

# Hurricane Updates



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Springs Scientist

Surface Water Improvement & Management (SWIM)

# Salinity Drives SAV Dynamics in Coastal Springs

- Hoyer et al. (2004): freshwater SAV tolerate 4 ppt salinity
- Tootoonchi et al. (2020): tolerance depends on cultivar & duration
- Trowbridge (2023): ecological zones
- Unknown: recovery

## Biological Sciences

### Indicators of salinization in spring-fed rivers using submerged aquatic vegetation

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**Abstract** Florida spring-fed rivers are known for their submerged aquatic vegetation (SAV), which provides habitat for fish and aquatic crustaceans and food for the Florida manatee. Salinization of coastal spring-fed rivers due to climate change and sea level rise have been documented and can cause changes to SAV communities. This study investigated patterns and relationships between the SAV community and salinity of the Chassahowitzka River (Citrus County, FL, USA) to extrapolate the long-term effects of river salinization. A distinct dichotomy was seen in the SAV community structure: communities where salt tolerant *Chaetomorpha* spp. was present and communities where freshwater filamentous algae species were present. Freshwater filamentous algae demonstrated an inverse relationship with salinity. *Chaetomorpha* spp. replaced the freshwater filamentous algae in regions too salty for freshwater algae to grow. These patterns in the SAV community resulted in three different ecological zones in the Chassahowitzka River: low salinity/freshwater tidal, transition, and brackish zones. While freshwater filamentous algae and *Chaetomorpha* spp. were characteristic of the freshwater and brackish zones respectively, both species were identified within the transition zone. Utilizing the presence/absence of these macroalgae types could allow for an in-situ approach of characterizing regions of coastal spring-fed rivers that show increased salinization.

**Keywords** Climate change, Florida, salinization, sea level rise, springs, submerged aquatic vegetation

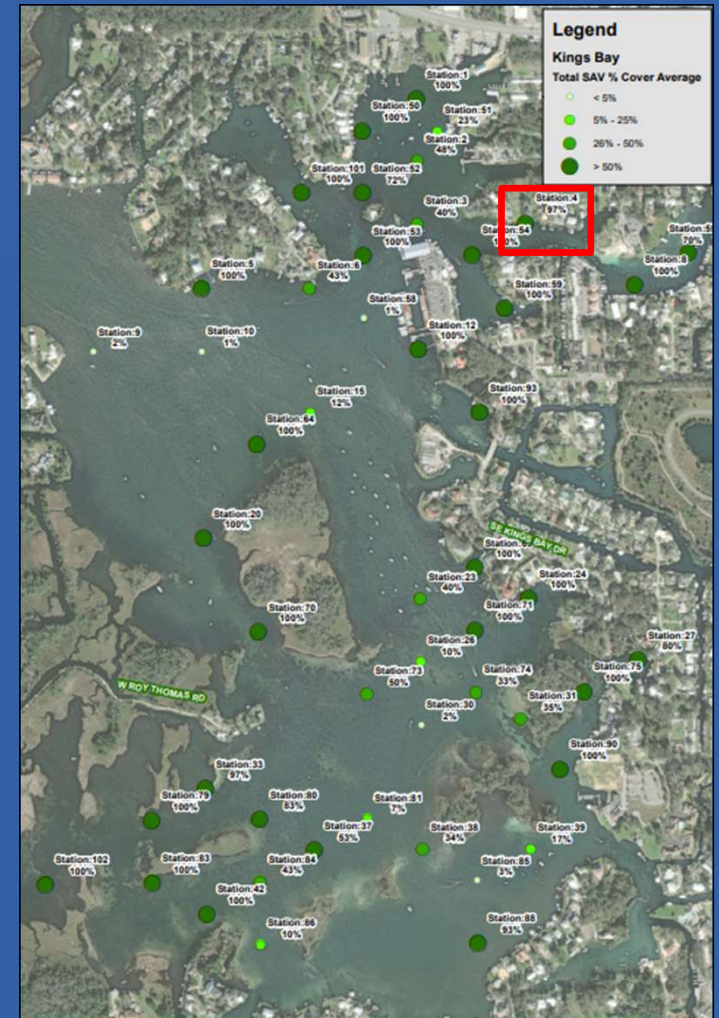
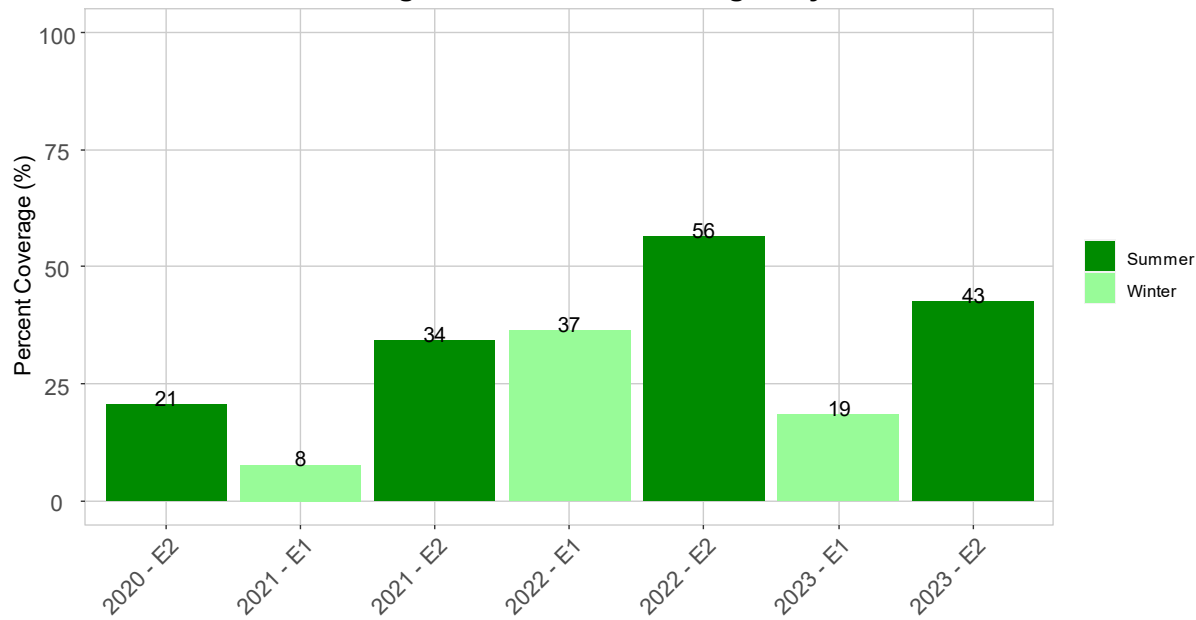
# Conceptual SAV Recovery Mechanism



## SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

# Pre-Idalia Conditions – Kings Bay

Average Desirable SAV in Kings Bay



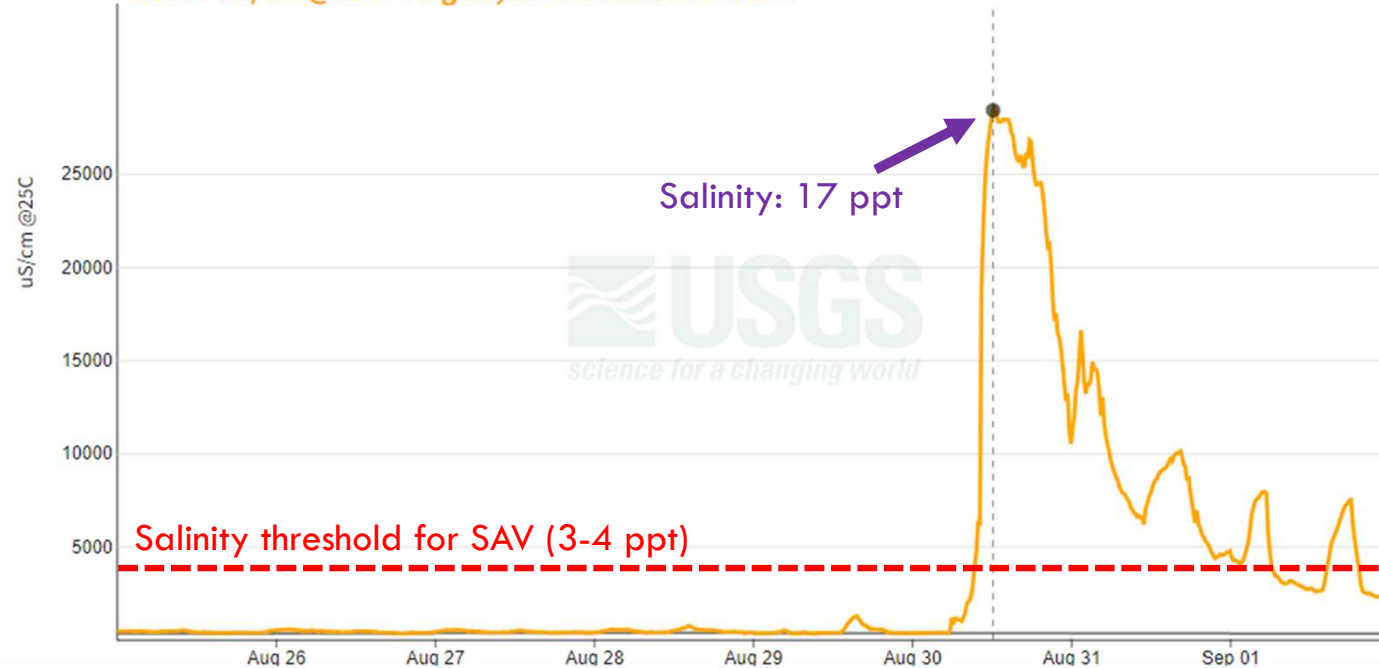
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# Hunter Spr Run at Beach Lane at Crystal River FL - 02310743

August 25, 2023 - September 1, 2023

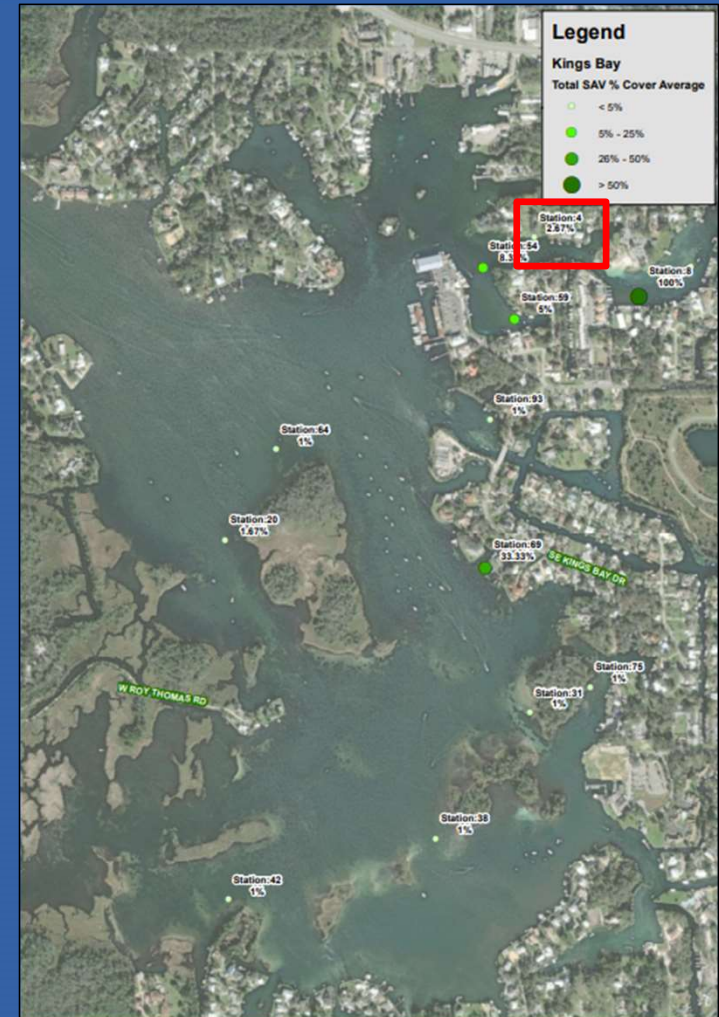
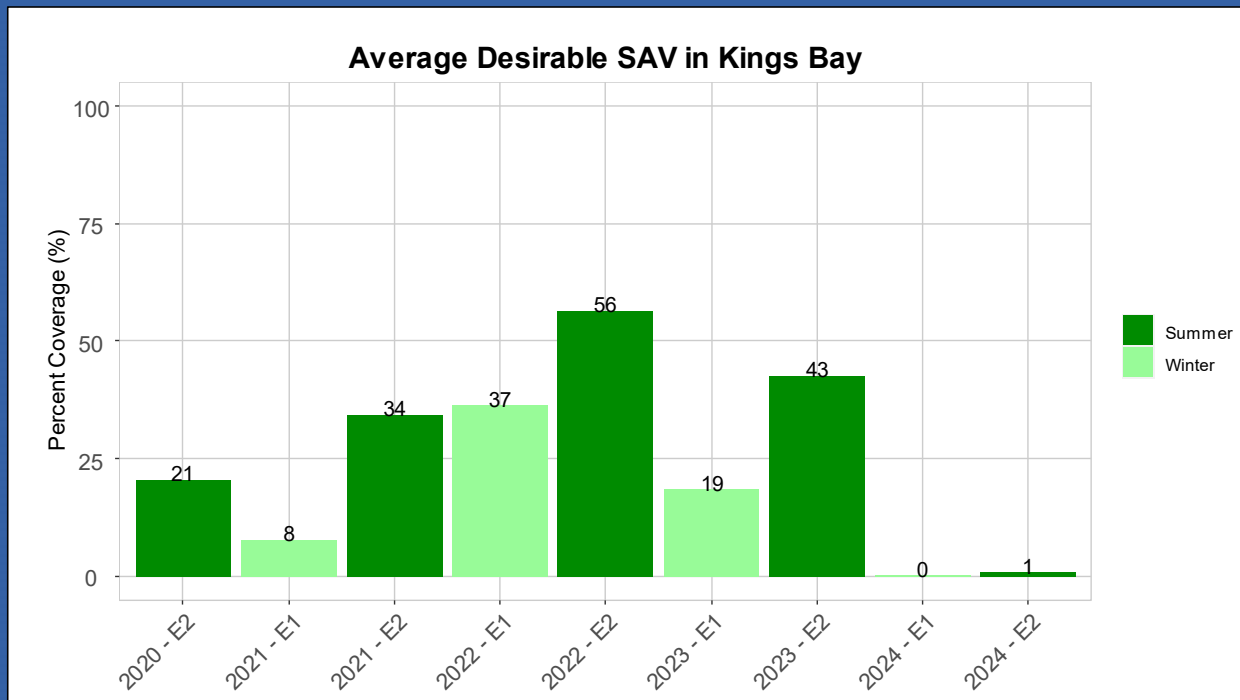
Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius

28400 uS/cm @25C - Aug 30, 2023 12:15:00 PM EDT

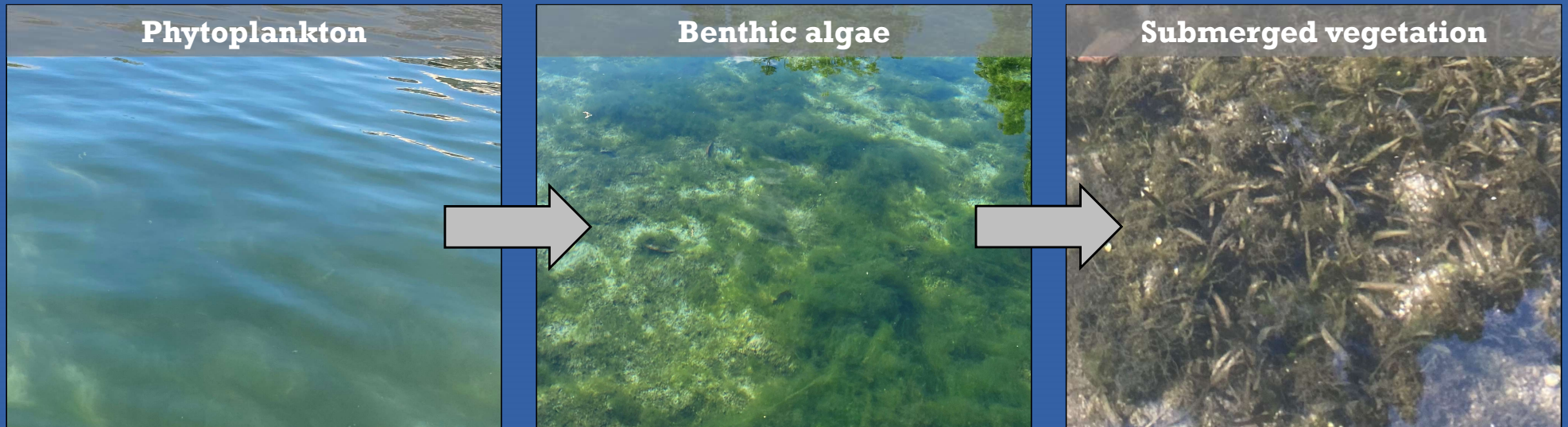




# Post-Idalia Conditions – Kings Bay



# Conceptual Ecological Succession Following Hurricanes



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# Hunter Spr Run at Beach Lane at Crystal River FL - 02310743

September 25, 2024 - October 2, 2024

Specific conductance, water, unfiltered, microsiemens per centimeter at 25 degrees Celsius

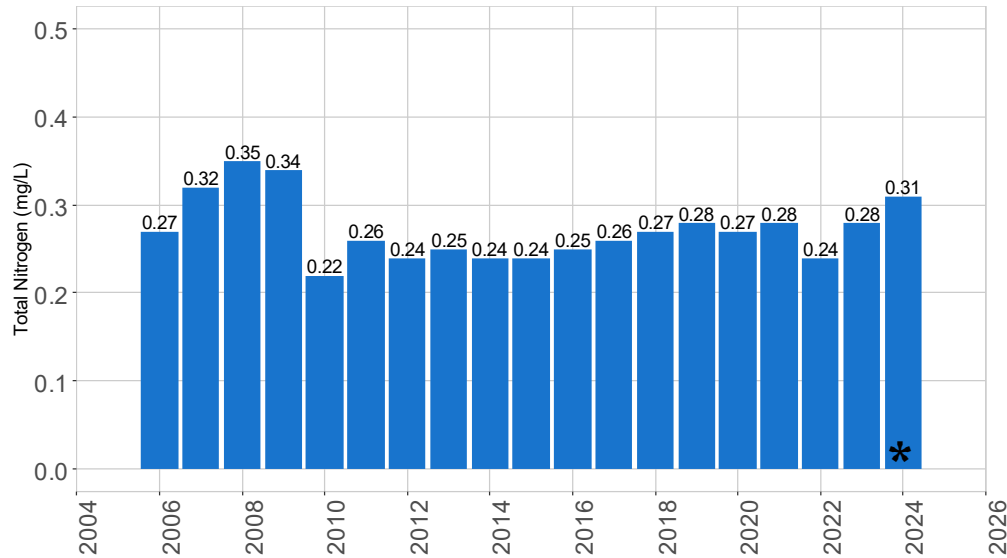
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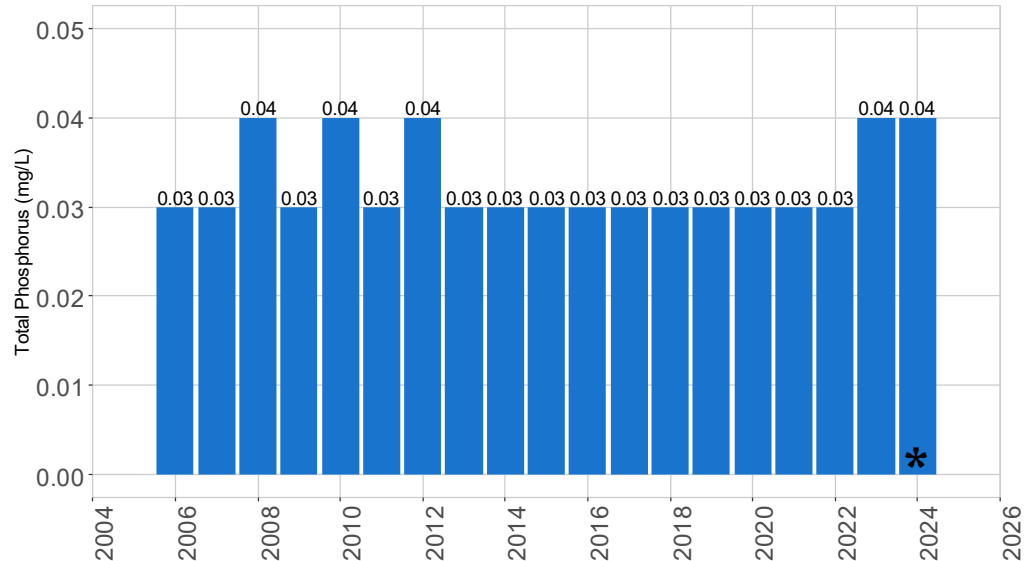


# Kings Bay Preliminary Water Quality Data

Total Nitrogen Concentrations in Kings Bay

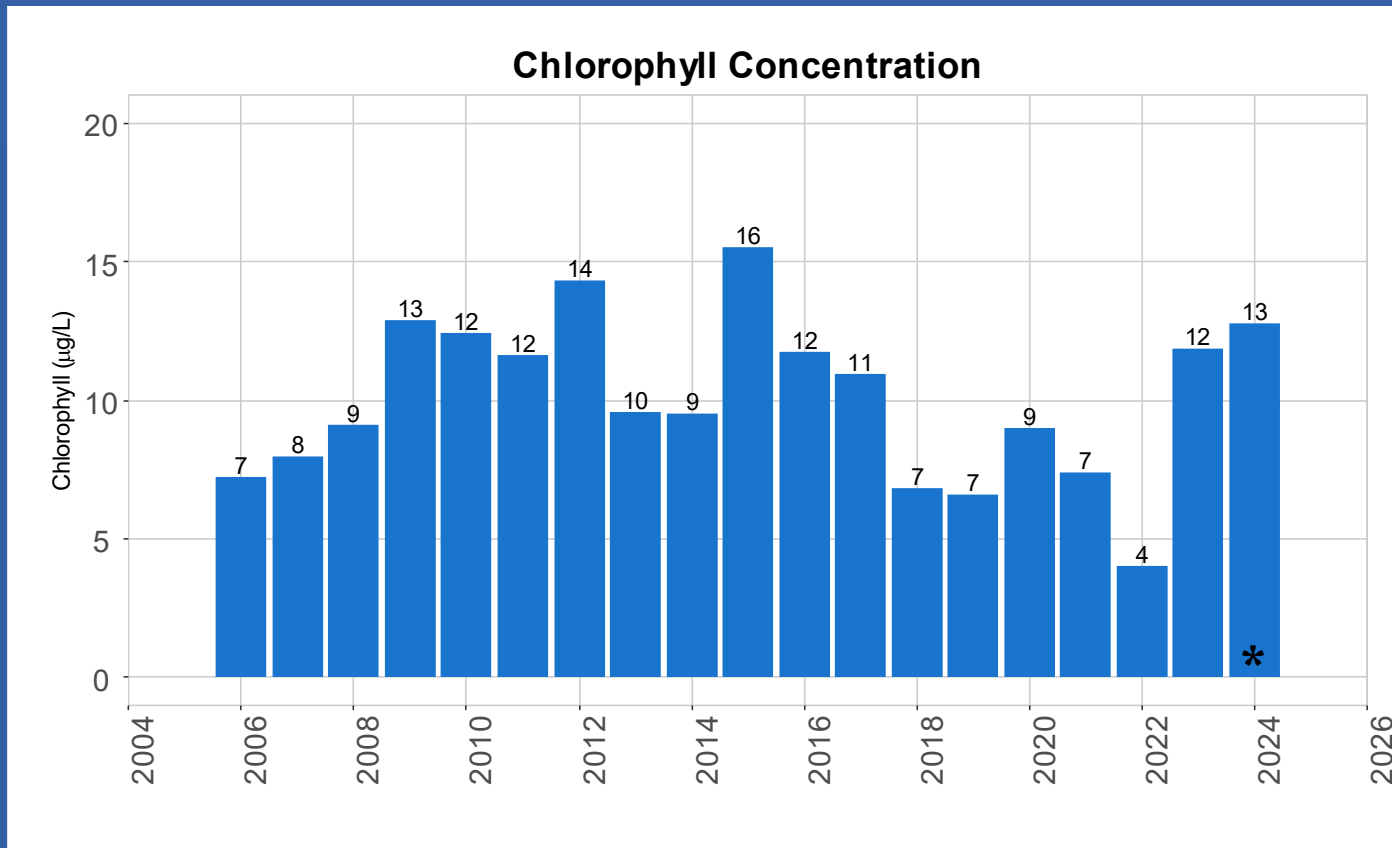


Total Phosphorus Concentrations in Kings Bay



**\* Data in processing phase, subject to change**

# Kings Bay Preliminary Water Quality Data



**\* Data in processing phase, subject to change**

## SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

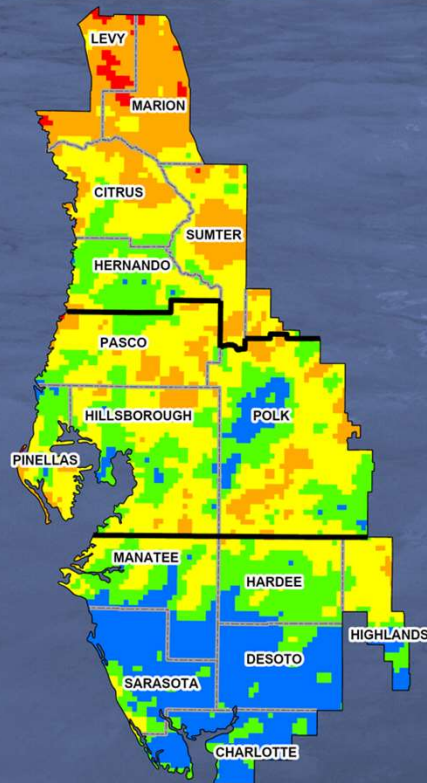
# Rainfall – June & July

SWFWMD Rainfall Distribution

June 2024

**\*\*Provisional Data\*\***

Legend

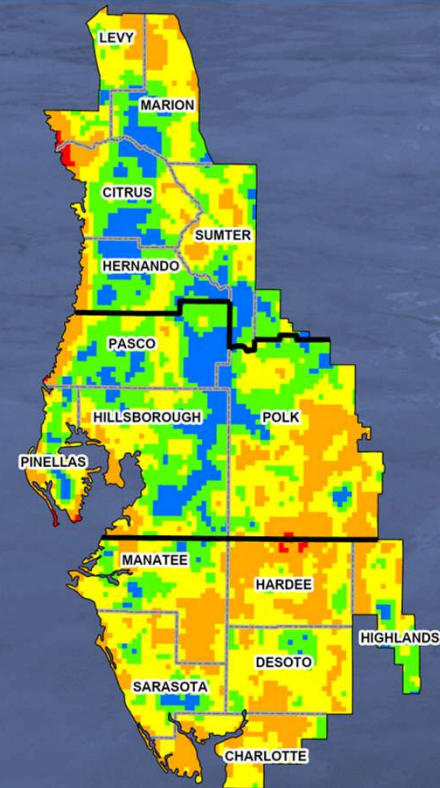
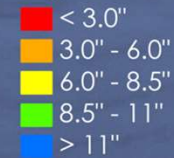


SWFWMD Rainfall Distribution

July 2024

**\*\*Provisional Data\*\***

Legend



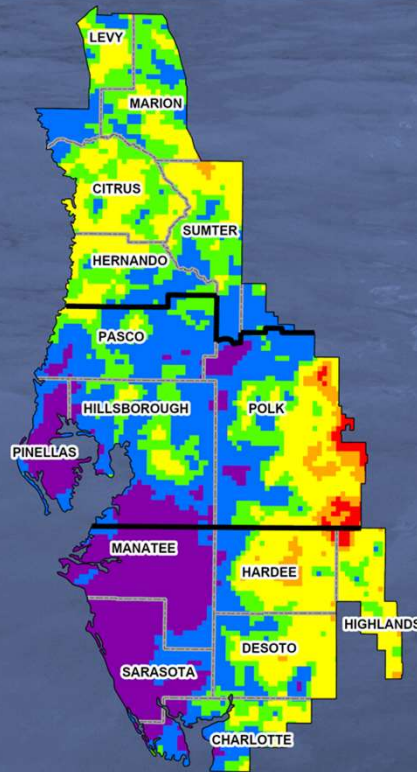
## SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

# Rainfall – August & September

SWFWMD Rainfall Distribution  
August 1-29, 2024

**\*\*Provisional Data\*\***

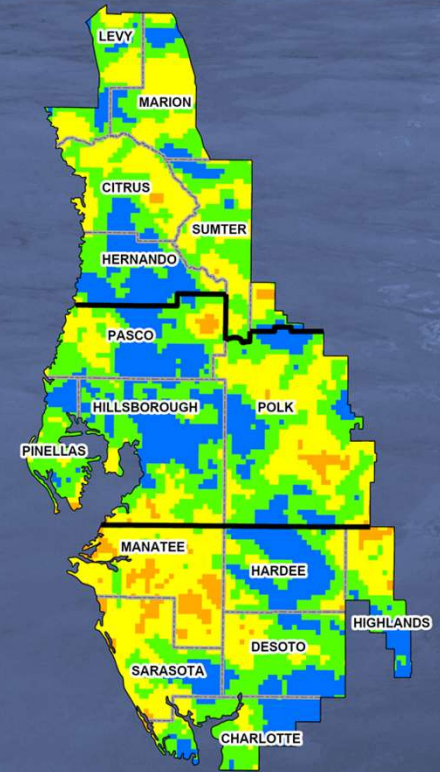
**Legend**



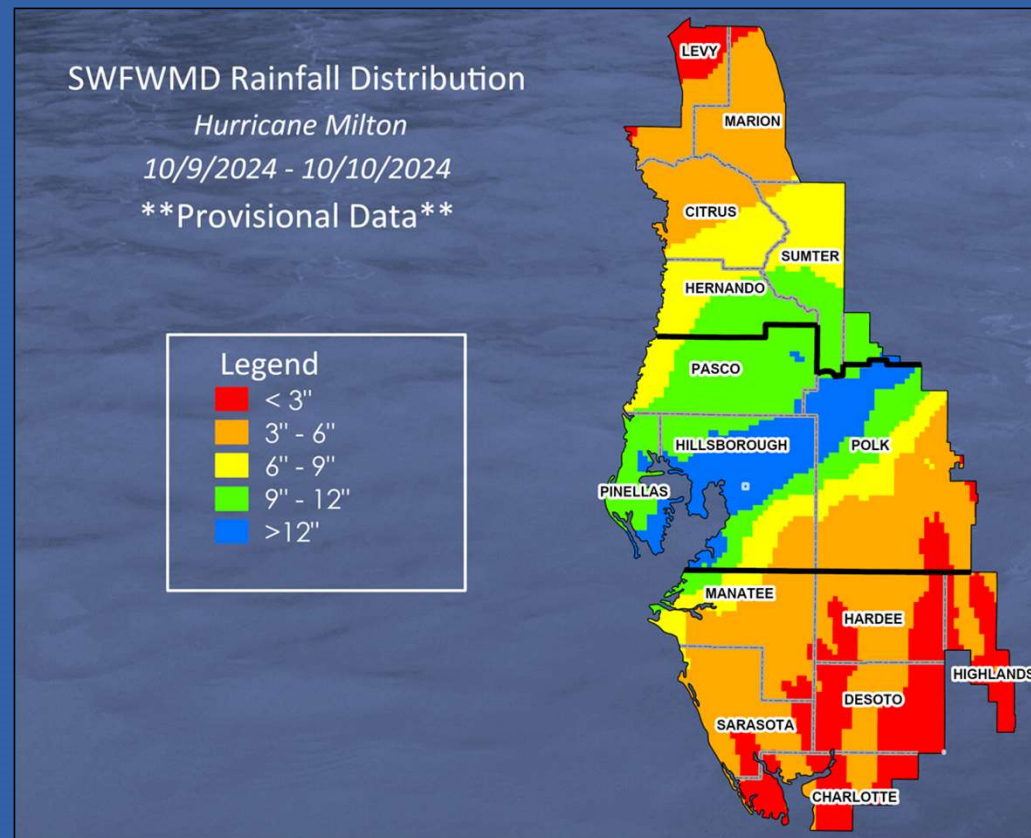
SWFWMD Rainfall Distribution  
September 2024

**\*\*Provisional Data\*\***

**Legend**

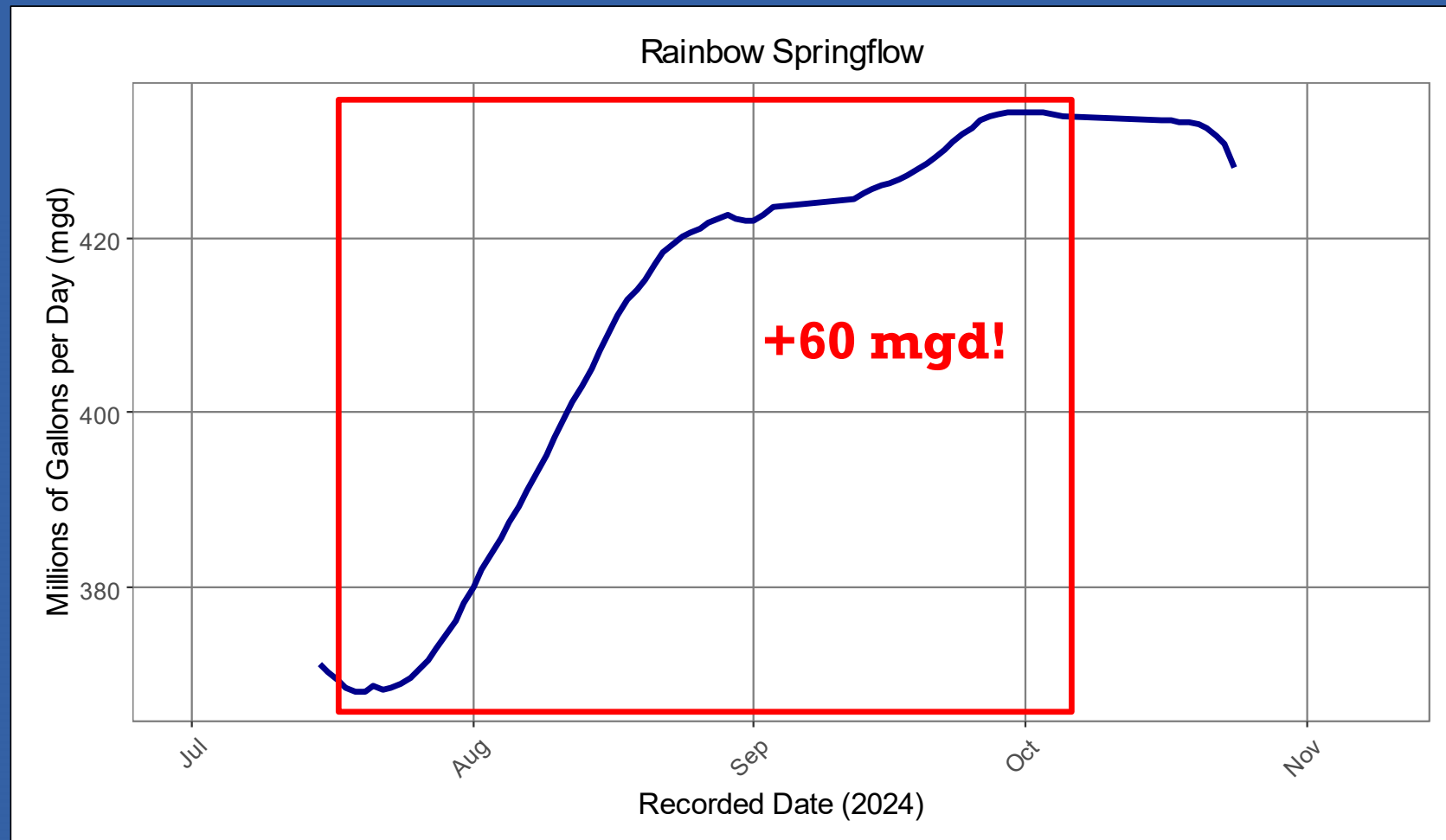


# Rainfall – Hurricane Milton





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# Water Levels - Rainbow River

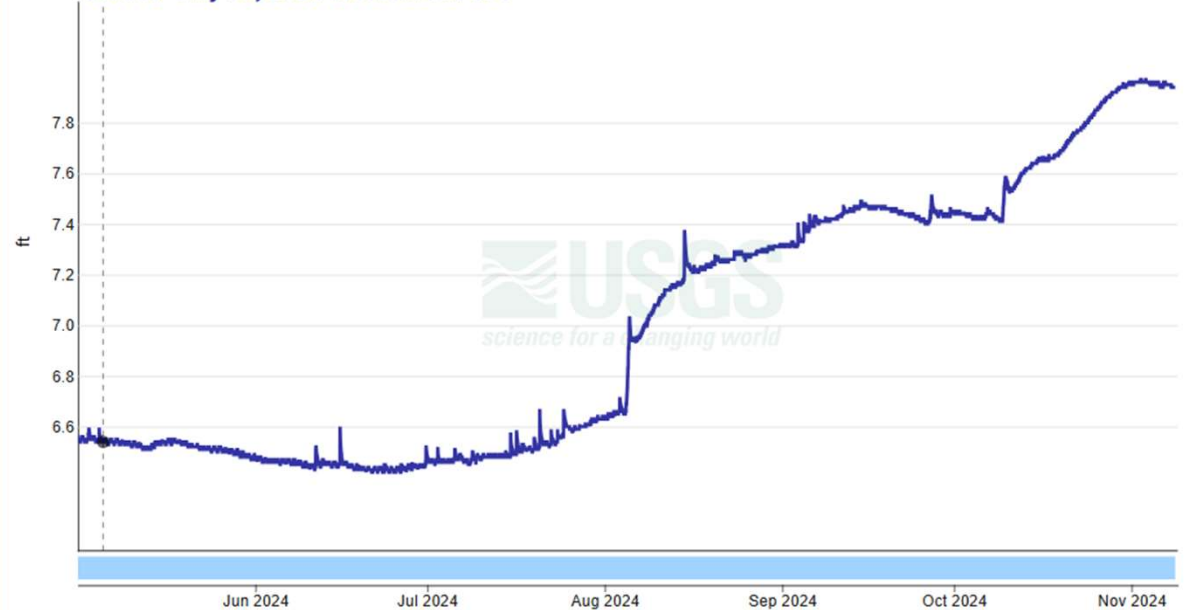


## Rainbow River Below Rainbow Springs State Park, FL - 02313095

May 1, 2024 - November 8, 2024

Gage height, feet

6.54 ft - May 05, 2024 09:45:00 AM EDT



## District Resources

- Environmental Data Portal:  
[WaterMatters.org/EDP](http://WaterMatters.org/EDP)
- Springs webpages:  
[WaterMatters.org/Springs](http://WaterMatters.org/Springs)







SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

**[WaterMatters.org/Springs](https://WaterMatters.org/Springs)**

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