



Flood Survey And High-Water Mark Training

April 2024

Objectives



- **By the end of this training, our goal is that all participants:**
 - **Have an understanding of the importance of flood observation and High Water Mark (HWM) data collection**
 - **Know which resources to use and how to effectively capture data with them**
 - **Know how to safely and accurately identify and collect HWMs**
 - **Submit test data using the different applications to ensure users are ready and prepared for the upcoming wet season**

Agenda

- An overview of the SFWMD Resiliency Program and the importance of flood/HWM data collection
- Training on how to use data collection resources
 - Which application to use and when
 - How to completely and properly collect data
- How to take High Water Marks
- Testing



SFWMD Resiliency

➤ District Resiliency | South Florida Water Management District (sfwmd.gov)



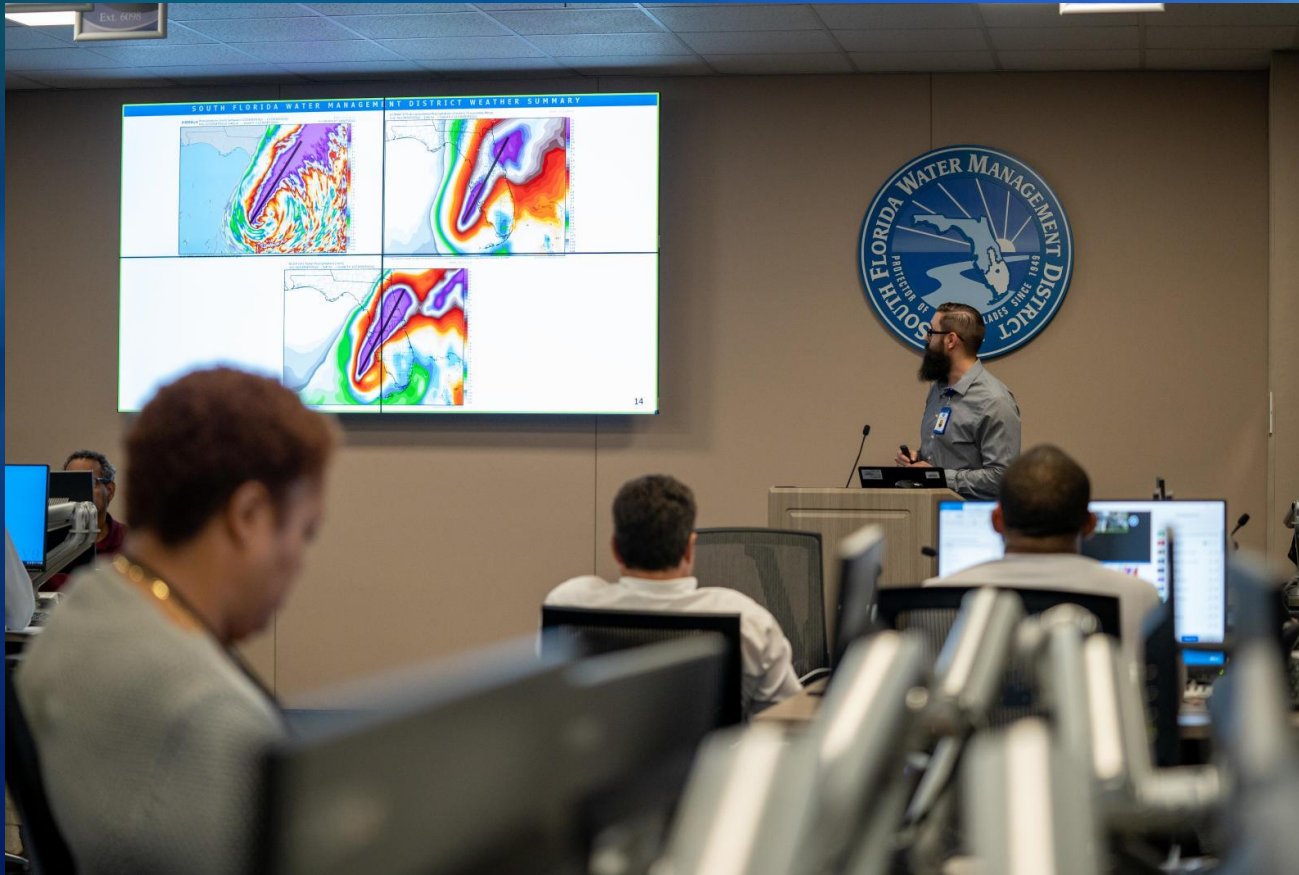
“The Office of District Resiliency focuses on assessing the impacts of sea level rise, extreme rainfall, changing temperatures, among other evolving conditions, and how they affect the implementation of the SFWMD’s mission. The SFWMD’s resiliency efforts include advancing scientific data and research to ensure the District’s resiliency planning and implementation projects are founded on the best available science and robust technical analyses. These efforts are in collaboration and cooperation with regional, state and federal agencies, local and tribal governments, non-governmental entities, universities, and citizens throughout Central and Southern Florida.”

Objectives And Importance Of Data Collection

- Data collected in these applications gives SFWMD critical information about flooding – when and where it occurs, and the severity
- Provides insights into vulnerable areas and root causes



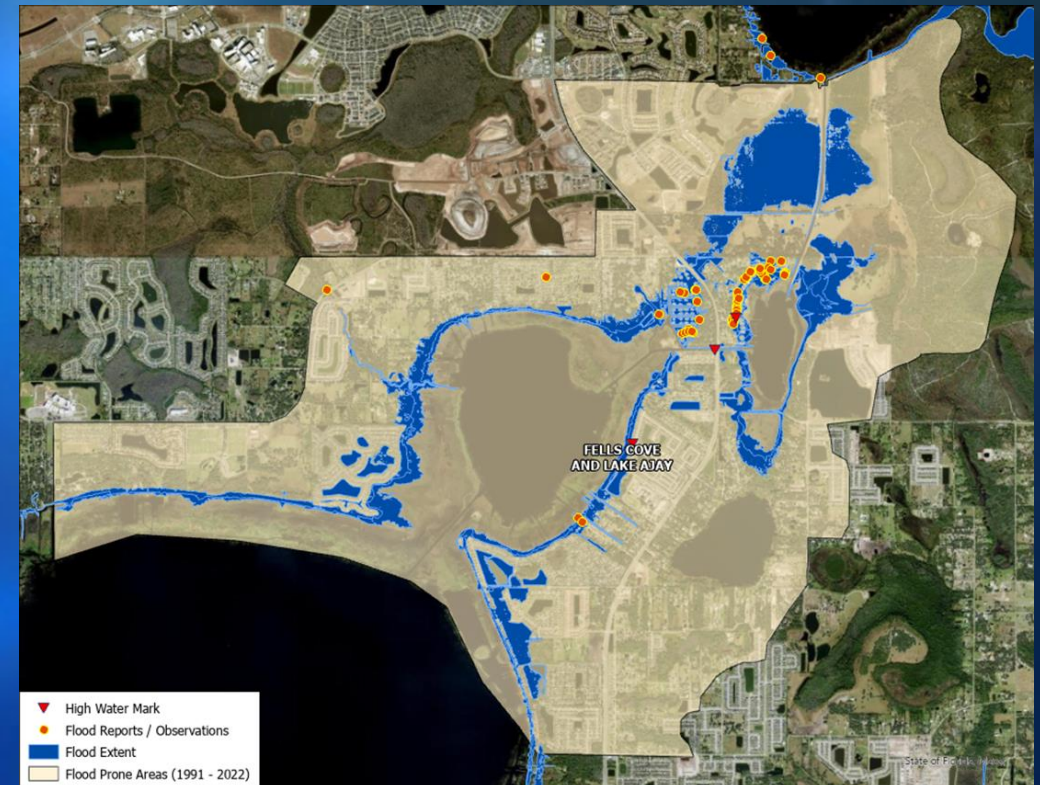
Objectives And Importance Of Data Collection



- During EOC activations, these data will provide increased understanding of conditions on-the-ground and improve situational awareness

Objectives And Importance Of Data Collection

- Delineation of flood extents is critical to understanding the root causes of flooding. These root causes are needed for effective mitigation planning.
 - Flood observations tell us where flooding is occurring and where to deploy teams to mark and measure HWMs
 - HWMs are used to estimate flood extents and validate remote sensing and model products



SFWMD South Florida Flood Information Resource

South Florida Flood Information Resource

Search, Visualize, Download, Create, Communicate, Collaborate

Search...

A resource for collecting and consolidating flood observations to help us better understand evolving flood patterns associated with King Tides, Rainfall, Tropical Storms, Hurricanes and Storm Surge.

sfwmd.gov/FloodResource

SFWMD Weather

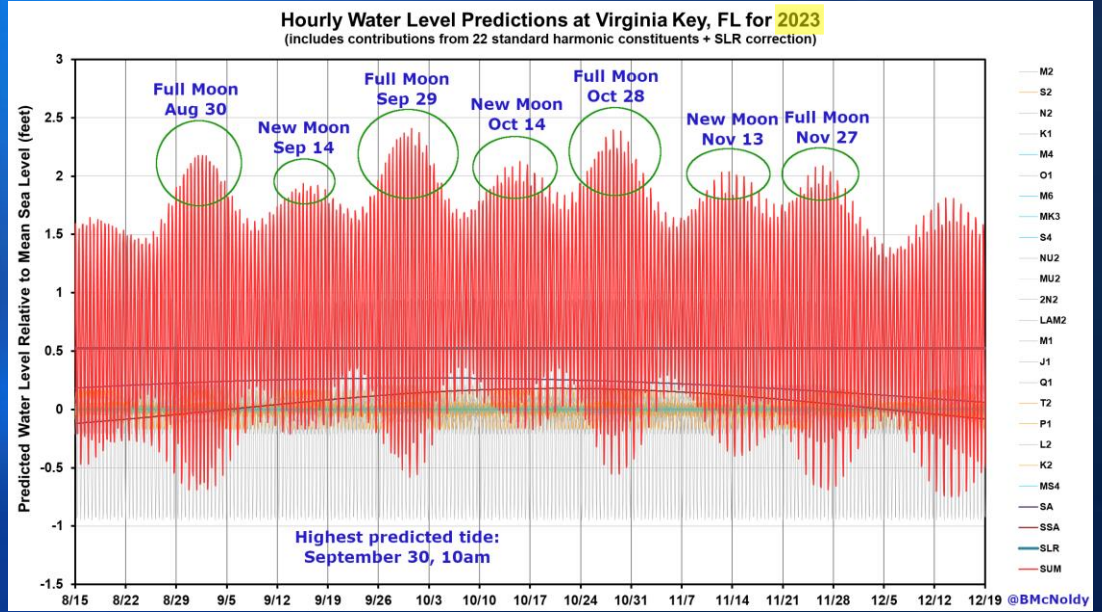
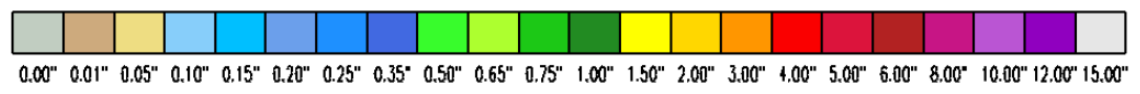
- [Tidal Outlook \(sfwmd.gov\)](https://sfwmd.gov)
- [Current Weather Conditions: Florida Radar Loop | South Florida Water Management District \(sfwmd.gov\)](https://sfwmd.gov)
- [Site Status Reports \(sfwmd.gov\)](https://sfwmd.gov)

SFWMD Forecast

Current Weather Conditions ▾	SFWMD Forecast	Realtime Gauges ▾	Raindar Estimates ▾	Tropical Outlook ▾
NHC Forecast Tracks	Hurricane Model Plots	Rainfall Historical ▾		

[SFWMD TEXT FORECAST](#)

Daily Quantitative Precipitation Forecasts



Overview Of Flood And High Water Mark Data Collection

➤ Flood Survey

- Survey123 or browser
- Public Tool for Agency Use and Public Distribution

➤ High Water Mark Survey

- Survey123 or browser
- Requires a Flood Information Resource Account
- FDEM Derived



**ArcGIS
Survey123**

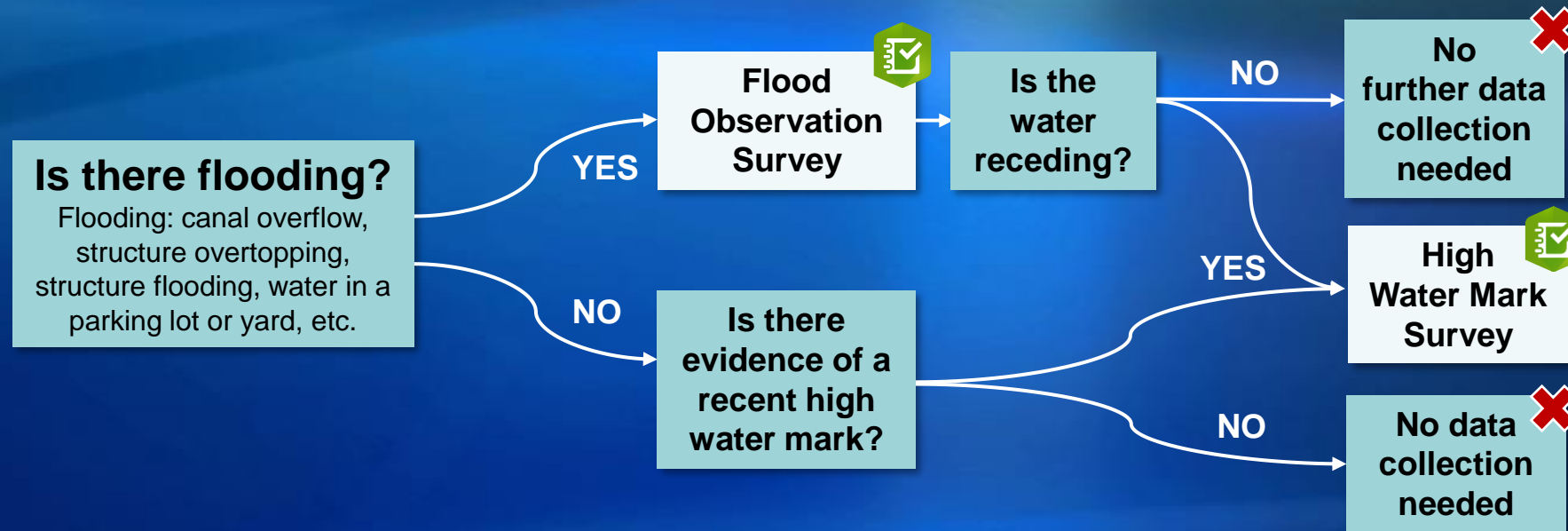
Defining Flooding

- **Flooding is standing water in areas that are generally dry**
 - **Examples include canal overflow, structure overtopping, structure flooding, water in a parking lot or yard, etc.**



Which Survey Should I Use, And When?

Non-EOC Activation / King Tide





ArcGIS Survey123



Signing Into Survey123

- Sign in is not required to access the Flood Observation Survey, but is required for the High Water Mark Survey
 - The Flood Observation Survey is open to the public
 - The HWM Survey is restricted to trained individuals with Flood Information Resource Accounts

- For today's training, you will not have to sign in to the HWM Survey
 - We've made temporary updates to the sharing permissions to allow this
 - Non-SFWMD staff will be notified after training on how to sign up for Resource Accounts
 - For SFWMD staff, we will go through the sign in process on the following slides

Flood Observation Survey

➤ sfwmd.gov/floodingapp

- This survey is open to the public and will not require a sign in



Flood Observation Survey

Report Flooding and Early Concerns



The information collected in this survey is used by agencies to better understand flooding conditions in Central and Southern Florida. This survey does not replace the need to contact your local drainage operator.

All flooding that poses a risk to your home or property should be reported to your local drainage operator. Life-threatening flooding should always be reported to 9-1-1.

To learn who to contact, go to [sfwmd.gov/FloodControl](https://www.sfwmd.gov/FloodControl) and enter your address.

Questions with a red * are required.

Flood Observation Survey

Photos (Optional)

Submit up to 3 photos.

1 Drop image here or select image (maximum number of files allowed: 3)



Flood Location*

Find address or place

Florida

Tampa

Palm Bay

Port St. Lucie

West Palm Beach

Cape Coral

Freeport

Coral Springs

Miami

Earthstar Geographics | University of South Florida, FDEP, Esri, TomTom, Garmin, FAO, N... Powered by Esri

Lat:

Lon:

- **Photos:** up to three photos of the flooding can be included in each submission
- **Flood location:** choose the location of the flooding on the map
 - Either find an address in the search bar, type in coordinates, use the map to select the location, or select the “find my location” button (under the “home” icon) to zoom to your location

Flood Observation Survey

- Use the General Observations field to report additional information, explain the flooding situation, share details about the photos or location, etc.

General Observations (Optional):

255

Flood Observation Survey

- Select the appropriate button for the water depth and previous flooding information

Select water depth

— — — —

Don't know / NA Less than ankle deep Ankle deep Knee deep Greater than knee deep

Has this location flooded before?

— — —

Don't know /NA Never Whenever it rains Only during tropical events

Flood Observation Survey

Property Type:

<input type="radio"/> Agriculture	<input type="radio"/> Airport	<input type="radio"/> Commercial
<input type="radio"/> Governmental	<input type="radio"/> Industrial	<input type="radio"/> Mixed Use
<input type="radio"/> Natural Area / Open Land / Recreational	<input type="radio"/> Residential	

Affected areas:

<input type="radio"/> Building / Structure	<input type="radio"/> Driveway / Garage	<input type="radio"/> Parking Lot	
<input type="radio"/> Road / Street	<input type="radio"/> Seawall	<input type="radio"/> Storm Drain	<input type="radio"/> Swale
<input type="radio"/> Yard	<input type="radio"/> Field / Open / Natural Area		

➤ **Property Type:** select the type of affected property from the options

- **Agriculture, Airport, Commercial, Governmental, Industrial, Natural Area/Open Land/Recreational, or Residential**

➤ **Affected areas:** choose the option that is representative of the area that has been flooded

- **Building/Structure, Driveway/Garage, Parking Lot, Road/Street, Seawall, Storm Drain, Swale, Yard, or Field/Open/Natural Area**

Flood Observation Survey

Name

Email

Phone Number

- The Name, Email, and Phone Number of the individual submitting the survey

High Water Mark Survey

➤ SFWMD HWM Survey (arccgis.com)

- You will need to sign into the Survey123 application in order to collect data in this survey beyond the training period



Collecting High Water Marks



**Note: High Water Marks/
tags should not be placed
on roadways or private
property**

Collecting High Water Marks





Collecting High Water Marks



Collecting High Water Marks



High Water Mark Survey

SFWMD HWM Survey



Questions with a red * are required.

High Water Mark Survey

Collecting organization

Recorder name*

Recorder email*

Deployment number

- Collecting organization: SFWMD, or your organization
- **Recorder name:** your name
- **Recorder email:** your email
- Deployment number: this number will be given to you if it is needed (SFWMD staff)

High Water Mark Survey

Was High Water Mark tag placed?*

Yes

No

High Water Mark tag ID

High Water Mark type*

Debris Mud Seed line

Stain line Vegetation line

Other

- Check **yes or no** if there was a tag placed on the High Water Mark
- High Water Mark tag ID: the ID/number on the tag, if the tag was placed
- **High Water Mark type**: Select the type of high water mark indicator that was used to identify the HWM, from the options: debris, mud, seed line, stain line, vegetation line, or other
 - If other, type in more information

High Water Mark Survey

High Water Mark location description

255

Height above ground in inches

General observations

Anything else we should know?

1000

- **High Water Mark location description:** include other details about where the HWM can be found
- **Height above ground in inches:** the height of the HWM off of the ground – Default is set to 0 to represent that the mark is on the ground
- **General observations:** other information about observed flooding and/or conditions

High Water Mark Survey

Photos (1 required)*

Submit up to 3 photos.

1 Drop image here or select image (maximum number of files allowed: 3)



Flood location*

Find address or place

Earthstar Geographics Powered by Esri

Lat: Lon:

➤ **Photos:** submit at least one photo of the HWM, additional photos can be included to help provide location information/context or HWM details

➤ **Flood location:** choose the location of the flooding on the map

- Either find an address in the search bar, type in coordinates, use the map to select the location, or select the “find my location” button (under the “home” icon) to zoom to your location

High Water Mark Survey

Surveyor name

Surveyor email

High Water Mark elevation (NAVD feet)

Survey Status

-Please select-

Elevation source

Elevation comments

255

➤ Any additional fields will be filled out by surveyors after the Survey123 is submitted

Questions?

- If you have any questions that come up regarding any of the materials we've gone over today, please feel free to reach out via email:
- Office of District Resiliency
 - resiliency@sfwmd.gov
- Geospatial Services
 - GISData@sfwmd.gov



Thank you!