

Drought

Public Water Supply

2023

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Engineering Services



Drought?

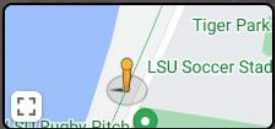
A Walk on Levee



Image capture: Aug 2019 Images may be subject to change

A Walk on Levee

Flow rate: 150,000 ft³/sec

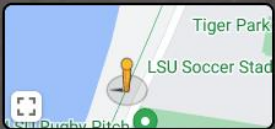


Google

Image capture: Aug 2019 Images may be subject to change

A Walk on Levee

Flow rate: 150,000 ft³/sec
Olympic Swimming Pool = 88,000 ft³



Google

Image capture: Aug 2019 Images may be subject to change

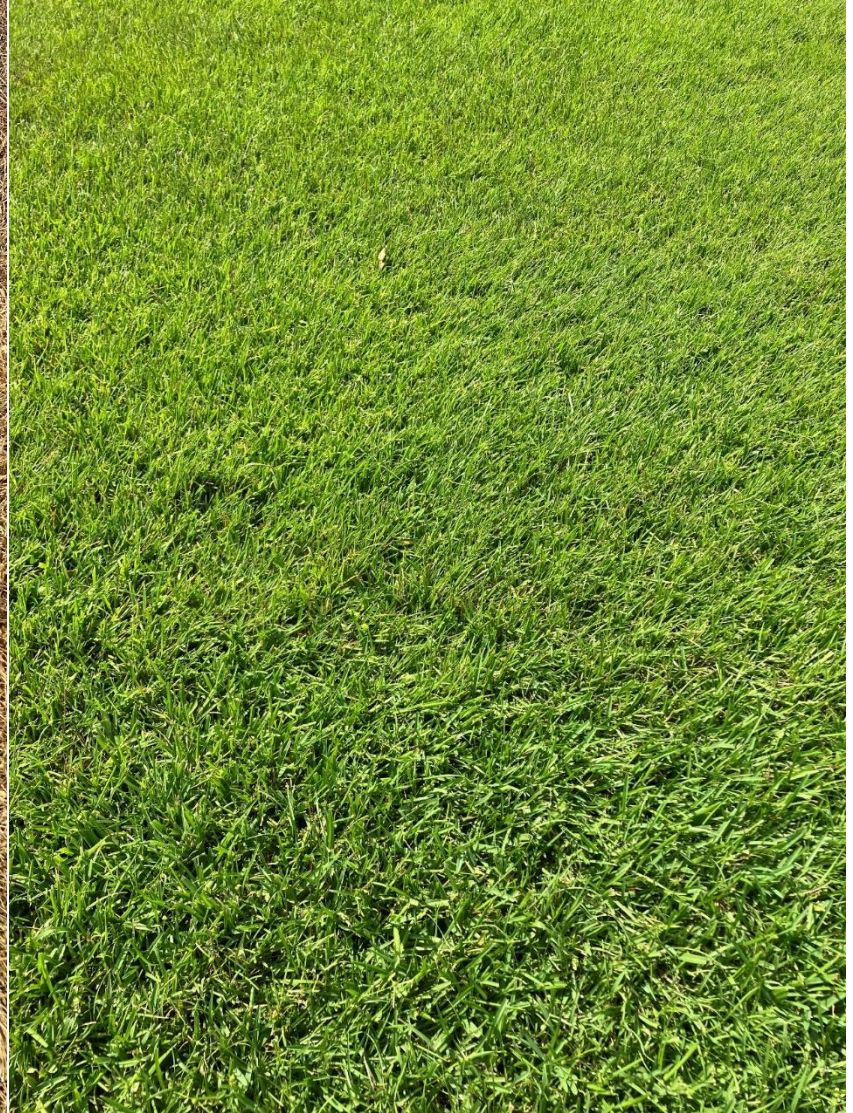
Drought?



Lawn



Lawn



Settlement



Drought?



Visible Change

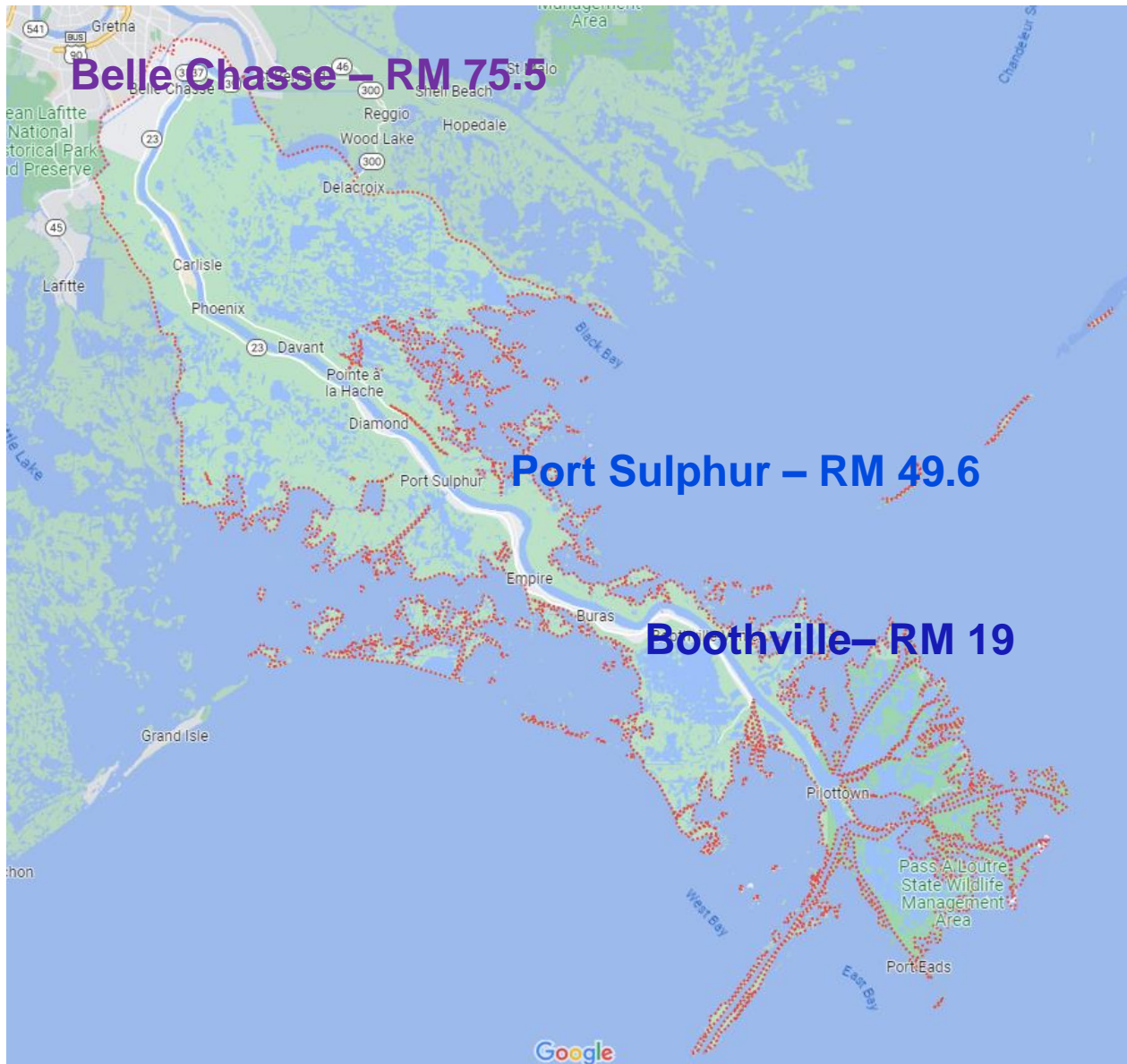


Personal Experience

Drought

**State of Emergency –
Plaquemine Parish – June
23, 2023**

Plaquemine Parish



**Do not drink
water?**

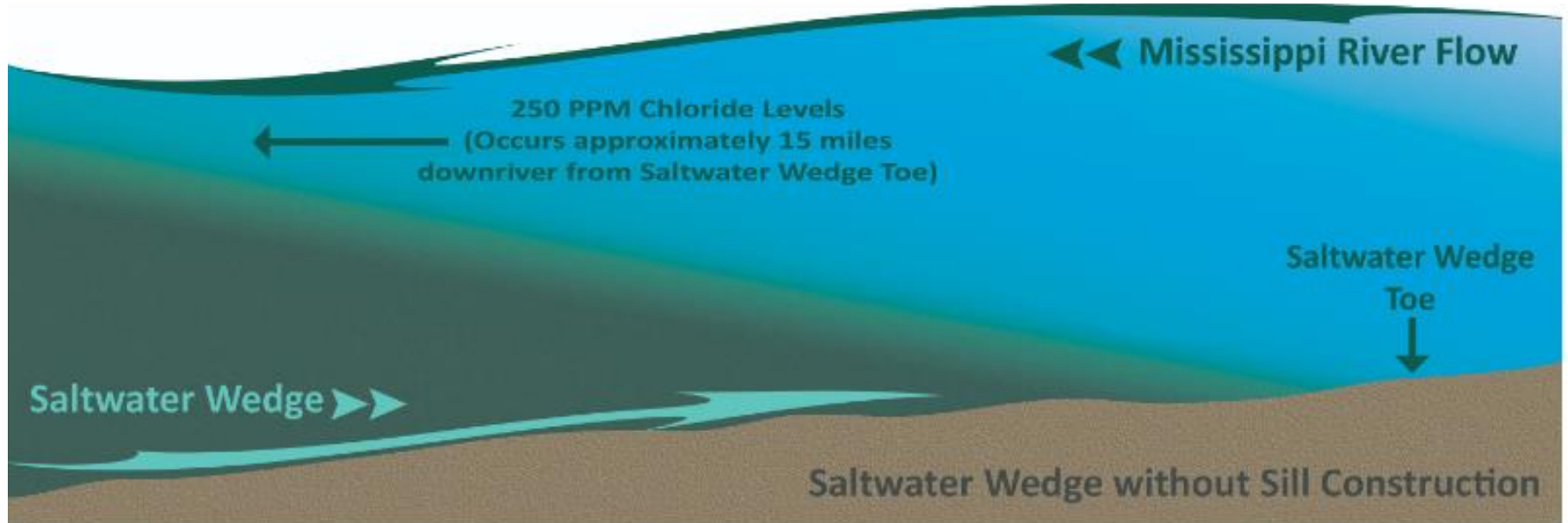
Port Sulphur

**Population =
10,000**

**Bottled Water
Supply?**

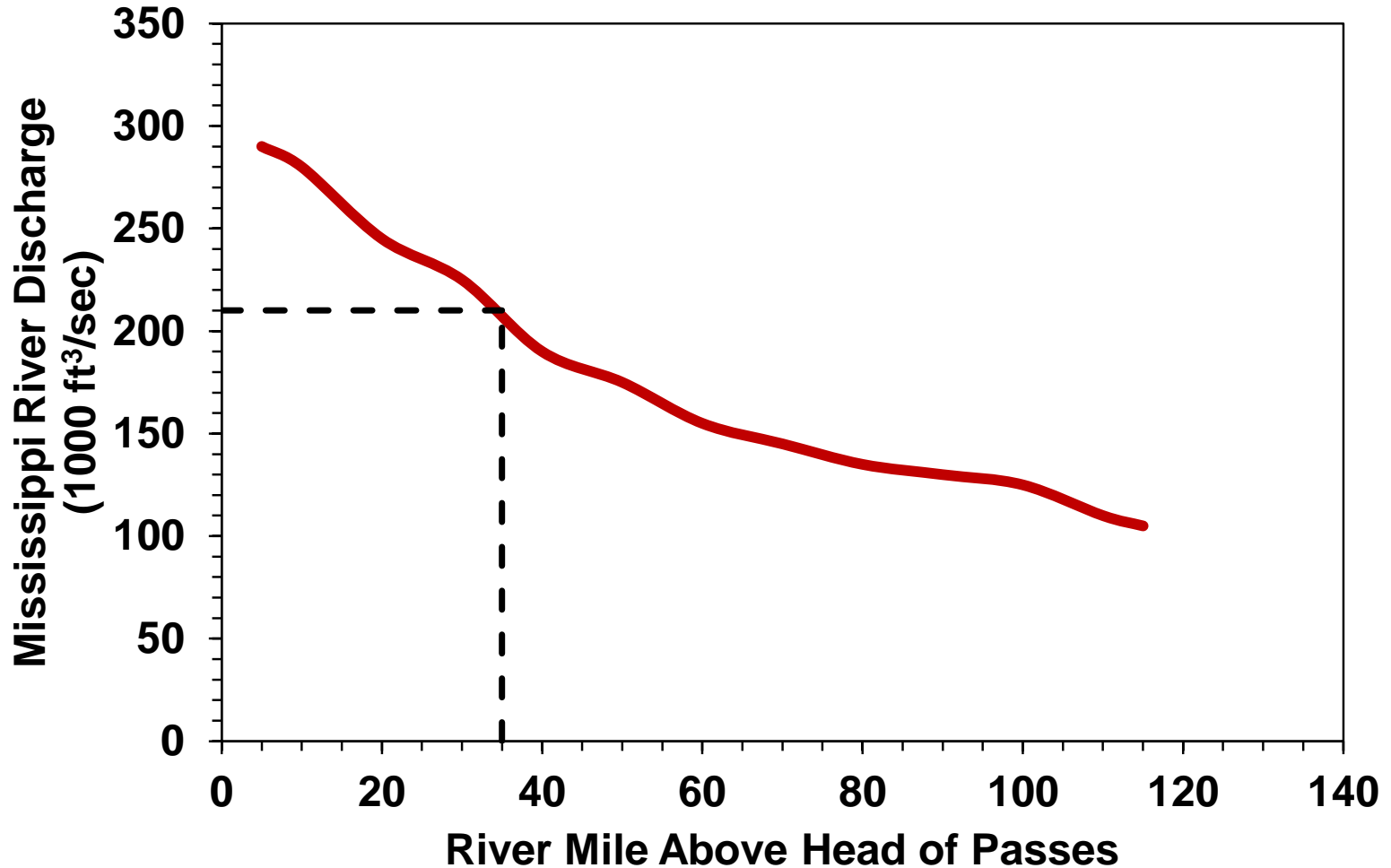
RM – River Mile

Salt Water Intrusion



**250 ppm chloride –
EPA secondary maximum contaminant level**

Salt Water Intrusion



Do Not Drink Water?

- **250 mg/L Chloride =**
 - ❖ **415 mg/L Sodium Chloride (Salt)**
 - ❖ **165 mg/L Sodium**
- **EPA Sodium health advisory = 20 mg/L**
- **Recommended Sodium = 2400 mg/day**
- **Typical Sodium Intake = 4,000 to 6,000 mg/day**

Sodium

At Risk Population

- Individuals on reduced sodium diet
- Individuals with heart disease
- Individuals with kidney problems
- Individual with high blood pressure
- Infants less than 6 months old (infant formula)

Chloride

Corrosion

➤ **Stainless Steel**

Appliances

➤ **Iron pipes**

➤ **Lead Pipes and Joints**

Iron Pipes

- **Brown color water**
- **Increases chlorine demand**
- **Low chlorine-potential microbial growth**
- **Secondary maximum contaminant limit**
= 0.3 mg/L

Lead Pipes & Joints

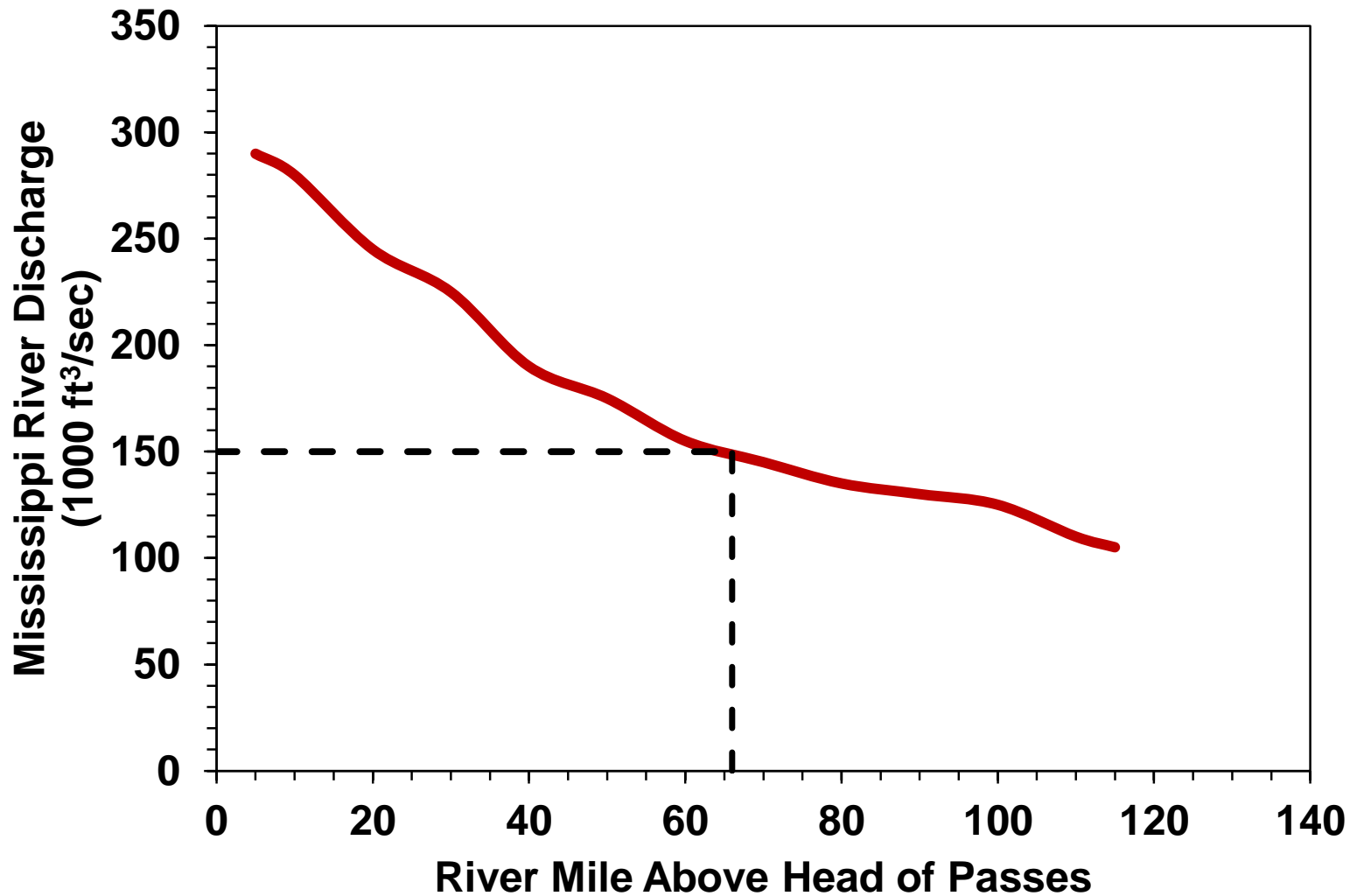
- **Action level = 0.015 mg/L**
- **Delays in physical and mental development**
- **Kidney problems**
- **High blood pressure**
- **Attention deficits in children**

Salt Water Intrusion



Current Status?

Salt Water Intrusion



Salt Water Intrusion



★ **Boothville
Water Plant**

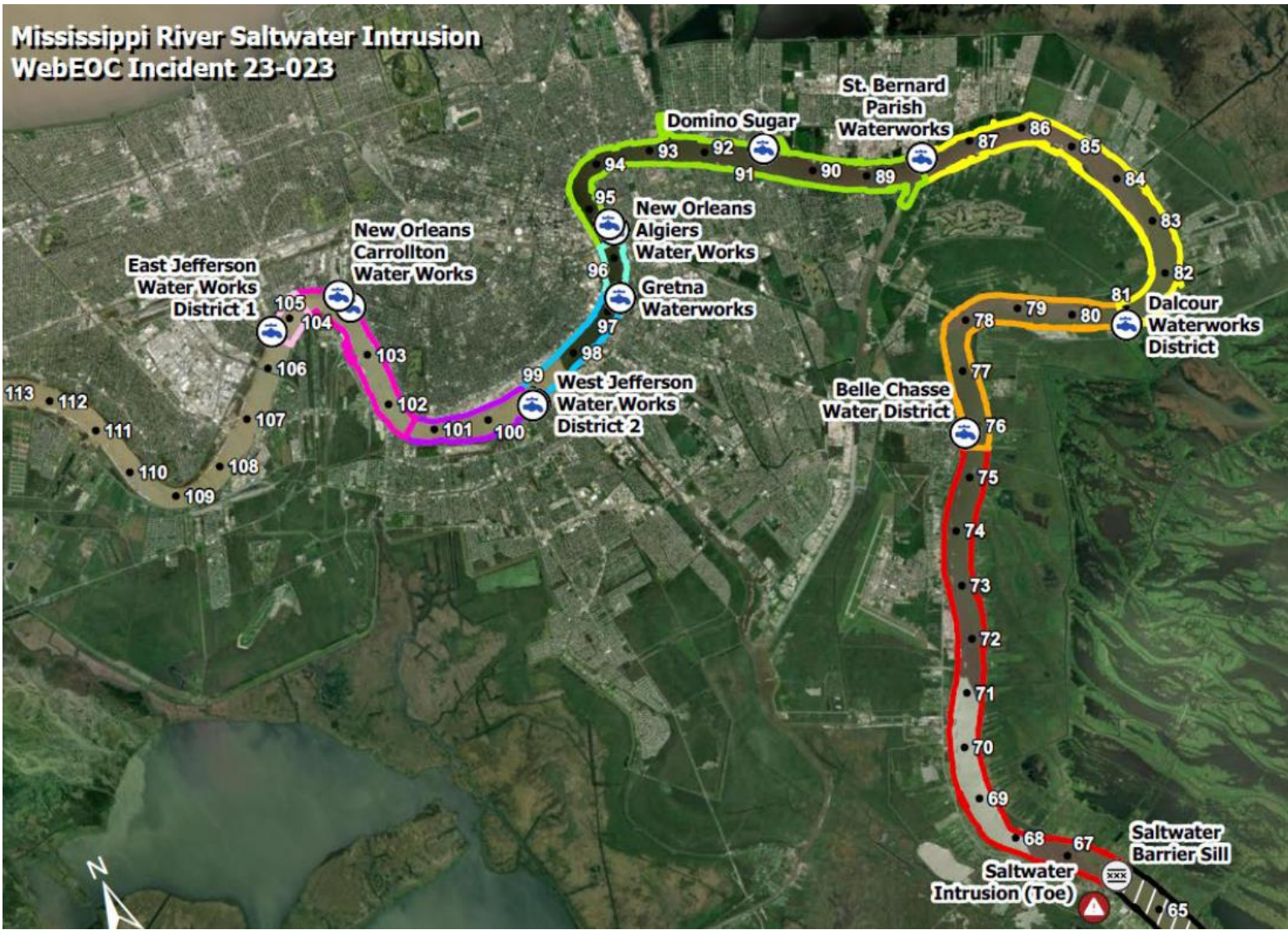
**Above Head of
Passes (AHP)**

Head of Passes

**Below Head of
Passes (BHP)**

Toe of Salt Water Wedge – River Mile 66 AHP

**Mississippi River Saltwater Intrusion
WebEOC Incident 23-023**



**Forecast
Date**

- 9/20/2023
- 10/13/2023
- 10/15/2023
- 10/19/2023
- 10/22/2023
- 10/24/2023
- 10/25/2023
- 10/26/2023
- 10/28/2023
- 10/29/2023

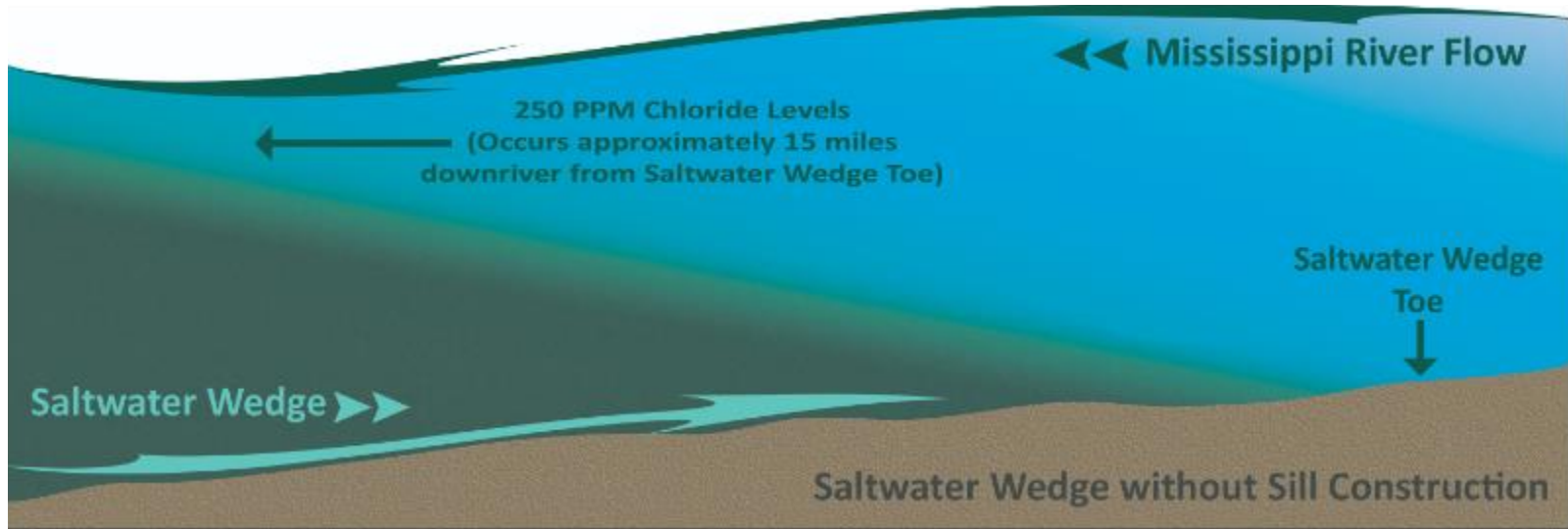
Water Demand

Water Plant	Intake River Mile	Production (million gallons/day)	Population	Saltwater Wedge Date
Port Sulphur	49	2	9,222	
Pointe a la Hache	49.6	4	882	
Belle Chasse	75.5	7	19,644	10/13/2023
Dalcour	80.9	1	1,204	10/15/2023
St. Bernard	88	9	44,000	10/19/2023
Algiers	95.7	10	52,785	10/22/2023
Gretna	96.5	4	17,802	10/24/2023
West Jefferson	99	23	188,770	10/25/2023
Carrollton	104	141	291,044	10/28/2023
East Jefferson	105.5	40	275,163	10/29/2023
Total		240	900,516	

Mitigation Measures

- **Underwater dam (Sill)**
- **Reverse osmosis (Desalination)**
- **Barge water from upstream**
- **Increased water quality monitoring**
- **Federal emergency declaration**

Underwater Sill



Salt Water Intrusion

- **Previous Sill: 1988, 1999, 2012, 2022 and 2023**
- **2022 Sill : Eroded**
- **Sill: Built using river sediments**

Best Solution

- **10 inches of rain across Mississippi and Ohio River valleys**
- ❖ **Hurricane Katrina 8 to 10 inches**
- ❖ **2016 East Baton Rouge Flood 20-30 inches over 3 days**

Summary

- **As of now Water is Safe to Drink**
- **If water quality changes, public announcement**
- **Salt sensitive population be aware**
- **Expected duration 3 to 4 months**

