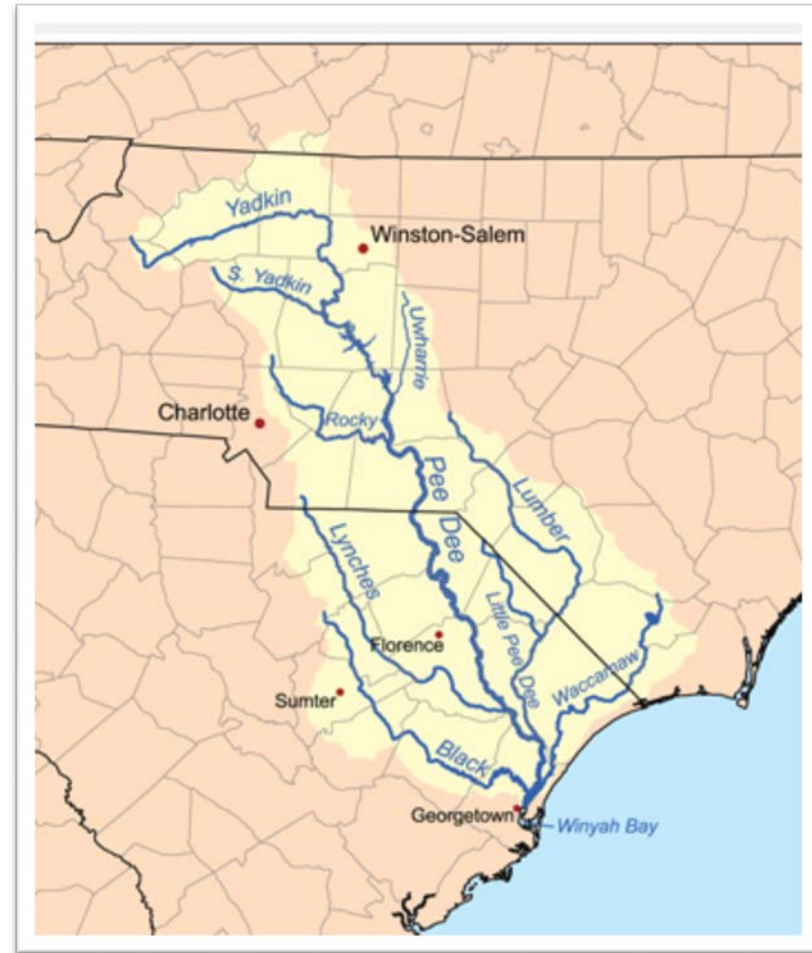


# Water Quality Updates from the Waccamaw River Volunteer Monitoring Program



**Susan M. Libes**  
**Oct 30, 2019**



**Waccamaw Watershed Academy**  
**Burroughs & Chapin Center for Marine & Wetland Studies**  
**Coastal Carolina University**  
**Conway SC, USA**



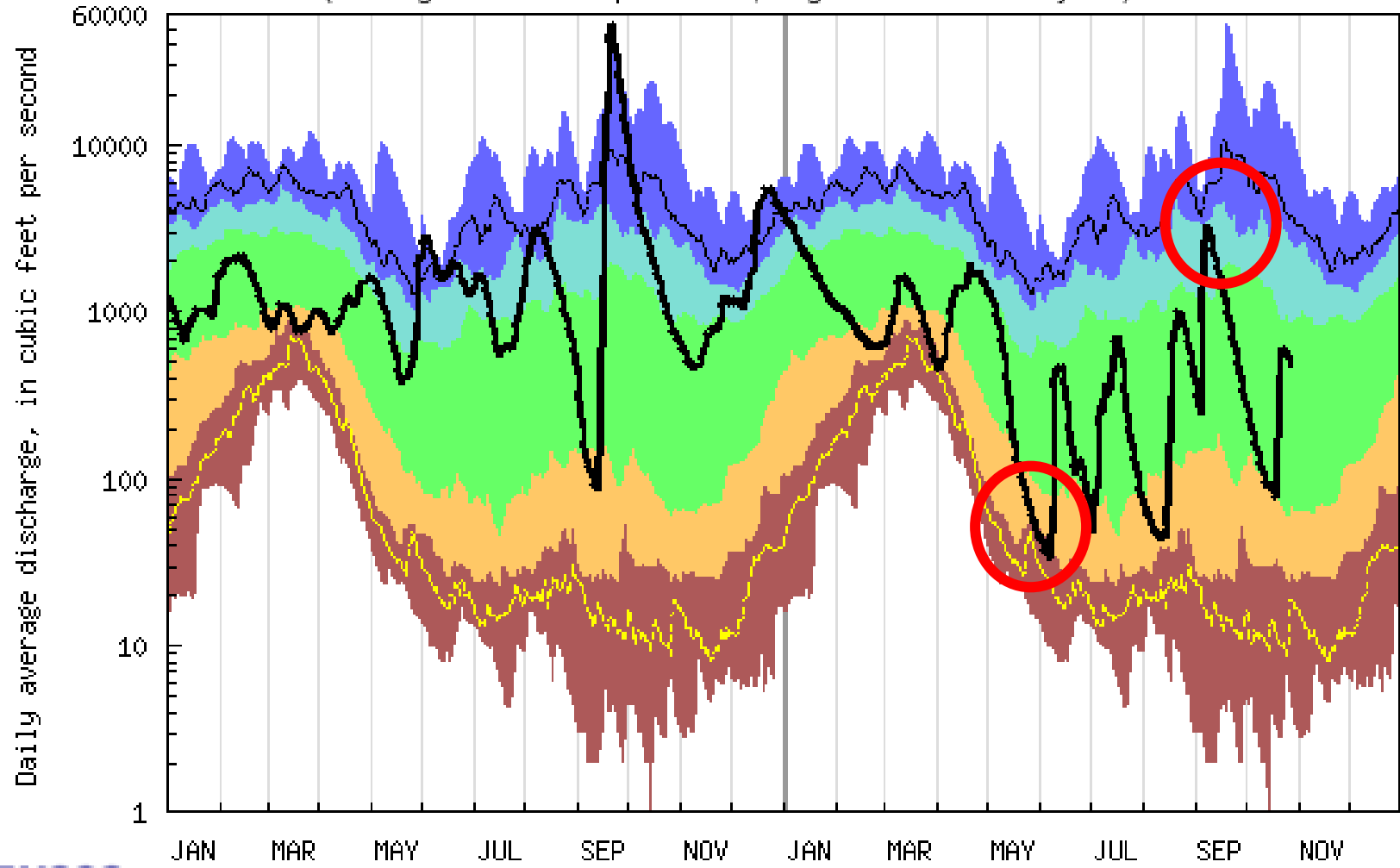
# Topics

- Introduce Victoria
- After my presentation, Kelly does some training for pH sensor
- My presentation
  - Periods of low water level
  - From May to Dorian (9/5/19)
    - Elevated turbidity
    - Widespread and intense algal bloom



From: Rosemary Dorsey  
*Here's the newest member of Team 8! Woody was found while collecting trash at the LW Dam sampling*

USGS 02110500 WACCAMAW RIVER NEAR LONGS, SC  
 (Drainage area: 1110 square miles, length of record: 68 - 69 years)



**USGS WaterWatch**

2018

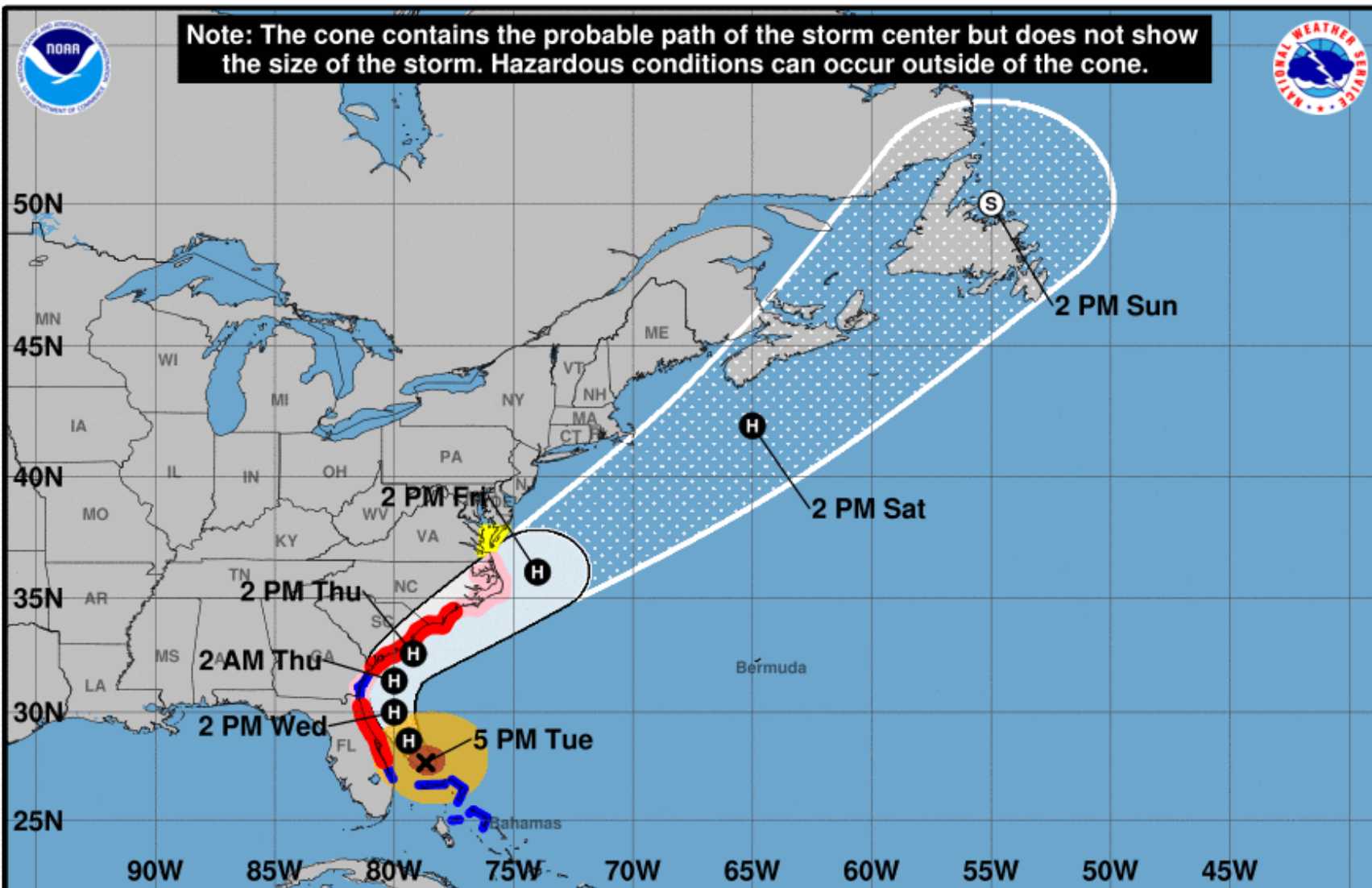
2019

Last updated: 2019-10-28

| Explanation - Percentile classes |   |              |        |              |    |                          |      |
|----------------------------------|---|--------------|--------|--------------|----|--------------------------|------|
| lowest-10th percentile           | 5 | 10-24        | 25-75  | 76-90        | 95 | 90th percentile -highest | Flow |
| Much below Normal                |   | Below normal | Normal | Above normal |    | Much above normal        |      |



Note: The cone contains the probable path of the storm center but does not show the size of the storm. Hazardous conditions can occur outside of the cone.



**Hurricane Dorian**  
 Tuesday September 03, 2019  
 5 PM EDT Advisory 42  
 NWS National Hurricane Center

**Current information: x**  
 Center location 27.7 N 78.7 W  
 Maximum sustained wind 110 mph  
 Movement NW at 6 mph

**Forecast positions:**  
 ● Tropical Cyclone ○ Post/Potential TC  
 Sustained winds: D < 39 mph  
 S 39-73 mph H 74-110 mph M > 110 mph

|  |                 |                  |                             |
|--|-----------------|------------------|-----------------------------|
| <b>Potential track area:</b>   | <b>Watches:</b> | <b>Warnings:</b> | <b>Current wind extent:</b> |
| Day 1-3             Day 4-5             Hurricane             Trop Stm             Hurricane             Trop Stm             Hurricane             Trop Stm |                 |                  |                             |

LIVE

HDR



Map released: Thurs. October 24, 2019

Data valid: October 22, 2019 at 8 a.m. EDT



### D0 - Abnormally Dry

- Short-term dryness slowing planting, growth of crops
- Some lingering water deficits
- Pastures or crops not fully recovered



### D1 - Moderate Drought

- Some damage to crops, pastures
- Some water shortages developing
- Voluntary water-use restrictions requested



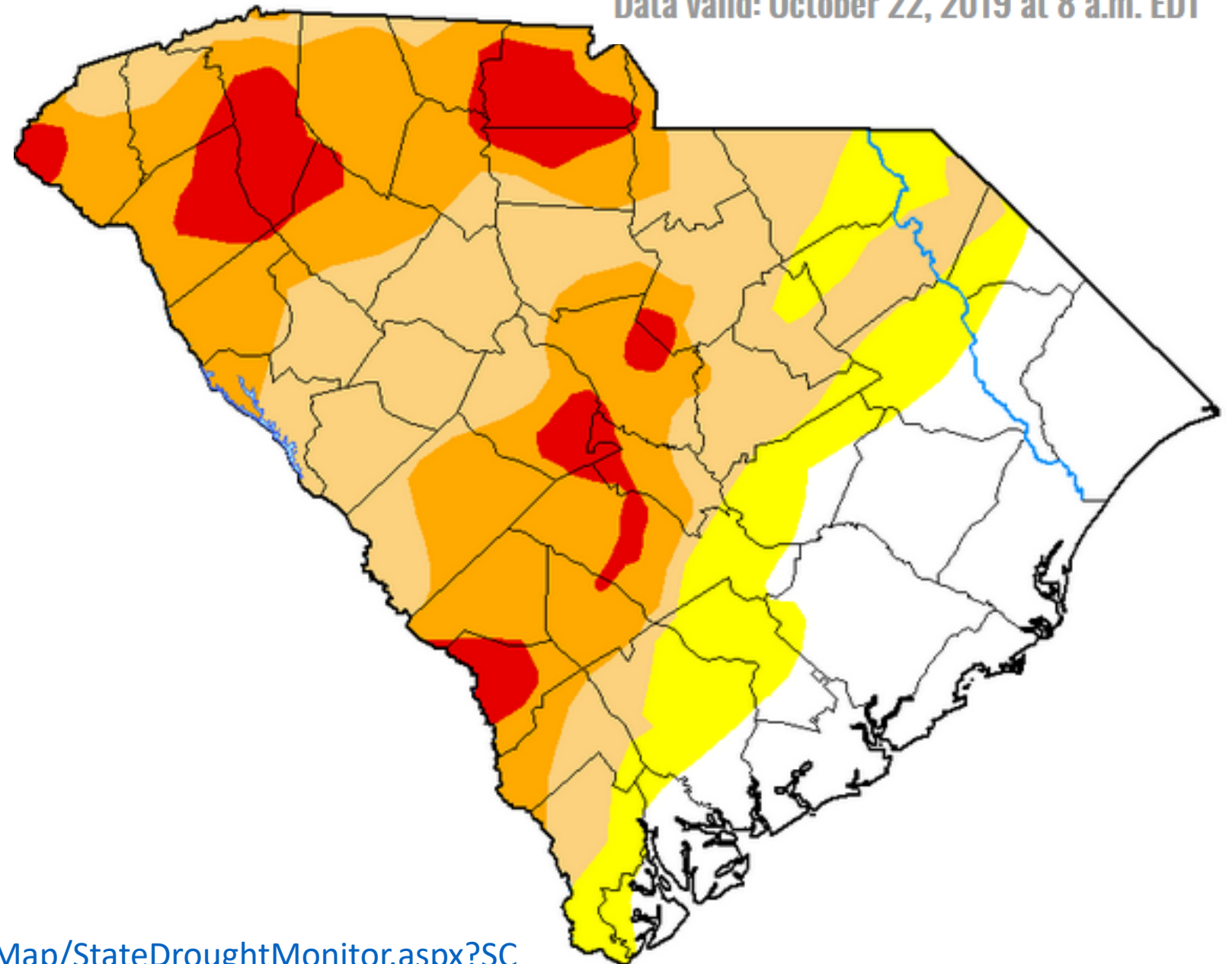
### D2 - Severe Drought

- Crop or pasture loss likely
- Water shortages common
- Water restrictions imposed

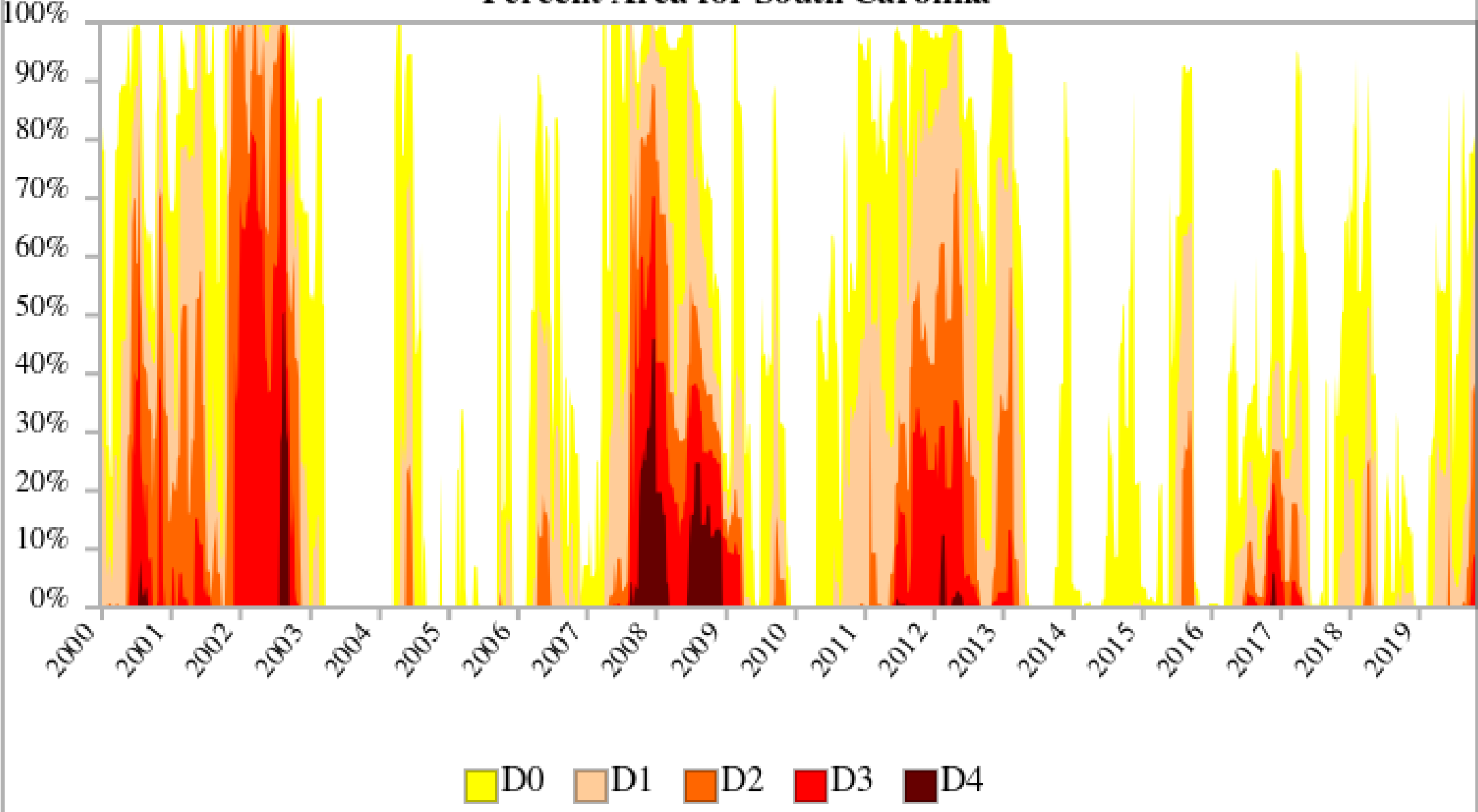


### D3 - Extreme Drought

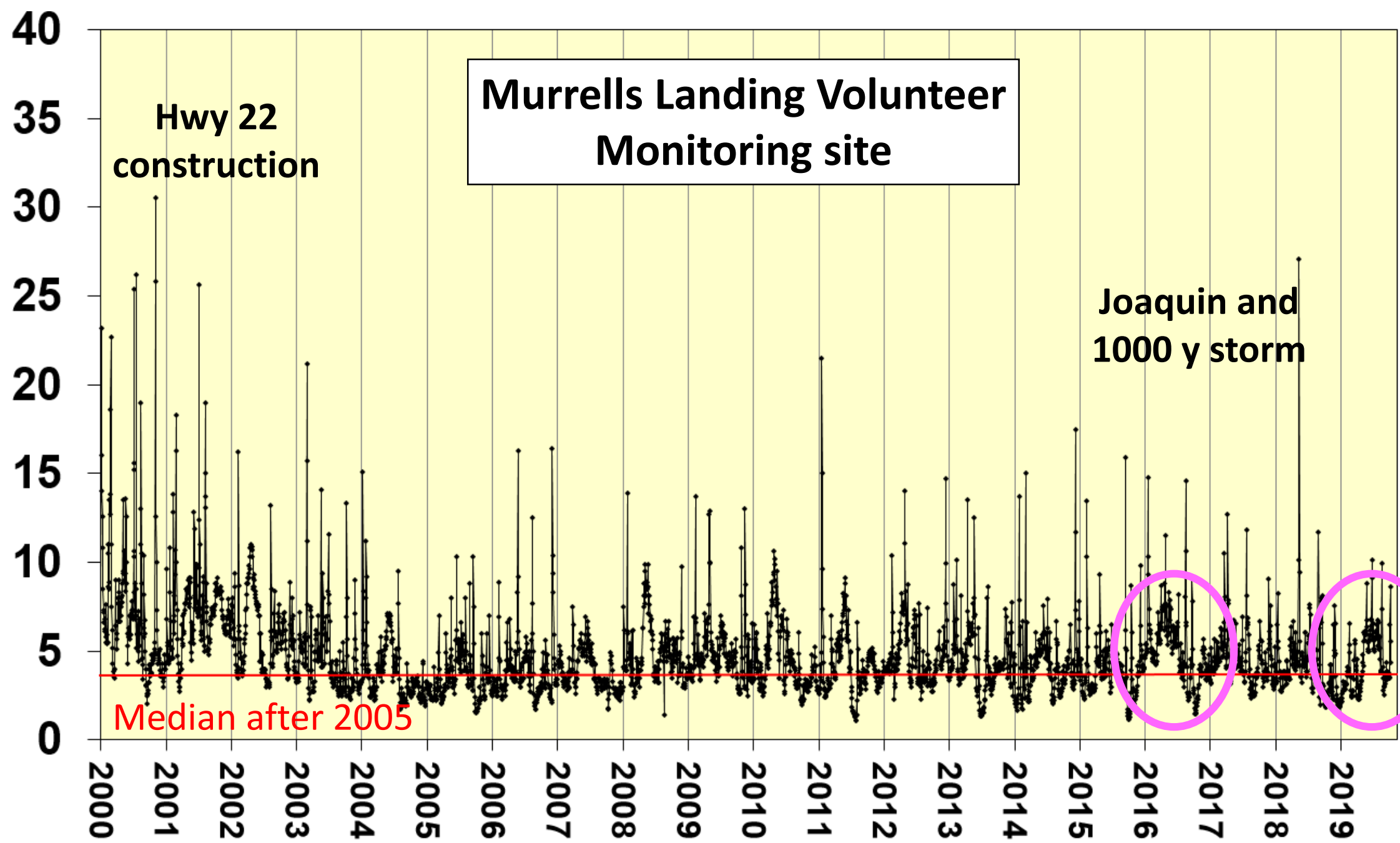
- Major crop/pasture losses
- Widespread water shortages or restrictions



### Percent Area for South Carolina

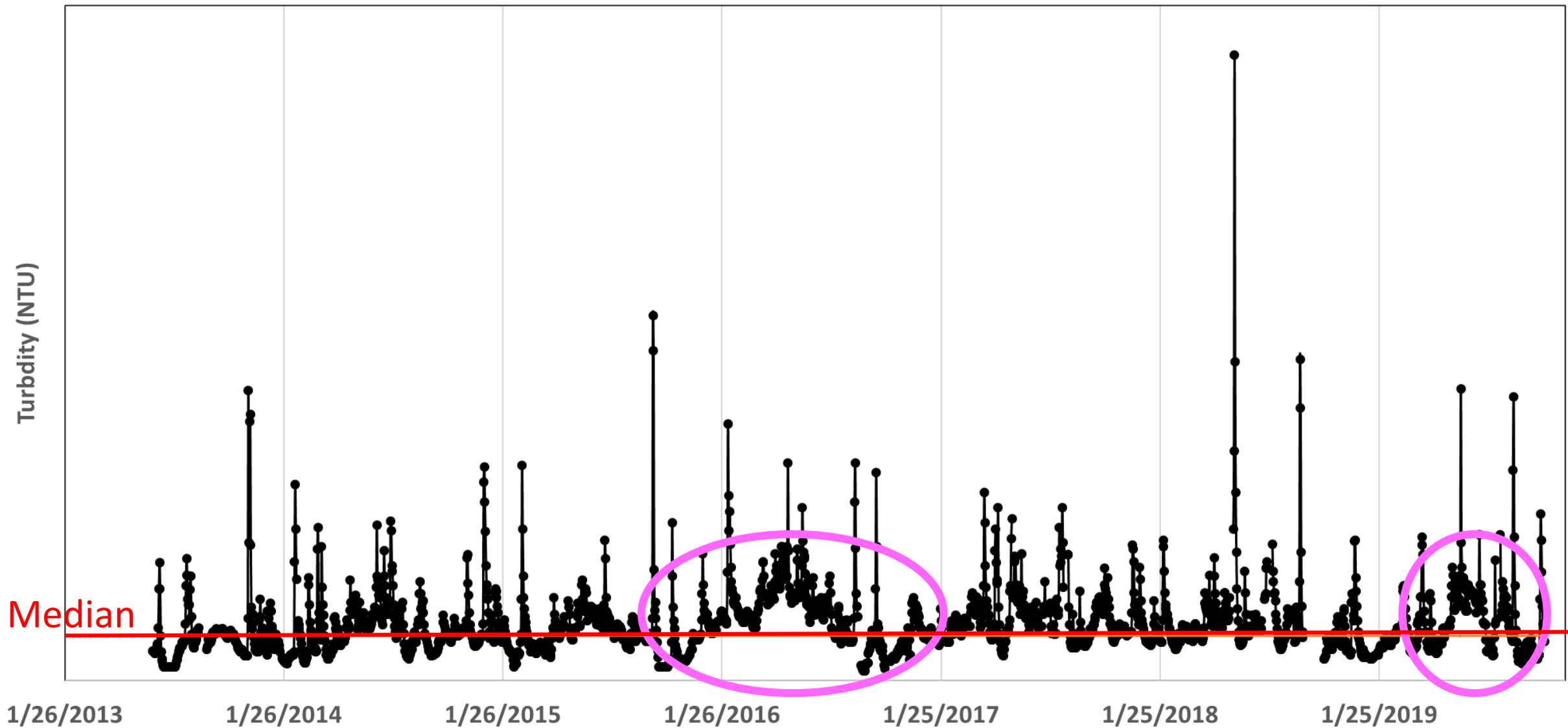


**Turbidity NTU**



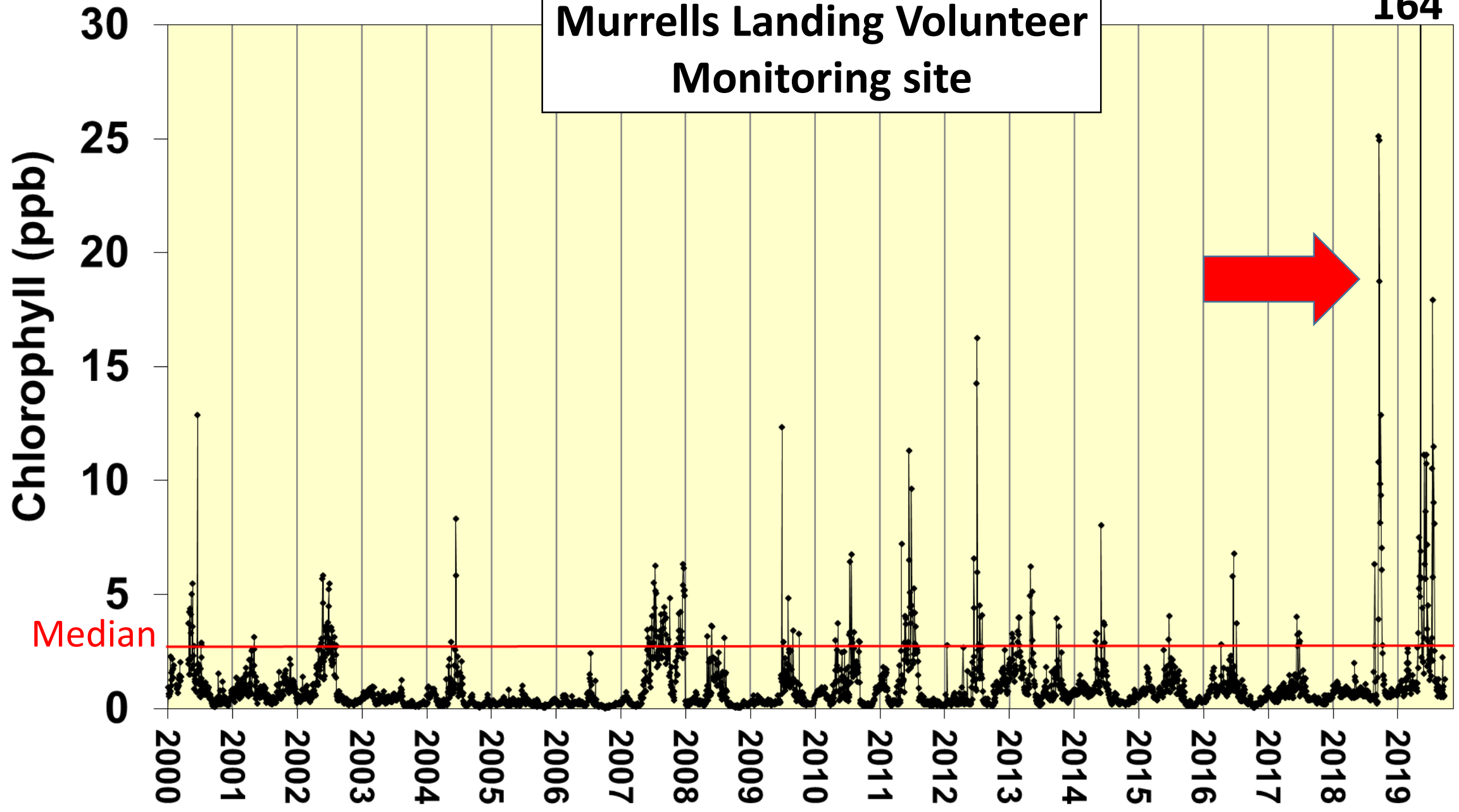


# Reaves Ferry USGS data



**Murrells Landing Volunteer  
Monitoring site**

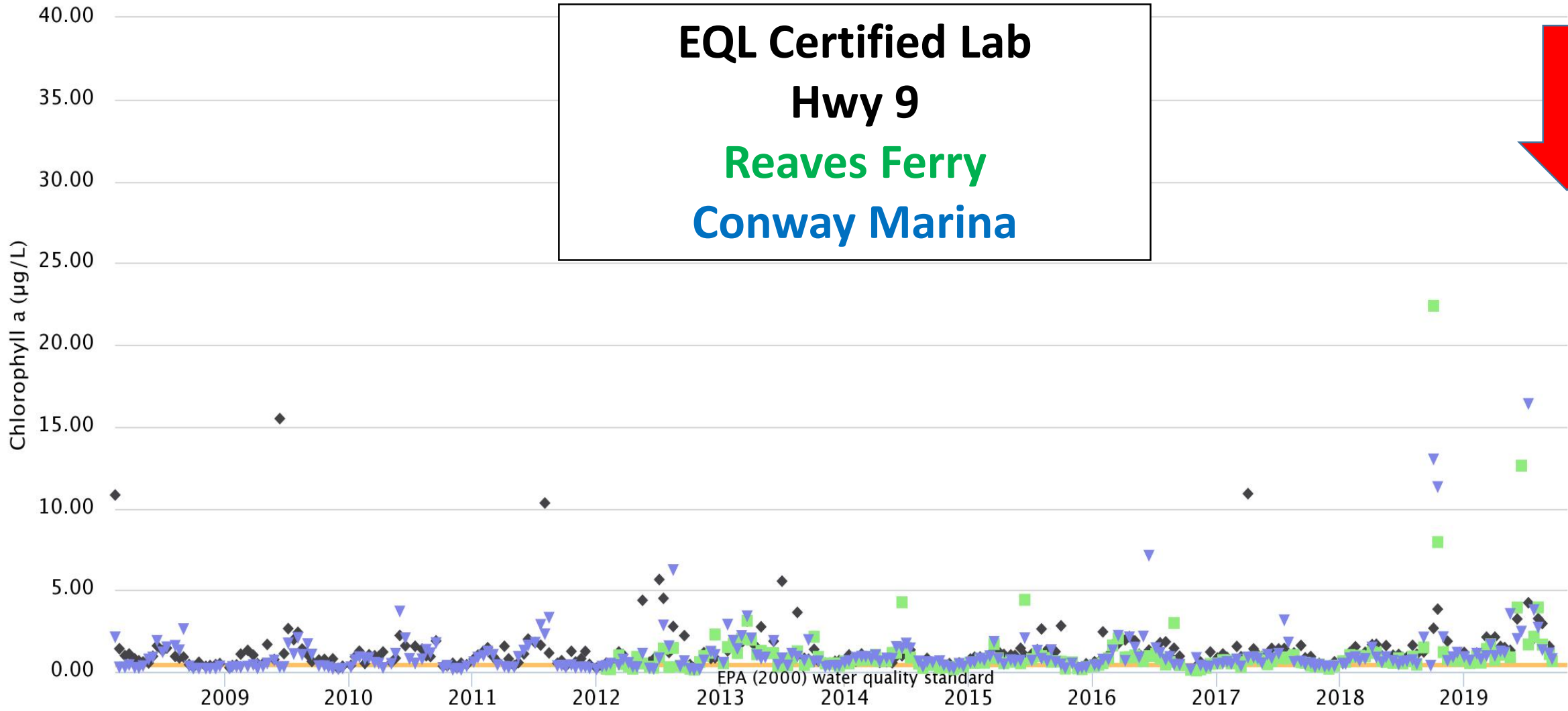
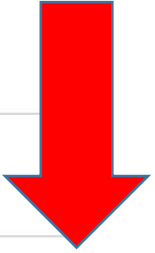
**164**



# Chlorophyll a ( $\mu\text{g/L}$ )

Data collected between Jan 31, 2008 and Sep 19, 2019

**EQL Certified Lab**  
**Hwy 9**  
**Reaves Ferry**  
**Conway Marina**

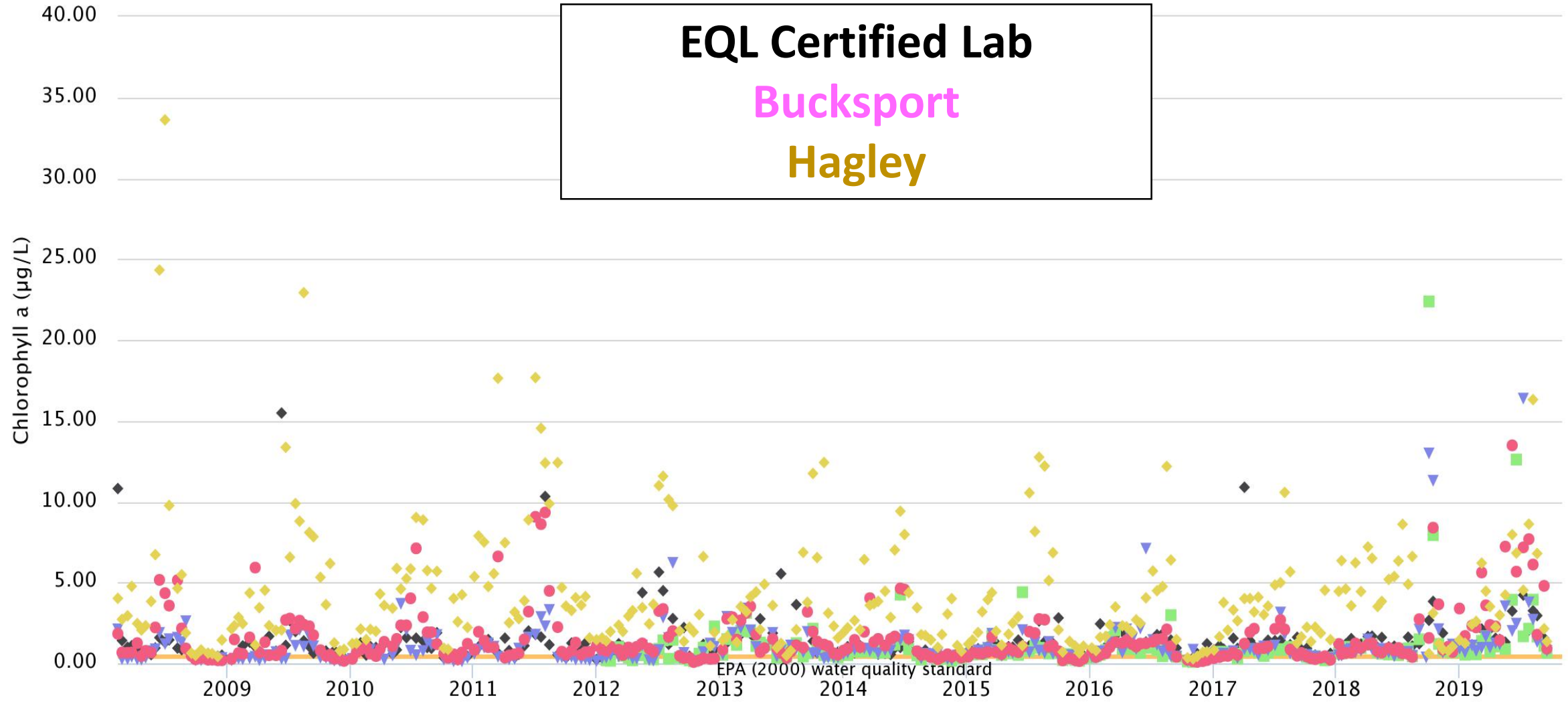


- Buck Creek
- ◆ Highway 9
- Reaves Ferry
- ▲ Crabtree Swamp
- ▼ Conway Marina
- Bucksport
- ◆ Hagley Landing
- Galivants Ferry

# Chlorophyll a ( $\mu\text{g/L}$ )

Data collected between Jan 31, 2008 and Sep 19, 2019

**EQL Certified Lab**  
**Bucksport**  
**Hagley**



- Buck Creek
- ◆ Highway 9
- Reaves Ferry
- ▲ Crabtree Swamp
- ▼ Conway Marina
- Bucksport
- ◆ Hagley Landing
- Galivants Ferry

# Harmful Algal Blooms

## Increased frequency and intensity

- Freshwater lakes
- Coastal oceans

## Causes

- Nonpoint nutrient pollution
- Climate change

**DANGER**

**HARMFUL ALGAE BLOOM (HAB) PRESENT**  
*HIGH RISK- NO Contact or Ingestion (Humans and Animals)*

A confirmed **Harmful Algal Bloom** is present with levels quantified at or above the NJ Health Advisory Guidance.

*There should be **no contact** with the water including, but not limited to, swimming, wading, and watersports.*

*Fish caught in this waterbody should not be eaten.*

*Pets and livestock should not contact or swallow the water.*

Posted by:



## SUMMARY

R44871

September 5, 2019

**Laura Gatz**  
Analyst in Environmental  
Policy

# Freshwater Harmful Algal Blooms: Causes, Challenges, and Policy Considerations

Scientific research indicates that in recent years, the frequency and geographic distribution of harmful algal blooms (HABs) have been increasing nationally and globally. Because the impacts of HABs can be severe and widespread—often with interstate implications—these issues have been a perennial interest for Congress. While algal communities are natural components of healthy aquatic ecosystems, under certain conditions (e.g., increased temperatures and nutrient concentrations), algae may grow excessively, or “bloom,” and produce toxins that can harm human health, animals, aquatic ecosystems, and the economy.

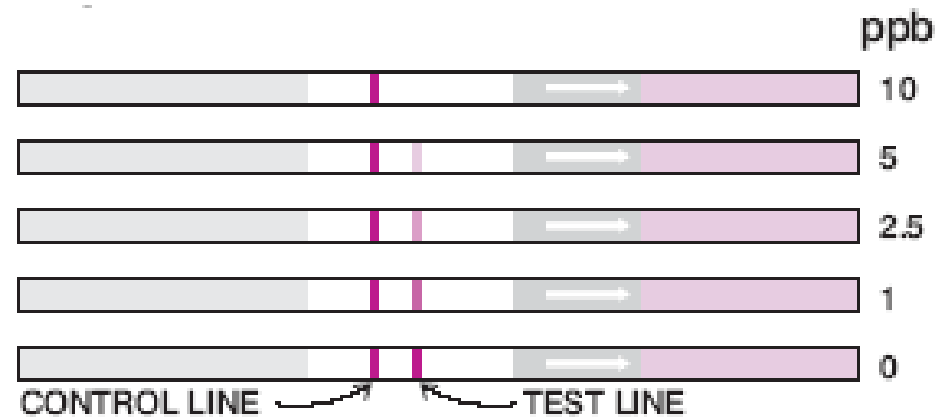
- More research on causes
  - Harmful Algal Bloom and Hypoxia Research and Control Act funding
- Monitoring programs
- Use watershed approach to management of nonpoint sources of nutrients
- Adopt Nutrient water quality criteria for lakes, rivers and coastal waters
  - First recommended by EPA in 2000!

# New US EPA recreational water quality criteria

**Table. Recommended magnitude for cyanotoxins.**

| Microcystins | Cylindrospermopsin |
|--------------|--------------------|
| 8 µg/L       | 15 µg/L            |

Test Strips for screening  
\$35 each!



# on Harmful Algae

- Potential Names for revitalized group
  - South Carolina Harmful Algal Bloom Information Network (SC HABIN)
  - South Carolina Harmful Algal Bloom Network (SC HABNet)
  - South Carolina Network on Harmful Algal Blooms (SC NoHABs)
- Priority products
  - HAB Event Response Strategy
  - HAB Research Strategy
  - Stormwater pond education and outreach
    - Basic Background on HABS with group website





A forum to give the latest information, resources, and tools on stormwater pond management for the Lowcountry community. Topics include a plenary session, the current state of the knowledge on stormwater ponds, integrated pest management, aquatic weed management, wildlife habitat, sea level rise, and upland management.

Feb 25, 2020