# October 23, 2023 Meeting

# Backup Materials

Contents:

- Presentation: *HABs and other Water Related Concerns* {Dr. Nancy Gassman, Assistant Public Works Director - Sustainability Division}

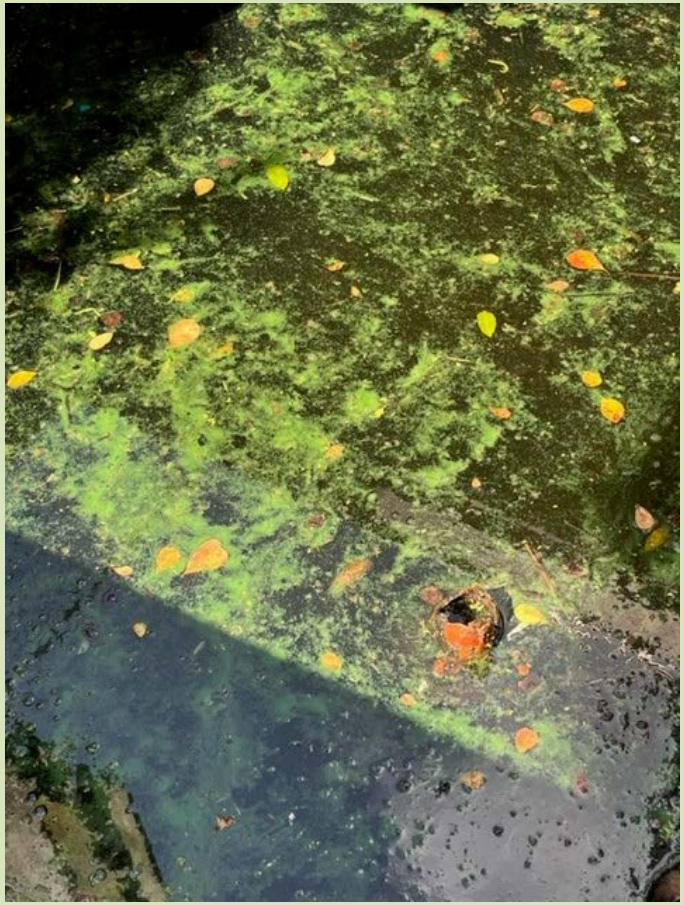
# Algal Blooms in City Coastal Waterways

Photo credit: C.E. Rodstrom

CITY OF FORT LAUDERDALE

# Algal Blooms
# Addressing Sustainability Advisory Board Concerns
# 9/18/2023

- Blue Green Algae vs Harmful Algal Blooms
- Impacts on Aquatic Life
- City Monitoring Program
- State Testing for Species and Toxins
- Information Distribution



# What is Blue-Green Algae?

- A naturally occurring aquatic micro-organism that depends on sunlight to grow, similar to plants.
- Found in freshwater environments throughout the world.
- Quickly multiply in water bodies with high nutrients.
- Certain types of algae may contain toxins.

# What is a Harmful Algal Bloom?

Florida Fish and Wildlife Conservation Commission

Site Search

Home › FWRI › Red Tide › HAB General Information › What is a Harmful Algal Bloom?

## What is a Harmful Algal Bloom?

A harmful algal bloom (HAB) is the proliferation of a toxic or nuisance algal species that negatively affects natural resources or humans. Scientists prefer the phrase "harmful algal bloom" to "red tide" because blooms are not always red and are not related to the tides.

To further define a harmful algal bloom, let's look at the phrase more closely.

- **Harmful** algal blooms damage the environment because they replace vital food sources, clog fish gills, prevent sunlight from reaching seagrass and contribute to low oxygen "dead-zones" when they degrade. Some HAB species produce potent toxins that can persist in the water and enter the food chain. These toxins can be harmful to humans and animals.

# What Causes Algal Blooms?


Photo credit: www.tcpalm.com, Major Blue-Green Algae Bloom on Treasure Coast in 2016

- Warm temperatures and calm water conditions
- Common in South Florida during summer and early fall
- Blooms are often associated with significant rainstorms or freshwater releases from inland canals which discharge nutrient laden water into coastal estuaries

# What Are the Environmental Impacts?

- Under normal conditions:
  - Sunlight penetrates the water and promotes growth of aquatic plants
  - Plants produce oxygen
  - Fish thrive
- During an algae bloom:
  - Sunlight is blocked by algae
  - Excessive nutrients in water are consumed
  - Decomposing algae uses up oxygen
  - Lack of oxygen causes fish kills
  - Additional impacts if algae contains toxins


Photo credit: www.sun-sentinel.com


Photo credit: www.tcpalm.com

# What Is Being Done about Algal Blooms?

- Fort Lauderdale has an environmental inspector visually monitoring the waterways
- If blue-green algae suspected:
  - City contacts FDEP
  - City Management and Commission notified
  - Strategic Communication provides outreach to neighbors
  - FDEP inspects and samples
  - FDEP posts results on the state's Algal Bloom Dashboard
- City has installed a bubble curtain in Citrus Isles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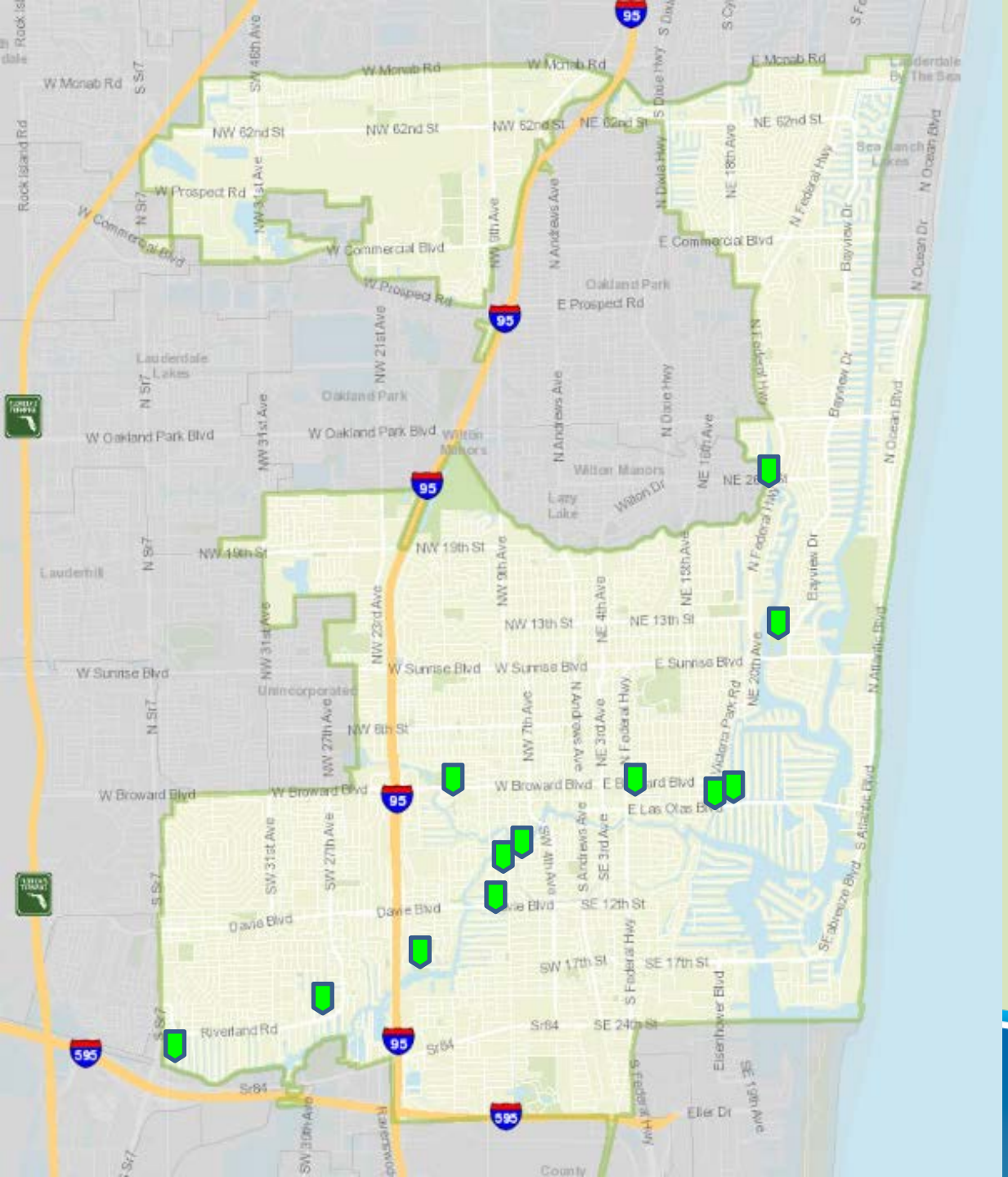


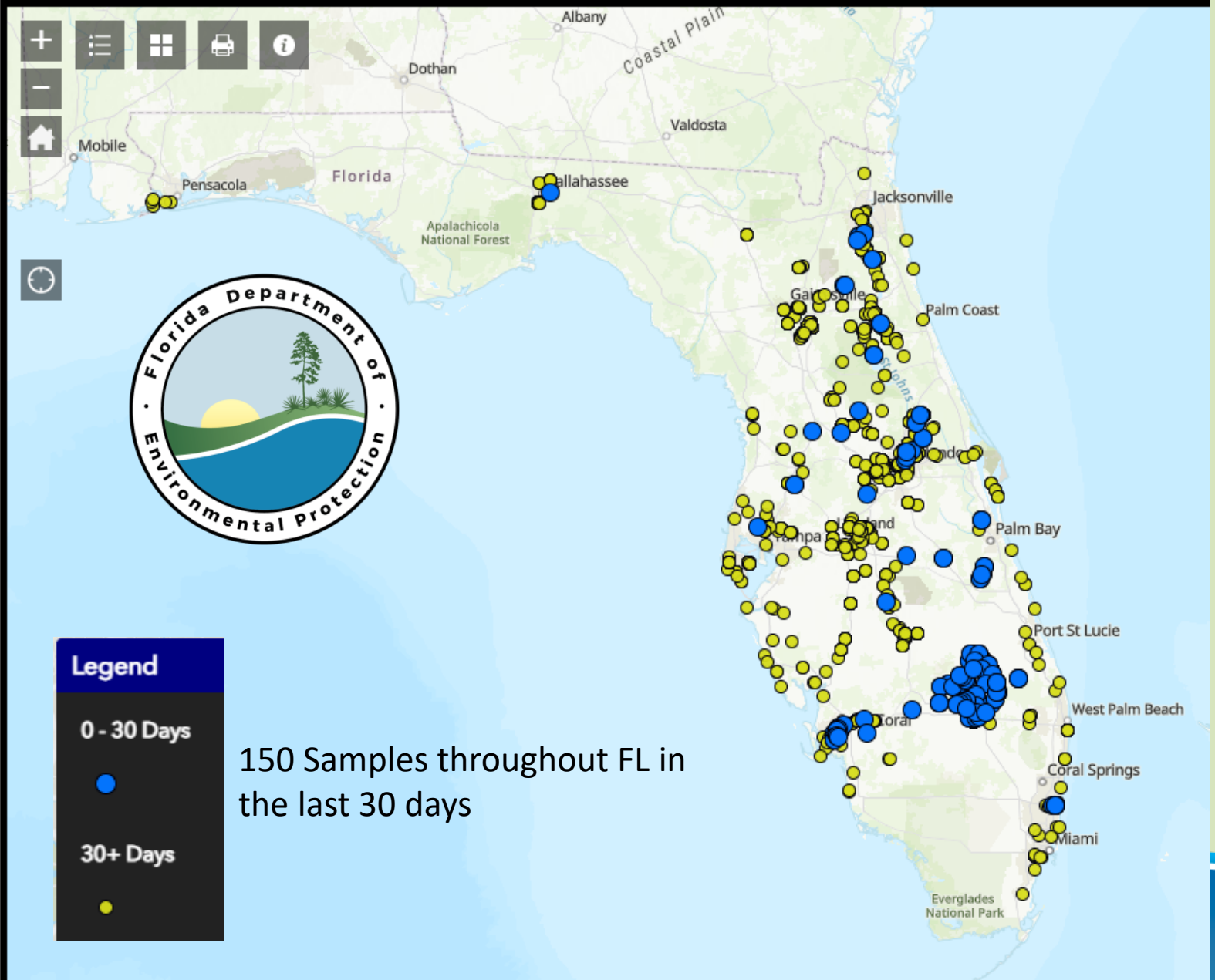

# City Weekly Algal Monitoring Sites

| |
|---|
| 3950 Riverland Rd |
| SW 27th Terrace |
| 1720 SW 17th St |
| 901 SW 12th Ct |
| 949 River Reach Dr |
| SE 7th St, W. Tarpon |
| 411 SW 14th Ave |
| SE 2nd St & SE 8th Ave |
| 319 Mola Ave |
| 301 Lido Dr |
| 1101 Bayview Dr |
| 2500 N Federal Hwy |

# Algal Bloom Sampling Status

Best experienced with Google Chrome or Microsoft Edge browsers

Dashboard Help  Dashboard Details

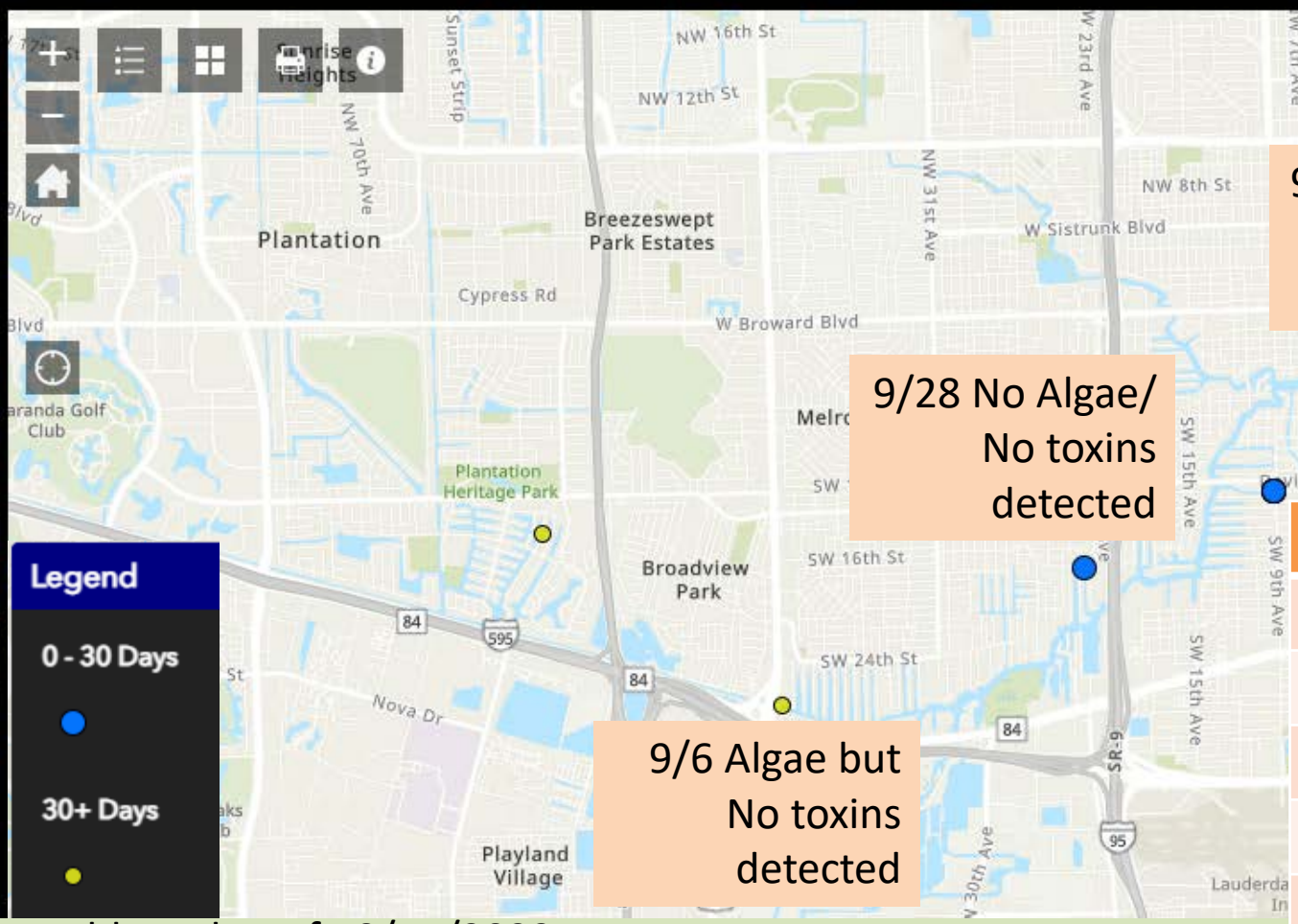



150 Samples throughout FL in the last 30 days

# Algal Bloom Sampling Status

Best experienced with Google Chrome or Microsoft Edge browsers

Dashboard Help  Dashboard Details




9/6 Algae but No toxins detected

9/28 No Algae/ No toxins detected

9/6 Algae but No toxins detected

| Date | Algae? | Toxin? |
|---|---|---|
| 8/28 | X | Below std |
| 9/6 | X | Below std |
| 9/18 | X | NO |
| 9/25 | X | Below std |
| 10/2 | X | NO |
| 10/11 | NO | NO |

Dashboard as of 10/17/2023

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https://floridadep.gov/AlgalBloom

# Public Outreach

**City of Fort Lauderdale**
Senior Strategic Communications Specialist Dayana Diaz • 1 Sep

City inspectors performing routine algal monitoring have observed possible blue-green algae blooms beginning to form in brackish waterways near the Lauderdale Isles, Las Olas Isles, and Citrus Isles. The Florida Department of Environmental Protection (FDEP), the lead agency on harmful algal blooms, has been notified and confirmed the presence of blue-green algae in Citrus Isles. City staff will continue to perform weekly monitoring of the situation.

Water from areas with blue-green algae can make people and animals sick. Do not swim in or around blue-green algae. If you come into contact with blue-green algae, wash off with soap and water, especially if your skin is easily irritated.

To report a bloom, contact the Florida Department of Environmental Protection at 855-305-3903 or make a report online at www.reportalgalbloom.com.

Resources:
🔗 FDEP Algal Bloom Sampling Map https://floridadep.gov/AlgalBloom
🔗 FDEP FAQ Document https://floridadep.gov/sites/default/files/freshwater-algal-bloom-faqs_2019.pdf
🔗 Health Department Guidance https://www.floridahealth.gov/environmental-health/aquatic-toxins/harmful-algae-blooms/index.html

Algal Bloom Reporting Form
surveygizmo.com

Posted to Subscribers of City of Fort Lauderdale in 3 neighborhoods
164 Impressions  Like  Comment  Share

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# Public Outreach

**City of Fort Lauderdale**
Senior Strategic Communications Specialist Dayana Diaz • 8 Sep

The Florida Department of Environmental Protection (FDEP), the lead agency on harmful algal blooms, has confirmed the presence of blue-green algae in brackish waterways near the Lauderdale Isles, Las Olas Isles, and Citrus Isles. City staff have also reported to FDEP an observation of a similar nature in the eastern Tarpon River.

While water from areas with blue-green algae can make people and animals sick, FDEP sample results demonstrate that the observed blue-green algae do not pose a threat related to toxins sometimes associated with these organisms. City staff will continue to perform weekly monitoring of the situation.

As a precaution, neighbors should not swim in or around blue-green algae. If you come into contact with blue-green algae, wash off with soap and water, especially if your skin is easily irritated.

To report a bloom, contact the Florida Department of Environmental Protection at 855-305-3903 or make a report online at www.reportalgalbloom.com.

Resources:
🔗 FDEP Algal Bloom Sampling Map https://floridadep.gov/AlgalBloom
🔗 FDEP FAQ Document https://floridadep.gov/sites/default/files/freshwater-algal-bloom-faqs_2019.pdf )
🔗 Health Department Guidance https://www.floridahealth.gov/environmental-health/aquatic-toxins/harmful-algae-blooms/index.html

Algal Bloom Reporting Form
surveygizmo.com

Posted to **Subscribers of City of Fort Lauderdale in 23 neighborhoods**

5 · 740 Impressions  Like  4 Comments  Share

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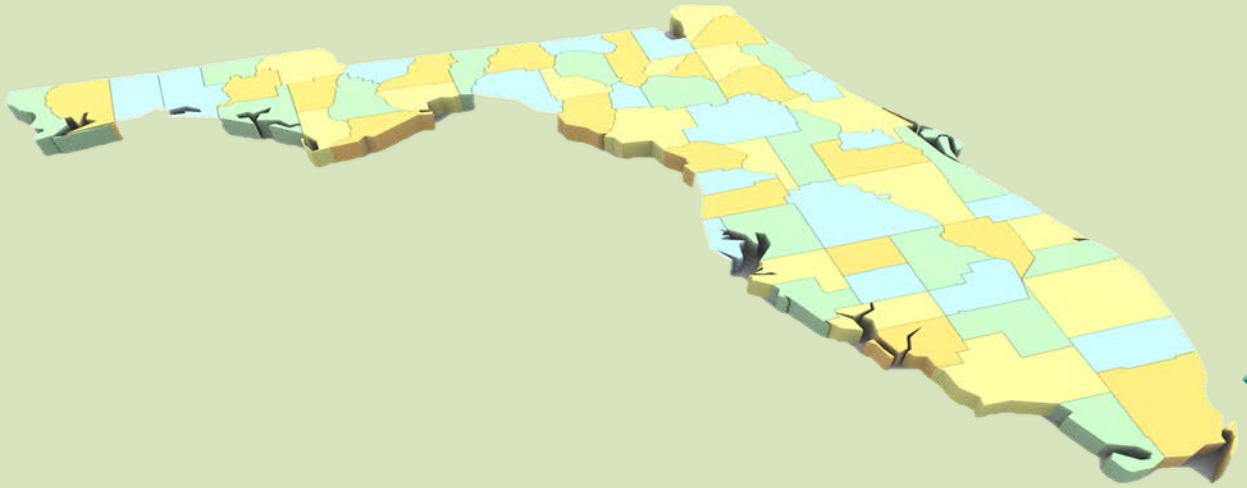
# Pending issues from the September 18 Sustainability Advisory Board Meeting

- City's Adoption of Sea Level Rise Projections
- Current Elevation Requirements for Seawalls
- Proposed Future Groundwater Table Mapping

# Water-Related Climate Impacts – City of Fort Lauderdale

# Water-Related Climate Impacts – City of Fort Lauderdale



Sea Level Rise

# 2019 SE FL Regional Climate Change Compact
# Sea Level Rise Projections for SE Florida

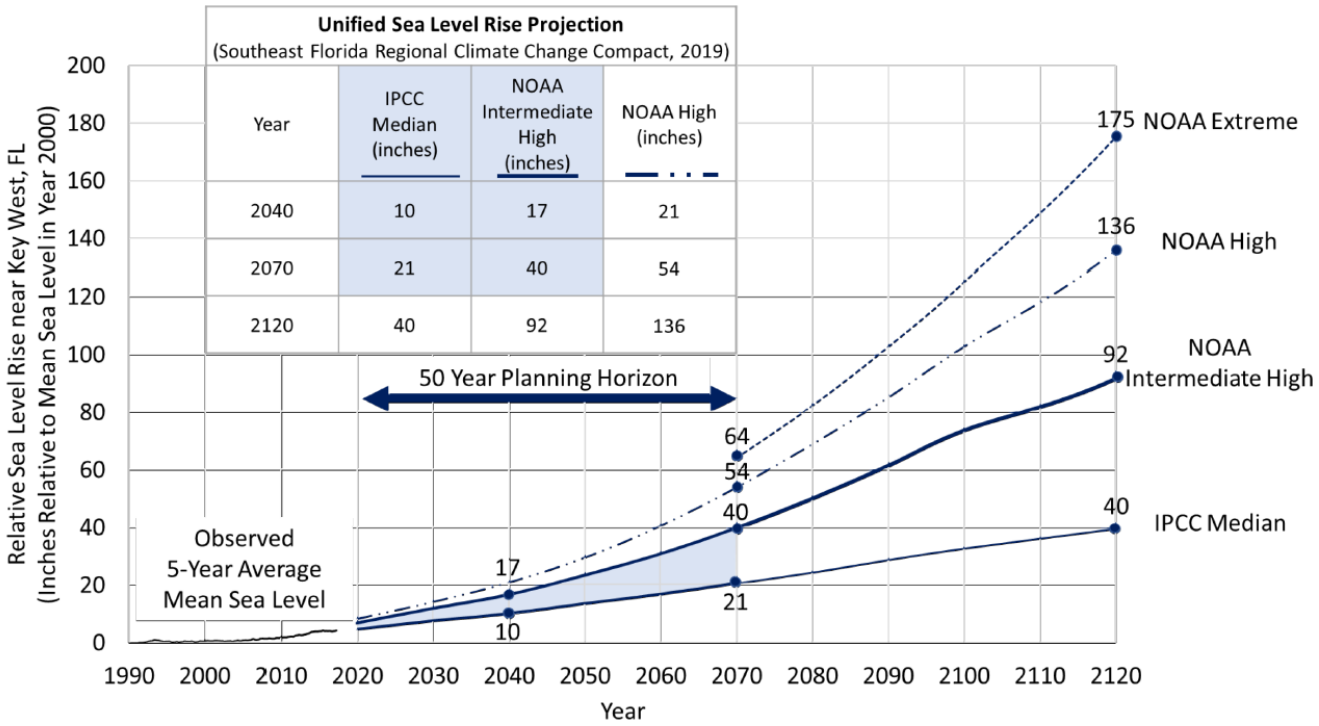



Figure 1: Unified Sea Level Rise Projection. Approximately 3 inches of sea level rise has occurred from 1992 to 2019 (see historical trends displayed in guidance document). These projections start from zero in year 2000 and are referenced to mean sea level at the Key West tide gauge. The projection includes global curves adapted for regional application: the median of the IPCC AR5 RCP8.5 scenario (Business as Usual) as the lowest boundary (solid thin curve), the NOAA Intermediate High curve as the upper boundary for short term use until 2070 (solid thick line), the NOAA High curve as the upper boundary for medium and long term use (dash dot curve). The shaded zone between the IPCC AR5 RCP8.5 median curve and the NOAA Intermediate High is recommended to be generally applied to most projects within a short - term planning horizon. Beyond 2070, the adaptability, interdependencies and costs of the infrastructure should be weighed to select a projection value between the IPCC Median and the NOAA High curves. The NOAA Extreme curve (dash curve) is displayed for informational purposes bracketing the upper range of possible sea level rise under an accelerated ice melt scenario. Emissions reductions could reduce rate of sea level rise significantly.

**R-2** 20-0334 Resolution Accepting the Unified Regional Sea Level Rise Projection 2019 Update of the Southeast Florida Regional Climate Change Compact - (Commission Districts 1, 2, 3, and 4)

***Attachments:*** Commission Agenda Memo 20-0334
Exhibit 1 – Unified Regional Sea Level Rise Projection Southeast Florida 2019 U
Exhibit 2 - Resolution

RESOLUTION NO. 20-74

A RESOLUTION OF THE CITY COMMISSION OF THE CITY OF FORT LAUDERDALE, FLORIDA, ACCEPTING THE UPDATED UNIFIED REGIONAL SEA LEVEL RISE PROJECTION OF THE SOUTHEAST FLORIDA REGIONAL CLIMATE CHANGE COMPACT.

WHEREAS, the Southeast Florida Regional Climate Change Compact ("Compact") released the Unified Regional Sea Level Rise ("SLR") Projection for Southeast Florida; and

WHEREAS, the Southeast Florida Regional Climate Change Compact Technical Ad Hoc Work Group ("Work Group") developed the original projection and, at that time, recommended review and update of the SLR projection; and

WHEREAS, in September 2014, the Work Group was reconvened to review scientific literature released since 2011 to update the SLR projection; and

WHEREAS, the updated projection and associated guidance document were finalized in October 2015; and

WHEREAS, the Compact Sea Level Rise Ad Hoc Work Group developed the most recent projections, its third update, in 2019; and

WHEREAS, the guidance document provides a summary of the projections; publications reviewed and discussed by the Work Group; the methodology for deriving the projection; description of the recommended unified regional SLR projection; and additional recommendations from the Work Group;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COMMISSION OF THE CITY OF FORT LAUDERDALE, FLORIDA:

SECTION 1. That the recitals set forth above are incorporated in this Resolution.



SECTION 2. That the City Commission hereby accepts the Updated Unified Regional Sea Level Rise Projection of the Southeast Florida Regional Climate Change Compact for purposes of sea level rise adaptation planning activities.

ADOPTED this the 5th day of May, 2020.

Mayor
DEAN J. TRANTALIS

ATTEST:

City Clerk
JEFFREY A. MODARELLI

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# MASTER PLANNING FOR RESILIENCE

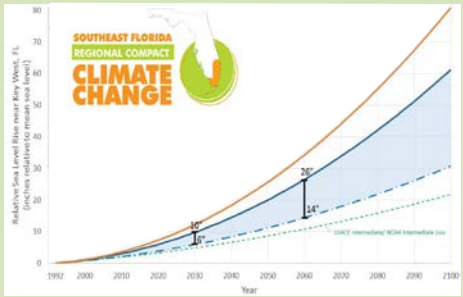
Seawalls*

** Entering Phase 2 Planning efforts*


Stormwater*


Utilities


Parks



**Investments in Resilience**

Cemetery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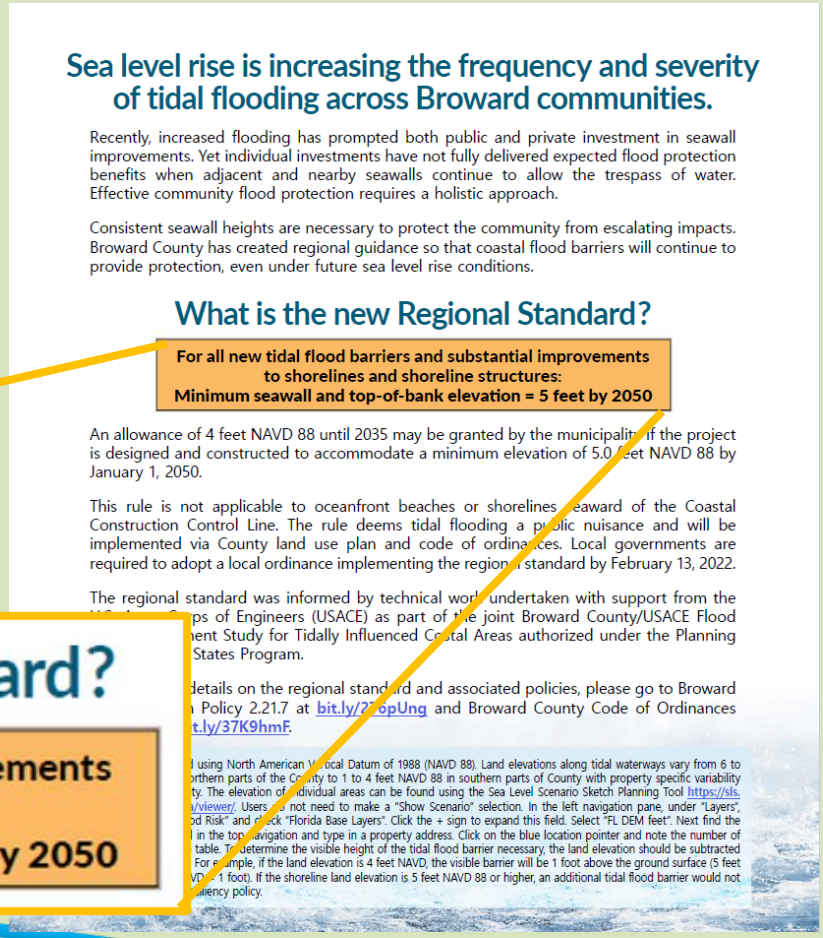
# Fort Lauderdale has Adopted the Broward County Regional Tidal Barrier Standard


## What is the new Regional Standard?

**For all new tidal flood barriers and substantial improvements to shorelines and shoreline structures:**
**Minimum seawall and top-of-bank elevation = 5 feet by 2050**



## Sea level rise is increasing the frequency and severity of tidal flooding across Broward communities.

Recently, increased flooding has prompted both public and private investment in seawall improvements. Yet individual investments have not fully delivered expected flood protection benefits when adjacent and nearby seawalls continue to allow the trespass of water. Effective community flood protection requires a holistic approach.

Consistent seawall heights are necessary to protect the community from escalating impacts. Broward County has created regional guidance so that coastal flood barriers will continue to provide protection, even under future sea level rise conditions.

## What is the new Regional Standard?

**For all new tidal flood barriers and substantial improvements to shorelines and shoreline structures:**
**Minimum seawall and top-of-bank elevation = 5 feet by 2050**

An allowance of 4 feet NAVD 88 until 2035 may be granted by the municipality if the project is designed and constructed to accommodate a minimum elevation of 5.0 feet NAVD 88 by January 1, 2050.

This rule is not applicable to oceanfront beaches or shorelines seaward of the Coastal Construction Control Line. The rule deems tidal flooding a public nuisance and will be implemented via County land use plan and code of ordinances. Local governments are required to adopt a local ordinance implementing the regional standard by February 13, 2022.

The regional standard was informed by technical work undertaken with support from the ...ps of Engineers (USACE) as part of the joint Broward County/USACE Flood ...ent Study for Tidally Influenced Coastal Areas authorized under the Planning ... States Program.

...details on the regional standard and associated policies, please go to Broward ... Policy 2.21.7 at bit.ly/2...opUng and Broward County Code of Ordinances ...t.ly/37K9hmF.

...l using North American Vertical Datum of 1988 (NAVD 88). Land elevations along tidal waterways vary from 6 to ...orthern parts of the County to 1 to 4 feet NAVD 88 in southern parts of County with property specific variability ...ty. The elevation of individual areas can be found using the Sea Level Scenario Sketch Planning Tool https://sls. .../viewer/. Users do not need to make a "Show Scenario" selection. In the left navigation pane, under "Layers", ...od Risk" and check "Florida Base Layers". Click the + sign to expand this field. Select "FL DEM feet". Next find the ...l in the top navigation and type in a property address. Click on the blue location pointer and note the number of ... table. To determine the visible height of the tidal flood barrier necessary, the land elevation should be subtracted ... For example, if the land elevation is 4 feet NAVD, the visible barrier will be 1 foot above the ground surface (5 feet ...VD - 1 foot). If the shoreline land elevation is 5 feet NAVD 88 or higher, an additional tidal flood barrier would not ...liency policy.

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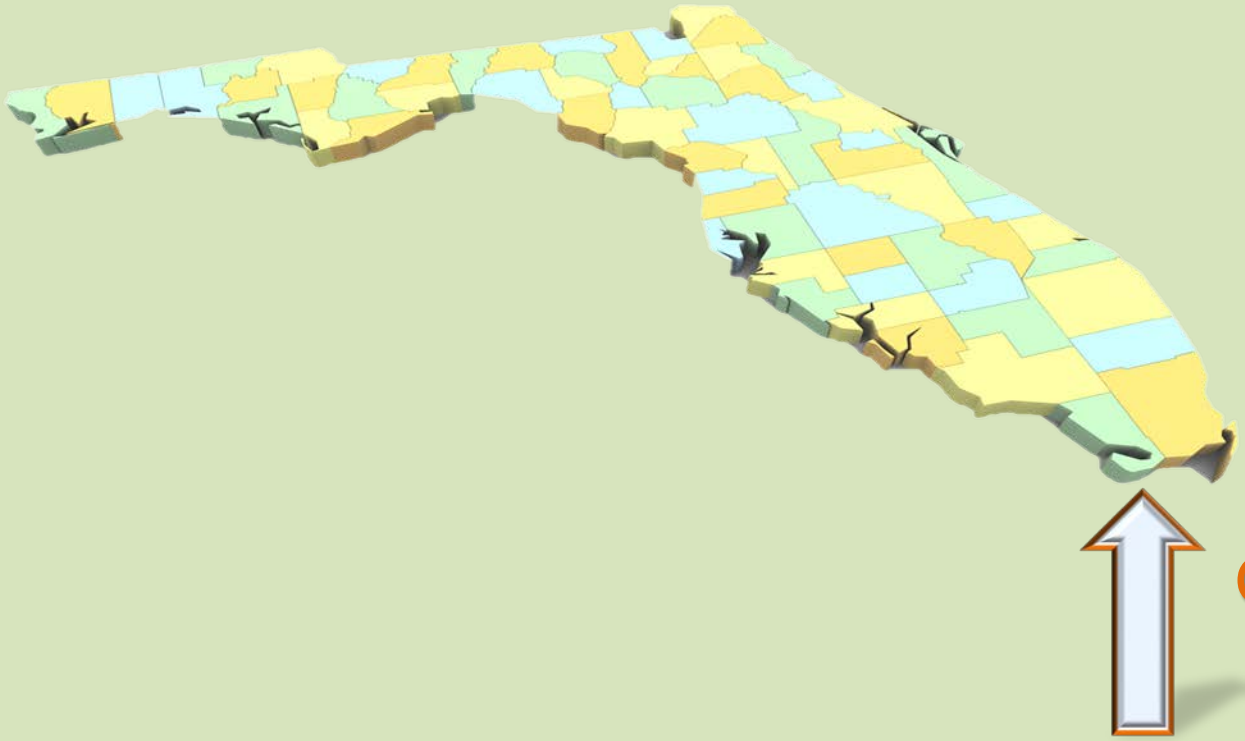
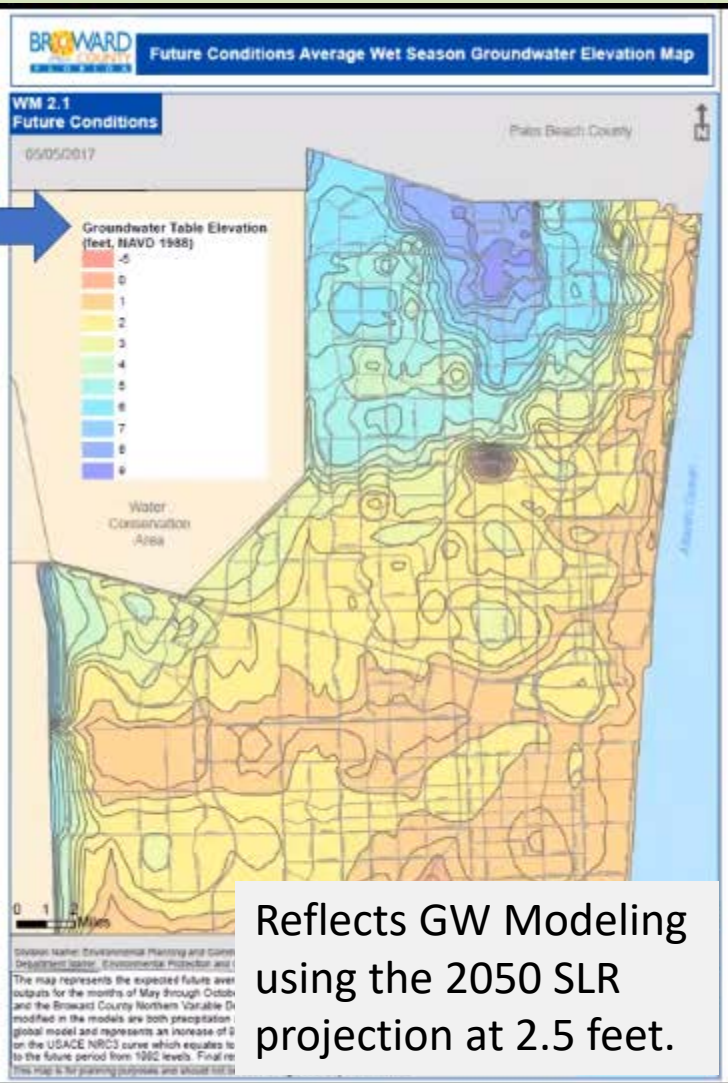
# Water-Related Climate Impacts – City of Fort Lauderdale



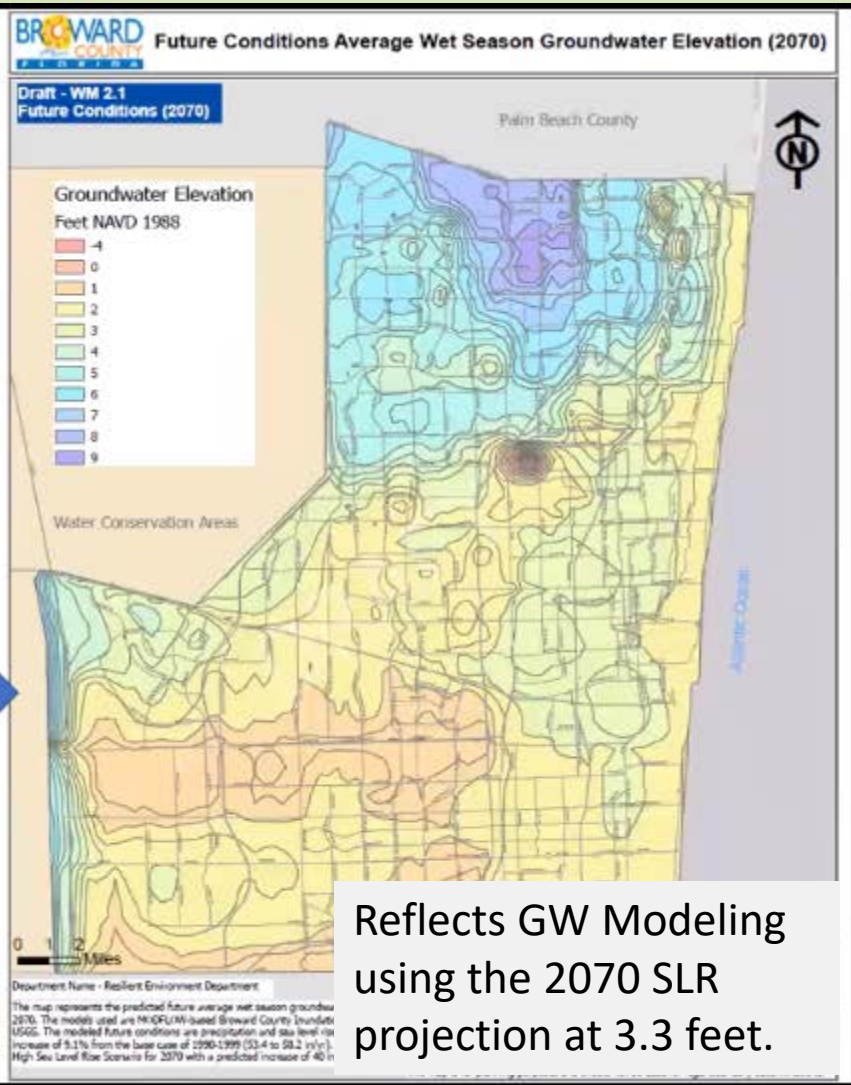
# Groundwater Elevations:
# Proposed Future Conditions Map

**2017**




Reflects GW Modeling using the 2050 SLR projection at 2.5 feet.

**2023 Update**

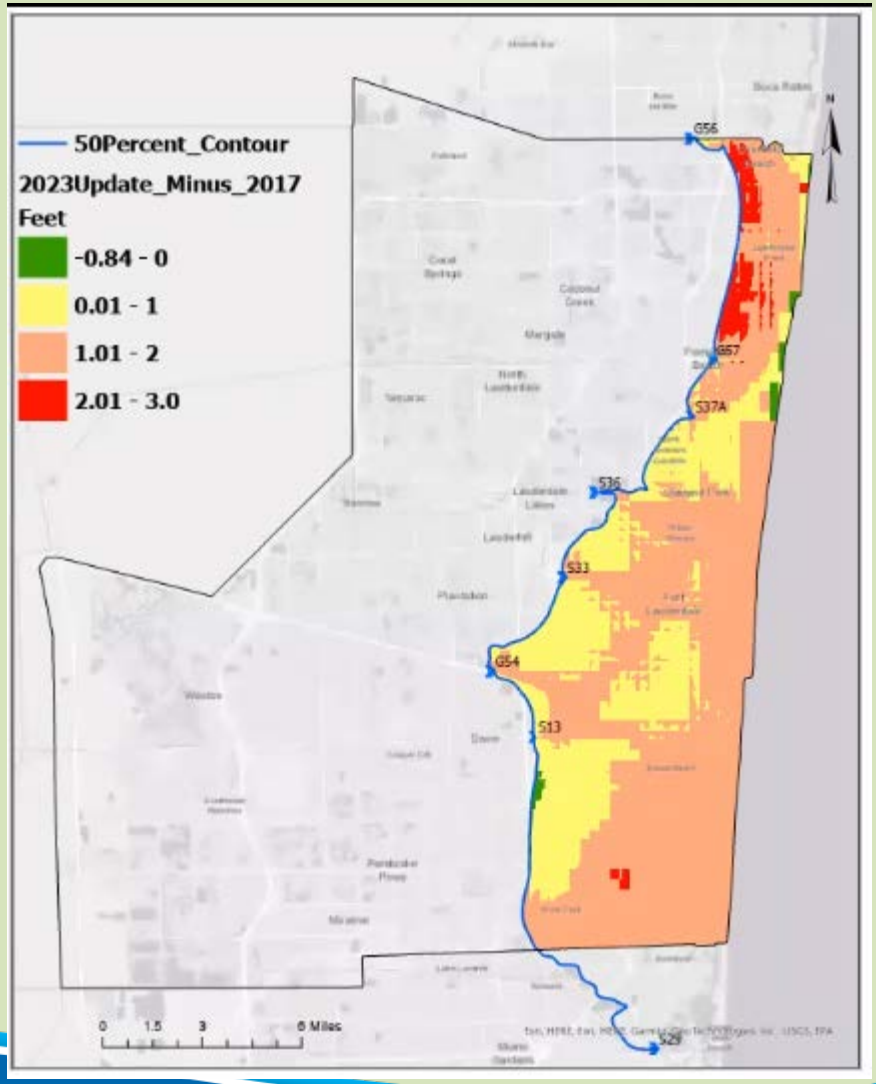



Reflects GW Modeling using the 2070 SLR projection at 3.3 feet.

# Groundwater Elevations:
# Proposed Future Conditions Map

**The Map**

- Predicts future groundwater table based on modelling using future SLR projections
- Is used to guide future development
- Changes from 2017 map mainly impact the coastal cities
- Fort Lauderdale groundwater table rises 1 foot higher than the previous map



# Currently in a comment period on the proposed maps

## Timeline

- Motion to Direct County Attorney to draft item amending Chapter 27, Article V, Water Resource Management, of the Broward County Code of Ordinances – May 23, 2023 ✓
- Final revision of Groundwater Elevation Map: Plate WM 2.1 – Future Conditions (2070) ✓
- Stakeholder Workshop - July 10, 2023 ✓
- TAC and WAB Approval – Aug-Sep 2023 ✓
- LPA/Planning Council Review – October 2023
- Motion to Set Public Hearing – October 2023
- Public Hearing/Commission Approval – October 2023, Effective December 2023

City opportunity to comment

16

Fort Lauderdale's Concerns –

- Proposed GW guidance would require changing City's current code
- Impacts to existing and adjacent property

# In Conclusion…

1) **Water from Sea Level**
   a. City has adopted the 2019 Sea Level Rise Projects
      a. Using NOAA Intermediate High for planning purpose.
   b. Seawall ordinance is compliant with Broward County Regional Tidal Barrier Standard.

2) **Water from the Groundwater Table**
   a. Fort Lauderdale raising concerns on the impacts to our development code and to existing properties from adopting the proposed Broward County Future Conditions Groundwater Table Map