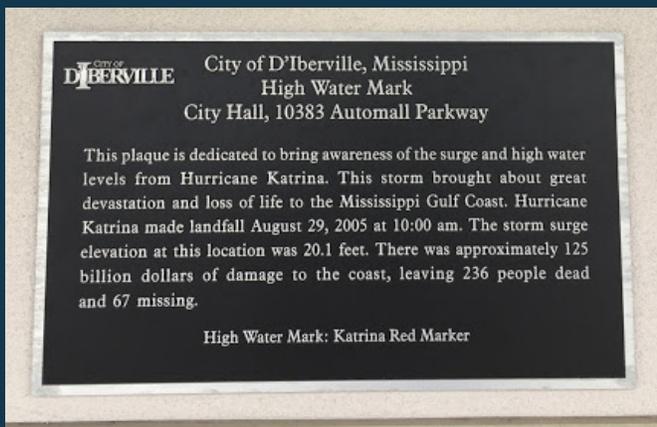
Parking lot.



LOCATION FROM A DISTANCE



HIGH WATER MARK



PLAQUE

# I-110 Boat Ramp

3366 Bayshore Dr., D'Iberville, MS 39532

## LOCATION

The high water mark for Hurricane Katrina (red) is marked as a line on a support post under the overpass for I-110. The plaque and line are located on the south side of Bayshore Drive. The plaque indicates that BFE is also marked, but it is not visible.

## ADDITIONAL DETAILS

This location is by the picnic tables and boat ramp and is a good location for boaters.

## PARKING

Parking lot.



**HIGH WATER MARK**



**PLAQUES**

# Katrina Memorial

710 Beach Blvd., Biloxi, MS 39530

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are lines on a pole in the Biloxi Town Green by the Hurricane Katrina Memorial. Street parking and parking lots are available on Main Street or off Lameuse Street. Across the street from this location are many casinos along the beach.

## ADDITIONAL DETAILS

This location is in a park with green space. It is a good location for groups and families.

## PARKING

Parking lot and street parking.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# Maritime and Seafood Industry Museum

115 1st St., Biloxi, MS 39530

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are lines on a column at the northeast corner of the museum. There is a parking lot on the south side of the building off Cadet Alley and some parking on 1st Street. The Maritime and Seafood Industry Museum works to preserve and interpret the maritime history and heritage of Biloxi and the Mississippi Gulf Coast.

## ADDITIONAL DETAILS

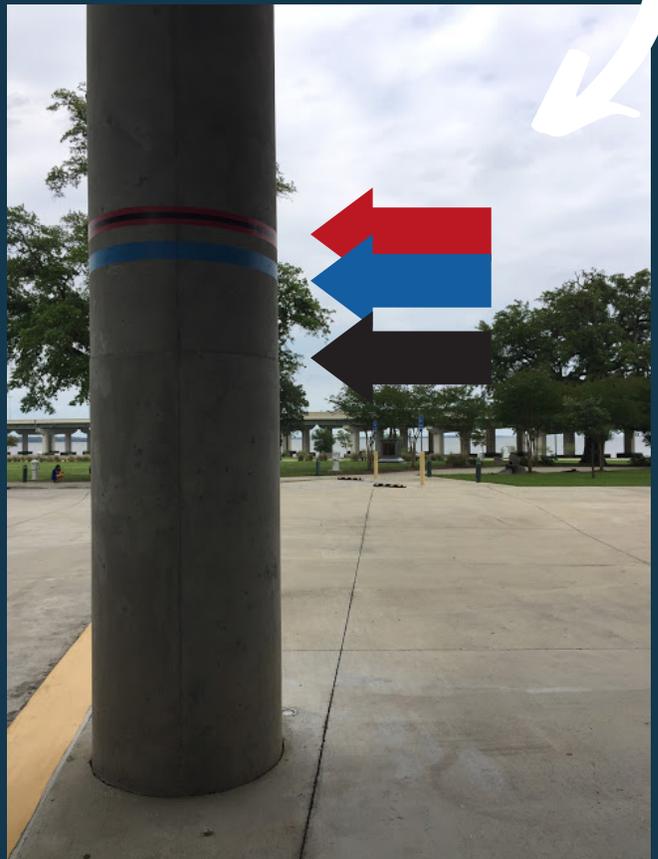
This location is a museum and near a park with green space. It is a good location for groups and families.

## PARKING

Parking lot and street parking.



LOCATION FROM A DISTANCE



HIGH WATER MARKS



PLAQUE

# Ocean Springs Harbor and Boat Ramp

1705 Harbor Dr., Ocean Springs, MS 39564

## LOCATION

The high water marks for base flood elevation (black), Hurricane Camille (blue), and Hurricane Katrina (red) are lines on the flagpole in the gravel parking lot across from Ocean Springs Marine Mart, next to Dr. Thomas D. McIlwain Harbor Green. The street address may not take you directly to the location.

## ADDITIONAL DETAILS

This location is in a parking lot near a boat ramp and the beach. It is a good location for families and boaters.

## PARKING

Parking lot.



**HIGH WATER MARKS**



**PLAQUES**

# Resources

To continue the conversation after visiting the high water marks, please check out the following resources.

## **FUTURE STORM SURGE MAPS**

You can see the impact of past storm surge by visiting the high water marks, but there is an online tool to help visualize the effects of future flooding. To see how storm surge will change with sea-level rise, visit [www.GOMsurge.org](http://www.GOMsurge.org). Created as part of the Ecological Effects of Sea Level Rise in the Northern Gulf of Mexico (EESLR-NGOM) project, these storm surge projections incorporate sea-level rise by assessing potential changes to waves and surge; land use; habitat; and shoreline, dune, and barrier island morphology. The dynamic EESLR-NGOM model integrates interactions between physical and ecological environments and gives a high-resolution look at what hurricane storm surge may look like under elevated sea level conditions in 2100. We can plan now for future conditions by using modeled changes due to sea-level rise.

## **HOMEOWNER'S HANDBOOK**

The Gulf of Mexico Alliance Coastal Community Resilience Team created the Homeowner's Handbook to help homeowners prepare for natural hazards and reduce risks to family and property. Homeowner's Handbooks are available for all gulf states. Find Mississippi's at [https://gulfofmexicoalliance.org/wp-content/uploads/2020/03/MS\\_Homeowner\\_Handbook\\_2020.pdf](https://gulfofmexicoalliance.org/wp-content/uploads/2020/03/MS_Homeowner_Handbook_2020.pdf).

## **SEA-LEVEL RISE RESOURCES**

The Northern Gulf of Mexico Sentinel Site Cooperative (NGOM SSC) has many resources for planning for sea-level rise. Find us at [www.ngomssc.org](http://www.ngomssc.org).

## RECOMMENDED CITATION

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