

Documenting Flood Occurrence and Exposure

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Today's Presentation

- Documenting Flood Occurrence and Exposure
- Challenges of Regional Reporting and Analyses
- Ways to address these challenges going forward

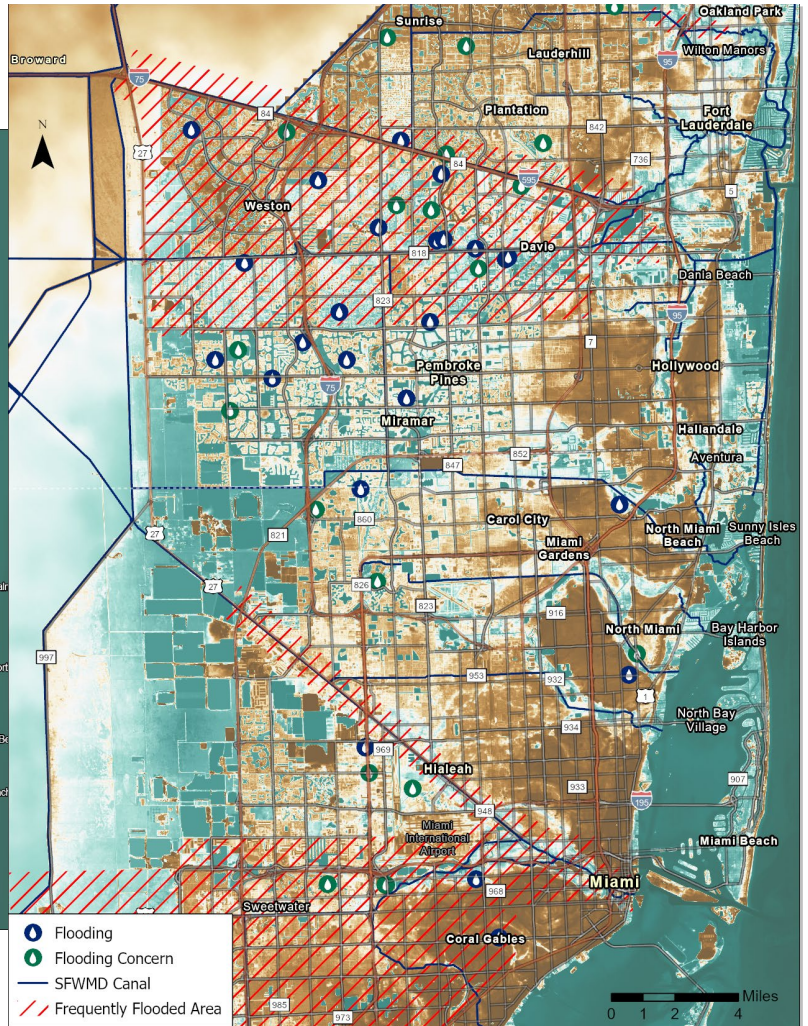
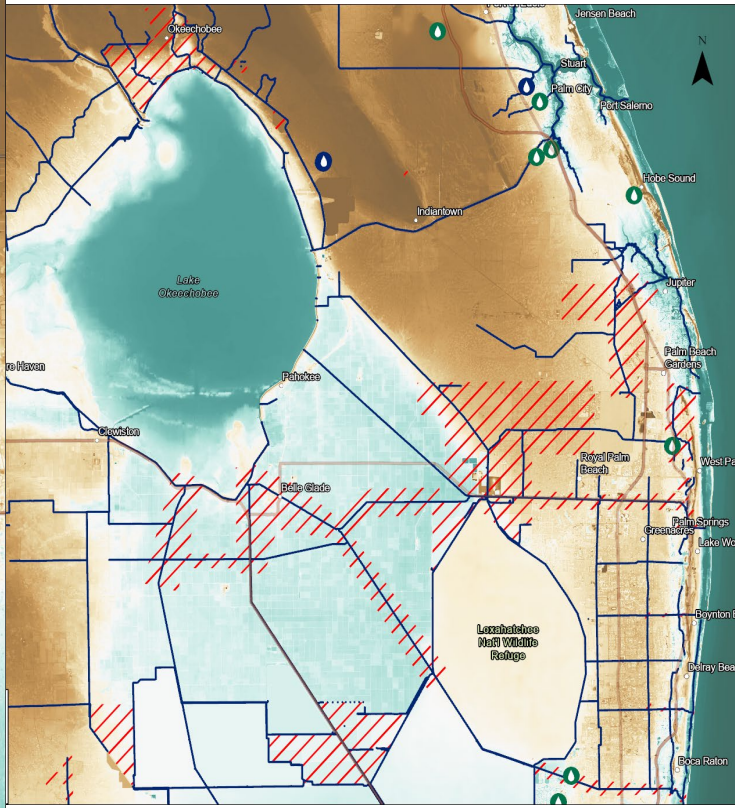
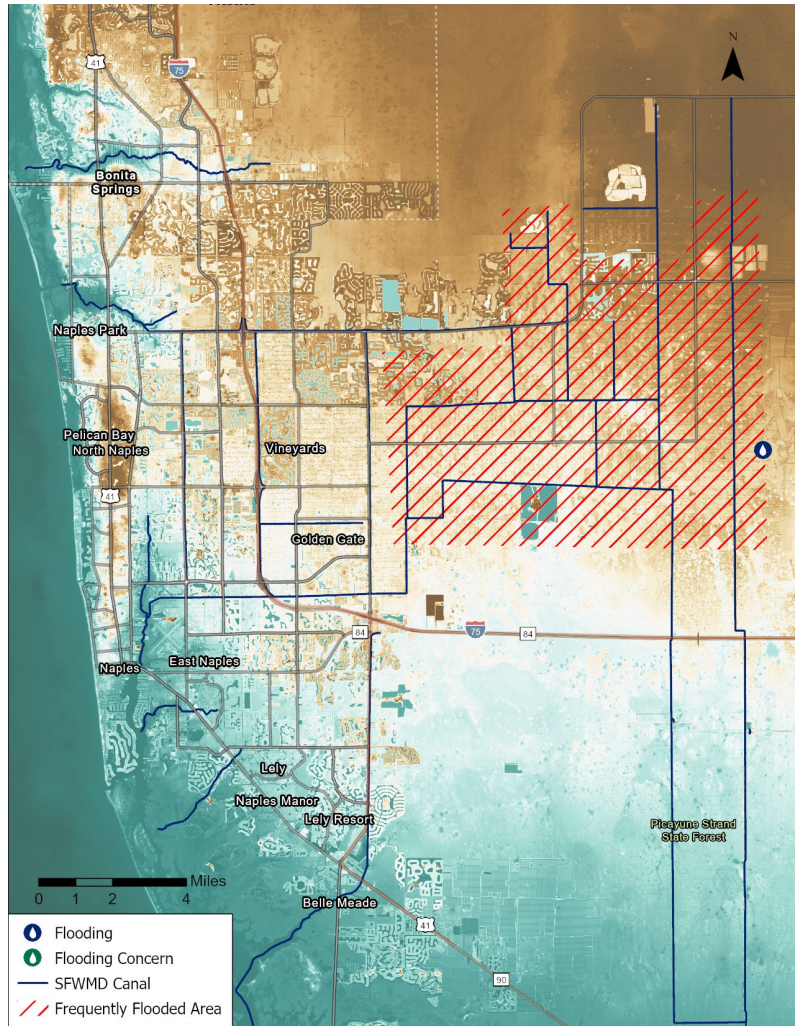


Flood Occurrence

- Standing water in areas that are generally dry



Flood Reporting Tool



Flood Observation Survey

SFWMD Flood Survey

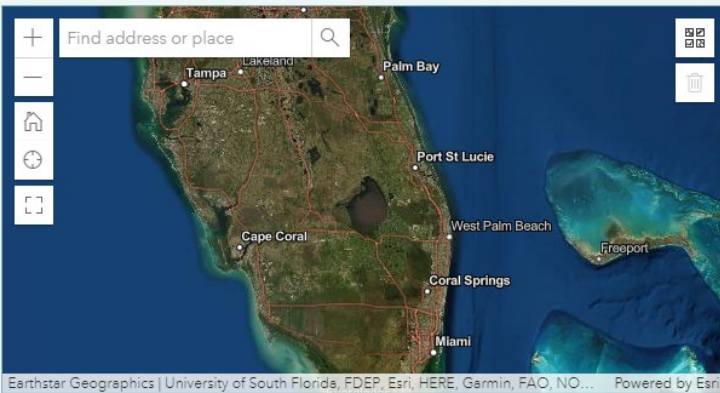
The South Florida Water Management District is interested in knowing when and where flooding is occurring. Please complete this survey to report flooding in your area.

Report Flooding Date

Please select the date that flooding occurred.

Report Flooding Location

If you are on a mobile device, please use the location icon on the left side of the map to identify your location. If on a computer, enter your address or navigate to your location using the map.



Submit Photos

We would like to see pictures of this flooding. Use your computer/mobile device to upload up to 3 photos or take a picture using the camera icon seen in this section of the survey.

1

Provide More Information About This Flooding

What type of flooding?

Standing Water

Street Flooding

Structure Flooding

Agricultural Flooding

What type of structure?

Residential

Commercial

Industrial

Other

How deep is flooding?

Ankle deep

Knee deep

Greater than knee deep

Other

Does this area flood frequently?

Yes

No

How frequently?

Only during hurricanes and tropical storms

Only during heavy rain events

During King Tides

Every time it rains

Other

Please enter other information about this flooding you would like to report

FDEM Silver Jacket High Water Mark Survey

High Water Marks Survey



Collection Date:

10/19/2021

Event Type:

Please select one

Hurricane

Flooding

Tidal

Other

Event Name:

Name of Hurricane or Flooding event, i.e. Michael or 2019 Spring Flooding

County:

Select County from dropdown

-Please Select-

Recorder Name:

Provide your Name

Recorder Email:

Provide your Email

Location Description:

Provide exact address or general location of high water mark, i.e. right-of-way of State Road 60

High Water Mark Description:

Provide description of High Water Mark, i.e. water line identified on exterior of structure on garage door

Elevation (ft):

Provide High Water Mark elevation in feet

Elevation Comments:

Provide comment on elevation, i.e. elevation provided is above ground or above datum (NAVD29 or NAVD88)

Additional Notes:

Provide any additional notes about High Water Mark

Location:

Provide location of High Water Mark

Esri, USGS | FDEP, Esri, HERE, Garmin, FAO, NOAA, USGS, EPA
Powered by Esri

Lat: Lon:

Attachment (Required):

Select image file

Attachment (Optional)

Select image file

Attachment (Optional)

Select image file

Attachment (Optional)

Select image file

Attachment (Optional)

Select image file

Submit



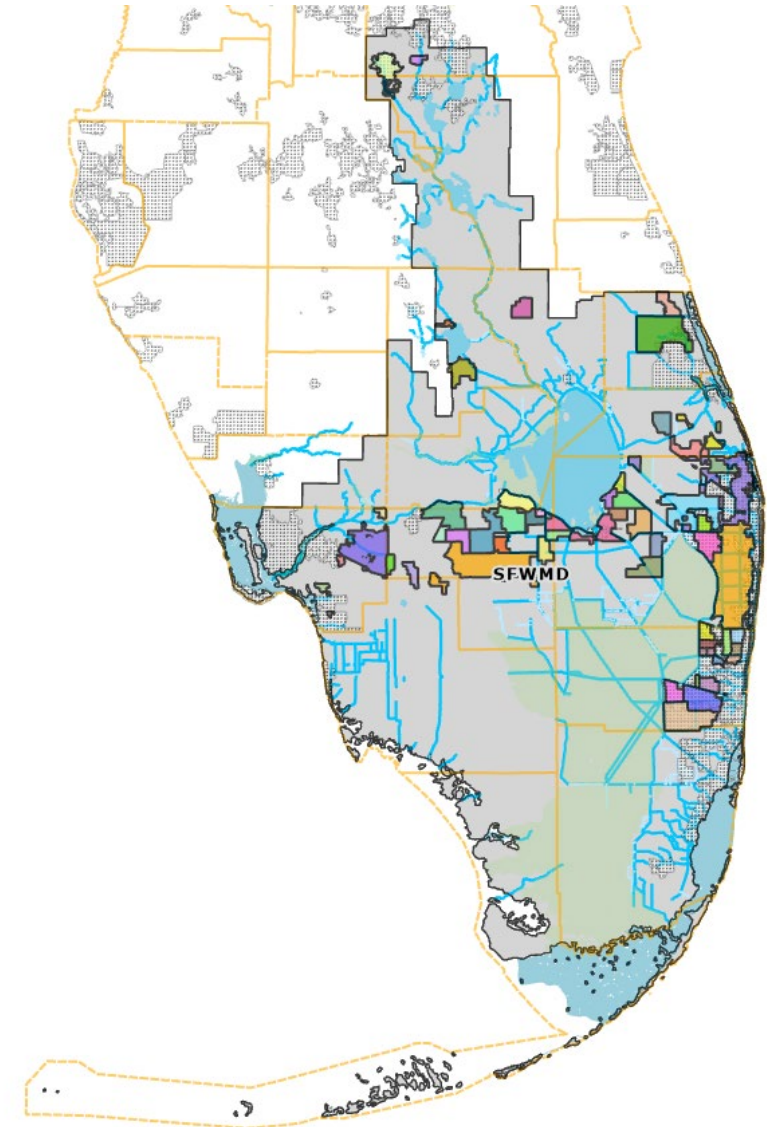
How will we use these data?

- Validate / Ground Truth modeling results
- Increase our understanding of frequently flooded areas
- Inform our high-water mark and drone team deployments
- Estimate inundation depths and extents

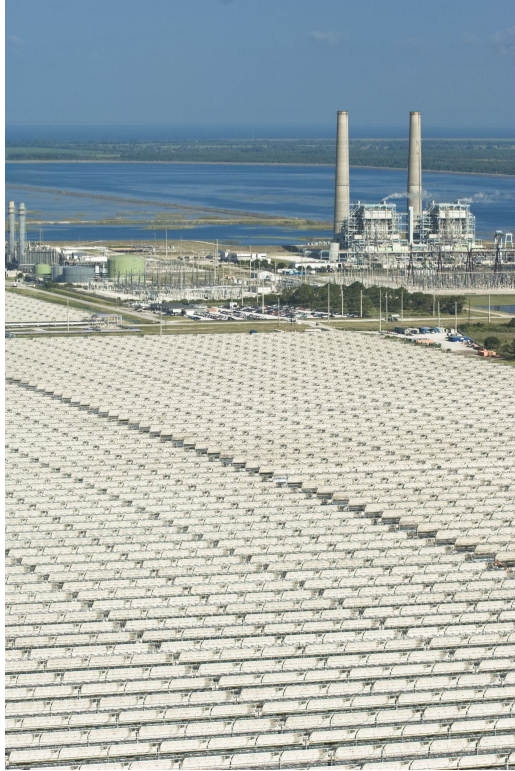


Regional Reporting and Analysis Challenges

- Acquisition and consolidation
 - 72 Special Districts
 - 185 Municipalities
 - Portions of 26 Counties
- Regionally consistent information
 - Different entities collect different information in different ways for different purposes
- Translation ambiguities
 - Does my good mean the same as your good?



Quantifying Susceptibility to Loss, a.k.a. Exposure



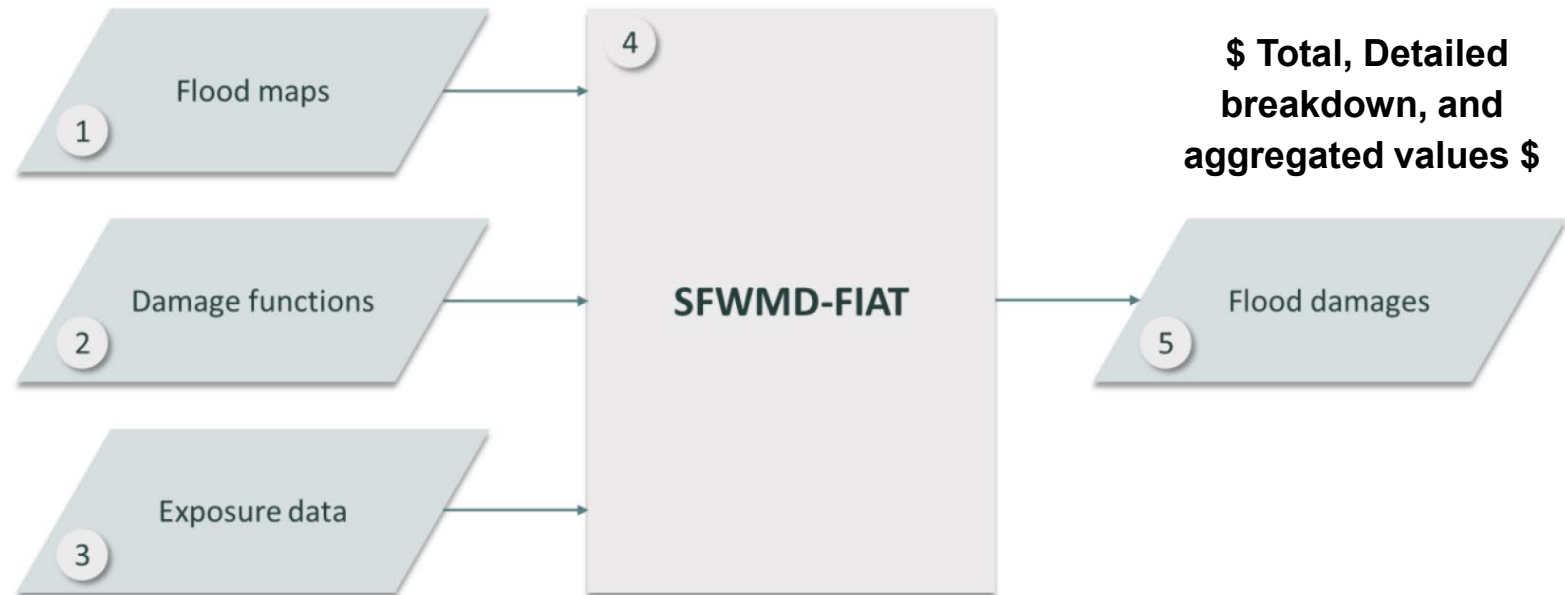
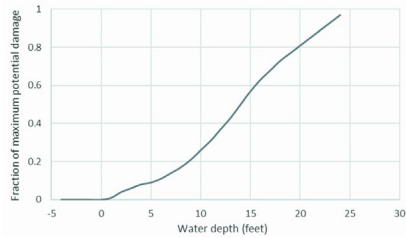
- Determine susceptibility of Infrastructure to flooding
 - Buildings, Utilities (water treatment, electrical substations, water management structures), and roads
- Assign replacement values



SFWMD-FIAT Desktop Damage Calculator

- Collaboration between SFWMD and Deltares USA
- FIAT – Fast Inundation Assessment Tool

- Inundation Depth
- Water Surface elevation

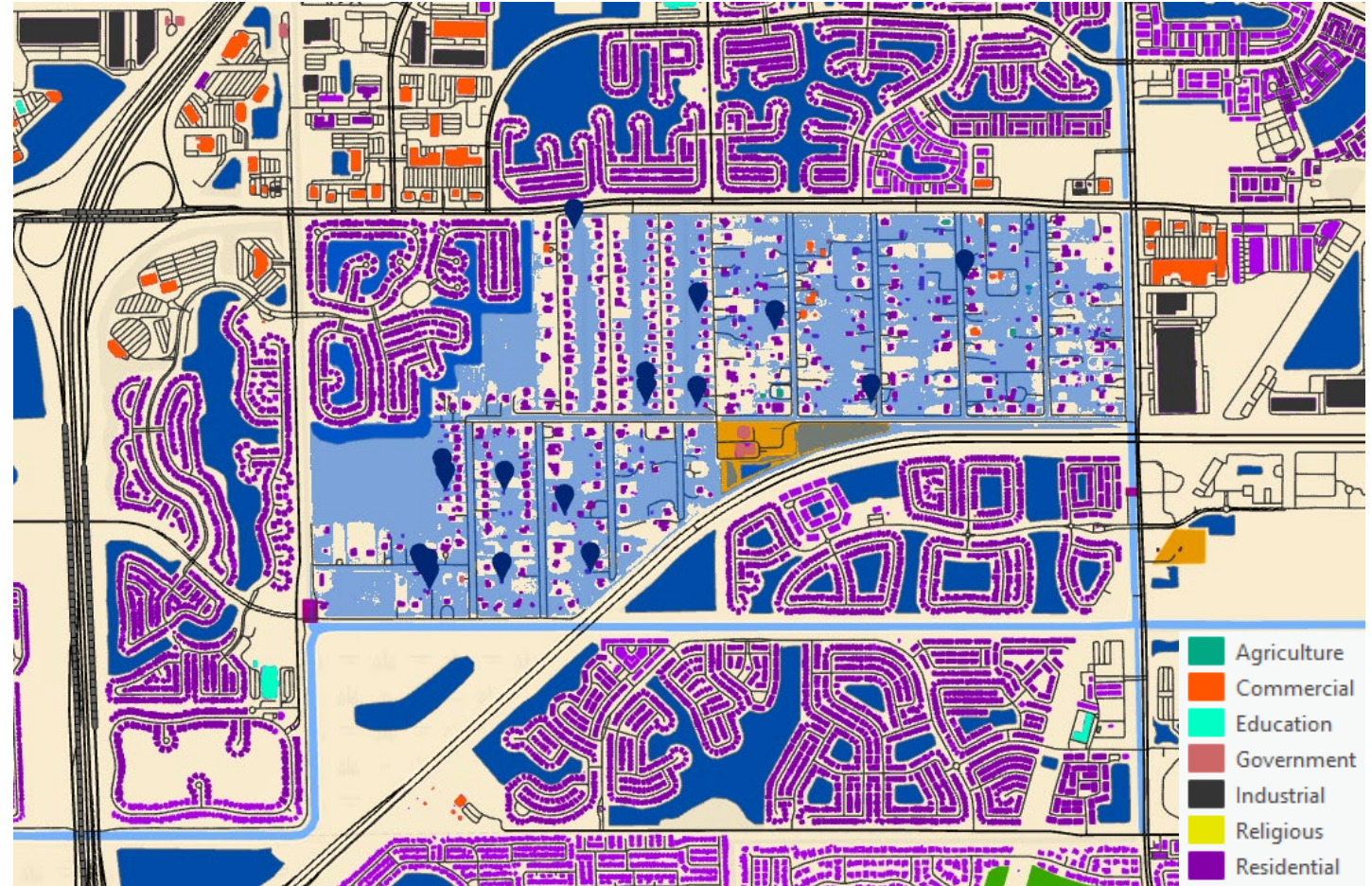


Deltares USA

Application of SFWMD-FIAT

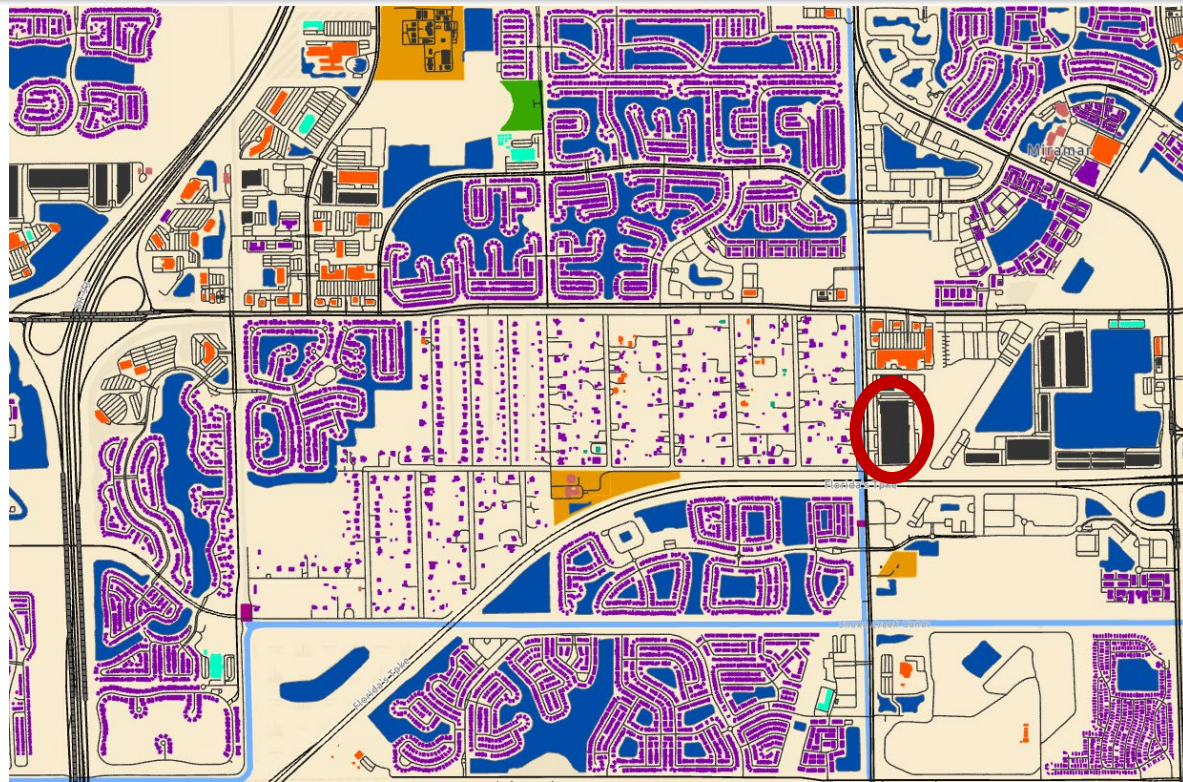


Reported or Modeled Flood Depths
Or Water Surface Elevations



Inundation depth over roads or finished floor elevations

SFWMD-FIAT Exposure Data

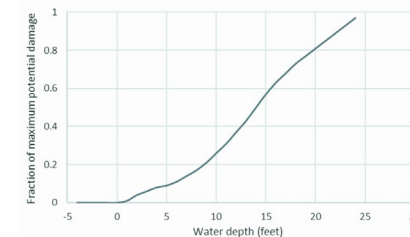


Exposure Data Sources:

- County Supplied Building Footprints
- SFWMD Normalized Parcel and Land Use
- High Resolution Topo-Bathymetric Data
- Navteq / HERE Roads
- HAZUS Occupancy Types and Depreciated Replacement Values

Primary Object Type	Secondary Object Type	Damage Function: Structure	Structure Replacement Value
COM6	Hospital	g_struct_38	326.44
IND3	Average Food/Drug/Chem	h_struct_575	194.85
IND3	Food Processor, structure only	h_struct_580	194.85
IND4	Average Metals/Minerals processing	h_struct_586	194.85
IND5	Average High Technology	h_struct_591	194.85
IND3	Chemical refinery	h_struct_578	194.85
IND4	Sand and gravel	h_struct_589	194.85
IND3	Port Facilities	h_struct_580	194.85
COM5	Bank	h_struct_467	282.15
EDU2	Average college/university	h_struct_652	184.68

Object Name	Primary Object Type	Secondary Object Type	Ground Elevation	Max Potential Damage: Structure	Shape_Area
fp_14	RES3E	Condominium, living area on multiple floors	5.775975	1065164	4900.234817
fp_15	COM4	Average Prof/Tech Services	4.319839	2145821	11274.214758
fp_16	RES3C	Condominium, living area on multiple floors	10.29773	947148.1	4357.308334
fp_17	IND3	Average Food/Drug/Chem	7.725961	353595.4	1814.705511
fp_18	RES3E	Condominium, living area on multiple floors	5.953907	1091480	5021.298025
fp_19	RES3E	Condominium, living area on multiple floors	6.359	1039605	4782.653075
fp_20	RES1-2SNB	Res 1, 2 Story no Basement	6.383797	872329.1	6582.125531



Deltares USA

In Summary

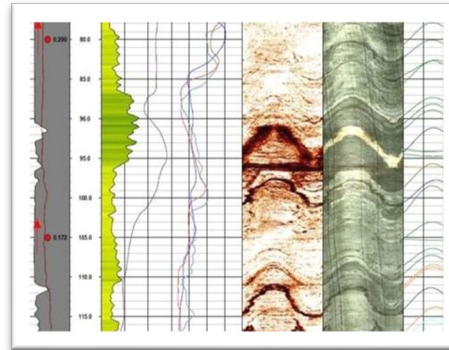
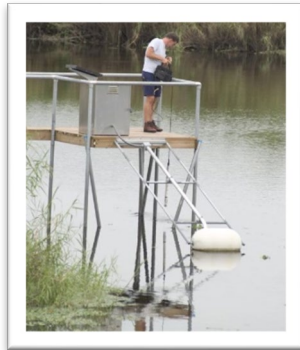
➤ Where we are now:

- A standardized and readily accessible GIS centric repository for flood occurrence and exposure data DOES NOT EXIST

➤ How do we get there?

- We encourage regional collaboration in the development and adoption of tools and methodologies that work at the local and regional level
- Promote use of existing tools like the FDEM Silver Jack High Water Mark Survey
- Encourage adoption of a regional flood observation survey
- We visualize a regional GIS centric, data driven, crowd sourced decision support tool

Data: DBHYDRO Insights



DBHYDRO is SFWMD's database that stores hydrologic, meteorologic, hydrogeologic, and water quality data. This database is the source of historical and up-to-date data for the 16-county region covered by the District.

DBHYDRO allows users to search and generate data summaries from the available period of record, select data sets of interest, and have the time series data dynamically displayed in tables or graphs. Users can also download data for later use.

In 2021, SFWMD released a new tool called **DBHYDRO Insights** to make data more easily accessible to the public and stakeholders. New features to access data are under development and the District welcomes feedback and ideas on how to improve the user experience.

<https://www.sfwmd.gov/dbhydro>

Utopia

Data Utopia



biography.com

A world governed by reason and people who share a common culture and way of life

Sir Thomas More (1477-1535)



Istockphoto.com

A world governed by commonly formatted and standardized data that can be applied to large- and small-scale local and global challenges

Subscribe for District Resiliency Updates

- Sign-up for our updates by visiting <https://www.sfwmd.gov/news-events> and following these simple steps:
 - 1 - Click on the “Subscribe for Email” icon
 - 2 - Enter your email address
 - 3 - Select “District Resiliency” under Subscription Topics

Home >> News Events

News and Meetings

Our large network of communication channels allows you to interact with the District, share opinions, participate in public meetings and engage with us in real-time. You can also use these channels to read statements and news releases, find information during an emergency, or learn about our mission and the work we do. The following is a directory of all of the District's communication channels.

2     

Welcome ncortez@sfwmd.gov

Quick Subscribe for ncortez@sfwmd.gov

South Florida Water Management District offers updates on the topics below. Subscribe by checking the boxes; unsubscribe by unchecking the boxes. Access your [subscriber preferences](#) to update your subscriptions or modify your password or email address without adding subscriptions.

Subscription Topics

News

- General Agency News
- Key Water Conditions
- 3 District Resiliency
- Spanish Language Media
- DBHydro Insights
- Weekly Did You Know

Public Notices

- Governing Board Meeting Notices

- You may sign-in to update your current preferences if you're already signed-up.

Questions