

photo by Taylor Horton

PRSoundScience: Monitoring & Research for Conservation of the Port Royal Sound May 2026

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Director of Conservation

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Science Programs Manager





***Conserving the Port Royal Sound for
the environmental, cultural, and
economic well-being of our region.***

Education | Monitoring & Research | Conservation



Port Royal Sound Watershed by the Numbers:

- 1,500 square miles
- Beaufort, Jasper, Hampton, Allendale
- ~100,000 acres salt marsh ($\frac{1}{3}$ of state)
- Very little freshwater river volume
- Significant tidal influence
- High salinity levels

Port Royal Sound: Healthy but changing - a watershed under pressure

SCECAP Assessment

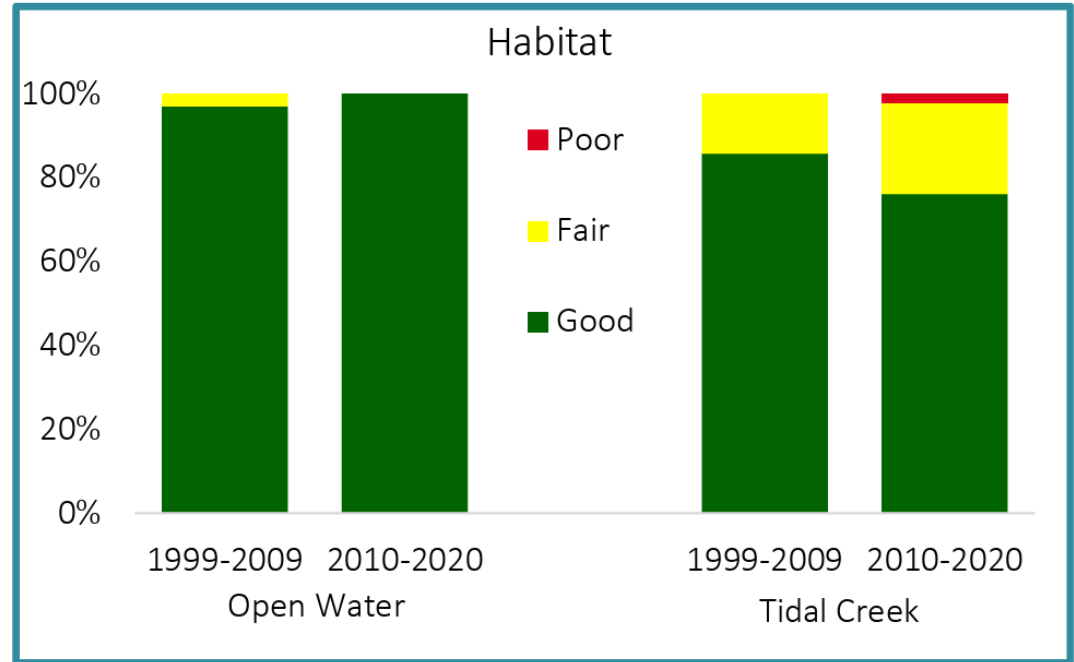
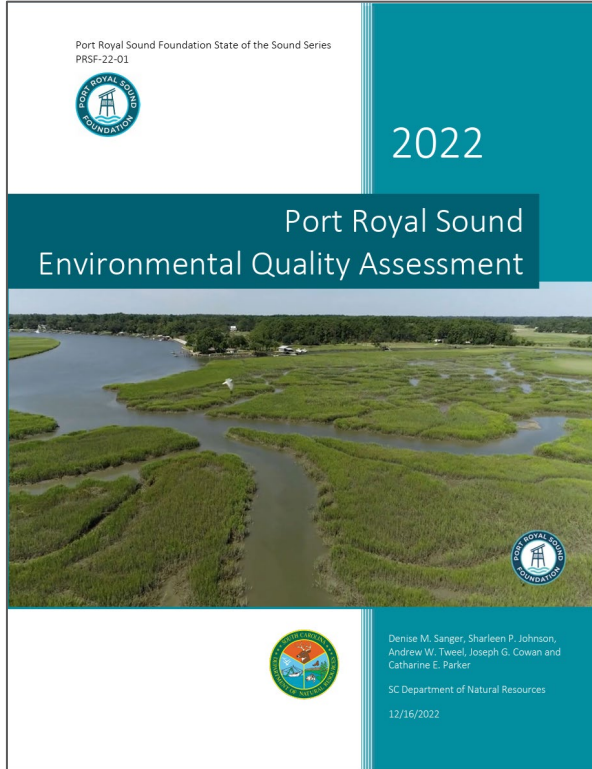
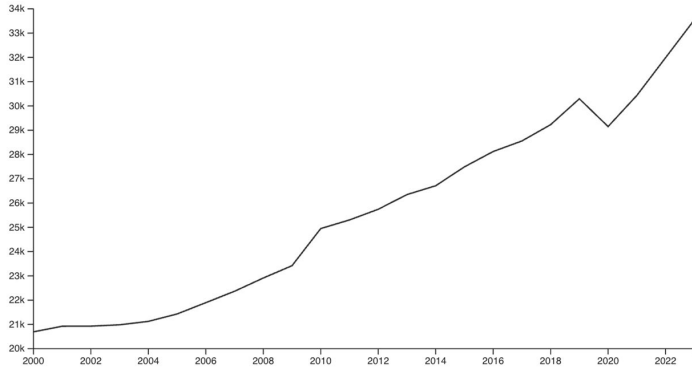


Figure 9. Percent of open water (left) and tidal creek (right) corresponding to each Habitat Quality Index classification by survey period.

Jasper County's population from 2000 to 2023.

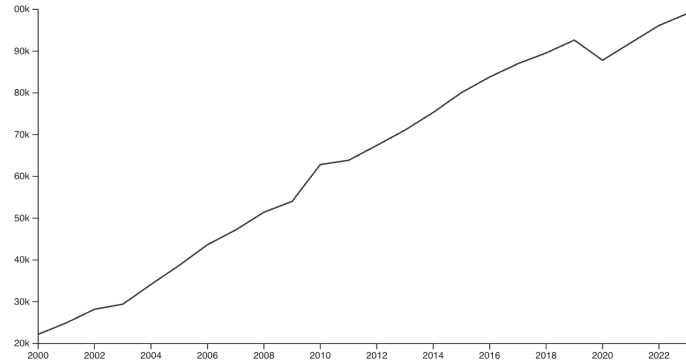
The estimated population at the end of 2023 was 33,544.



Source: U.S. Census Bureau (Population Estimates Program).

Beaufort County's population from 2000 to 2023.

The estimated population at the end of 2023 was 198,979.



Source: U.S. Census Bureau (Population Estimates Program).



PRSound Science: Monitoring Indicators of a Healthy Port Royal Sound



**WATER
QUALITY**



LAND COVER



**MARSH
DYNAMICS**



**HABITAT &
BIODIVERSITY**

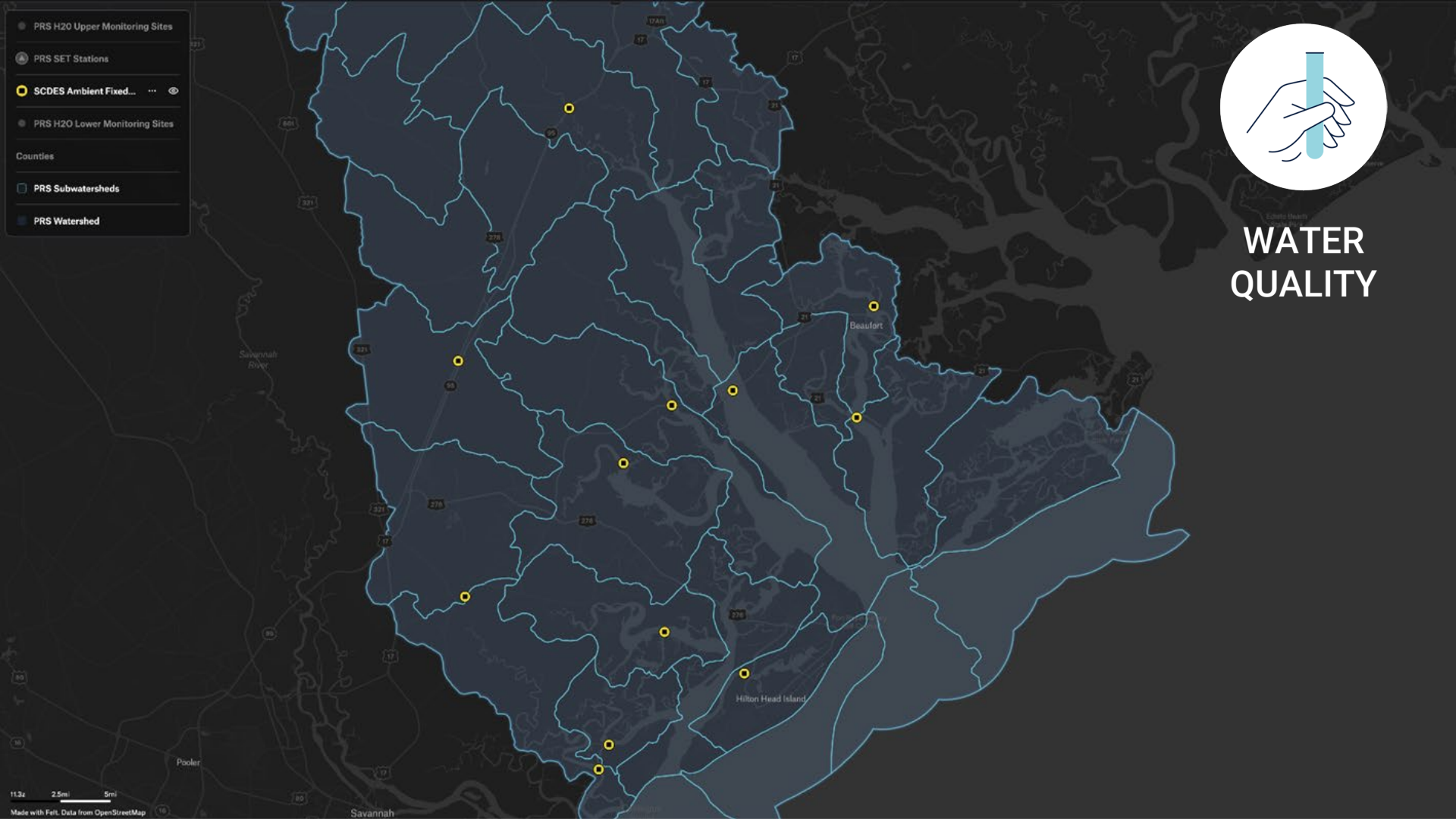


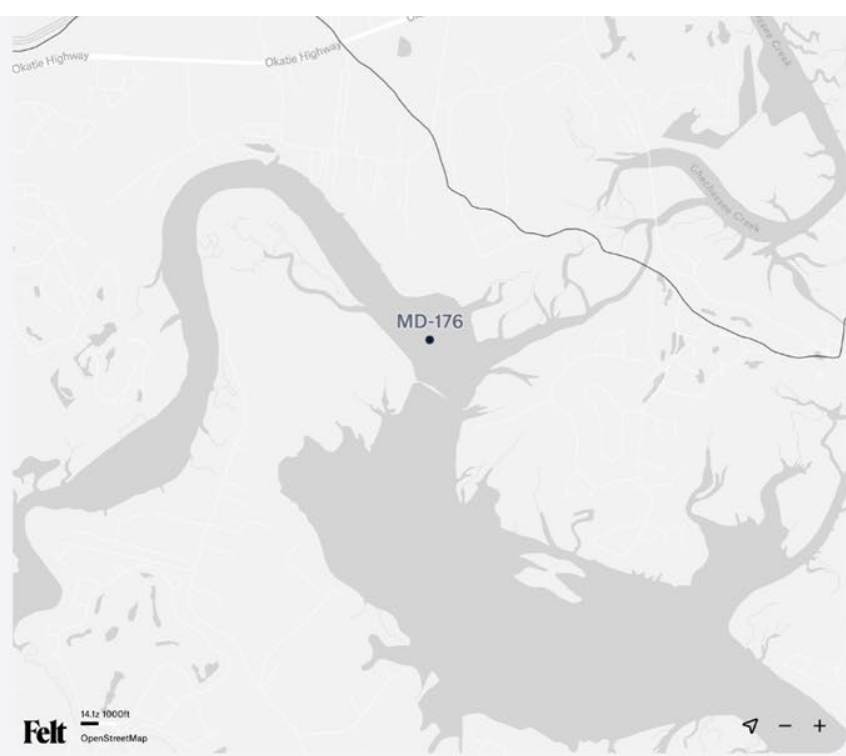
**COMMUNITY
RESILIENCE**

- PRS H2O Upper Monitoring Sites
 - PRS SET Stations
 - SCDES Ambient Fixed...
 - PRS H2O Lower Monitoring Sites
- Counties
- ▣ PRS Subwatersheds
 - ▣ PRS Watershed



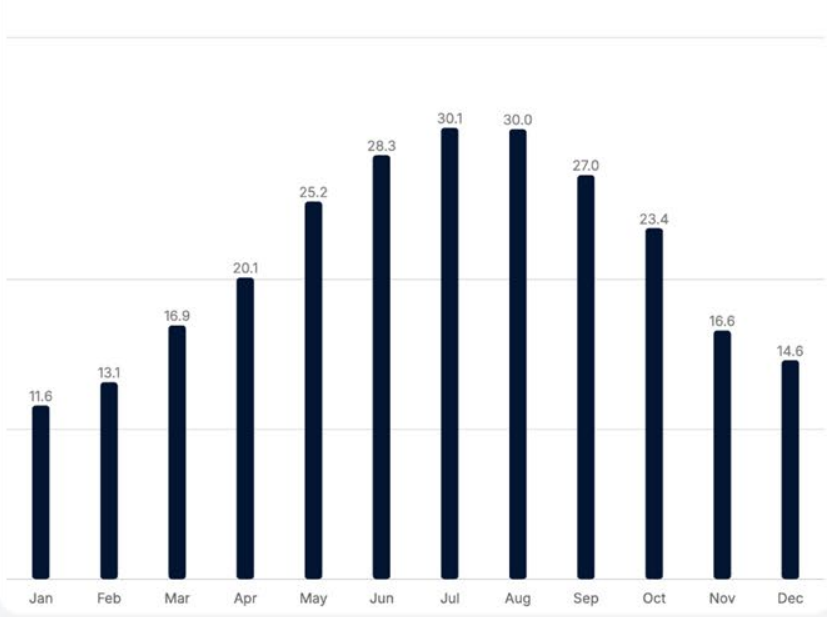
WATER QUALITY





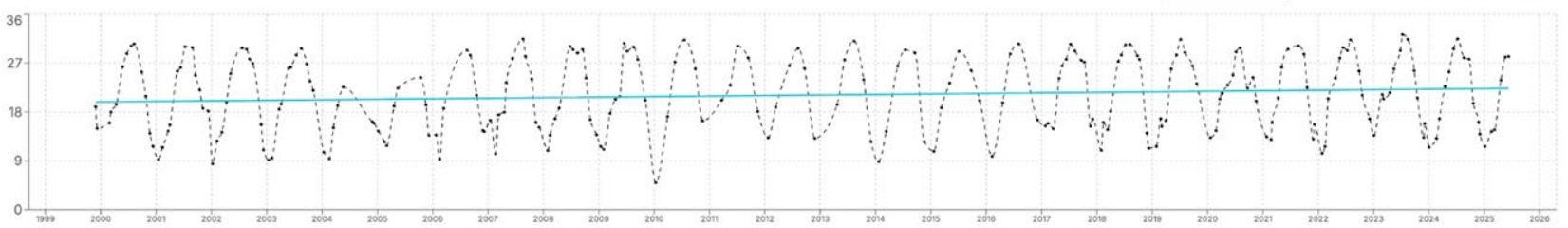
Colleton River | MD-176 | Water Temperature | Search

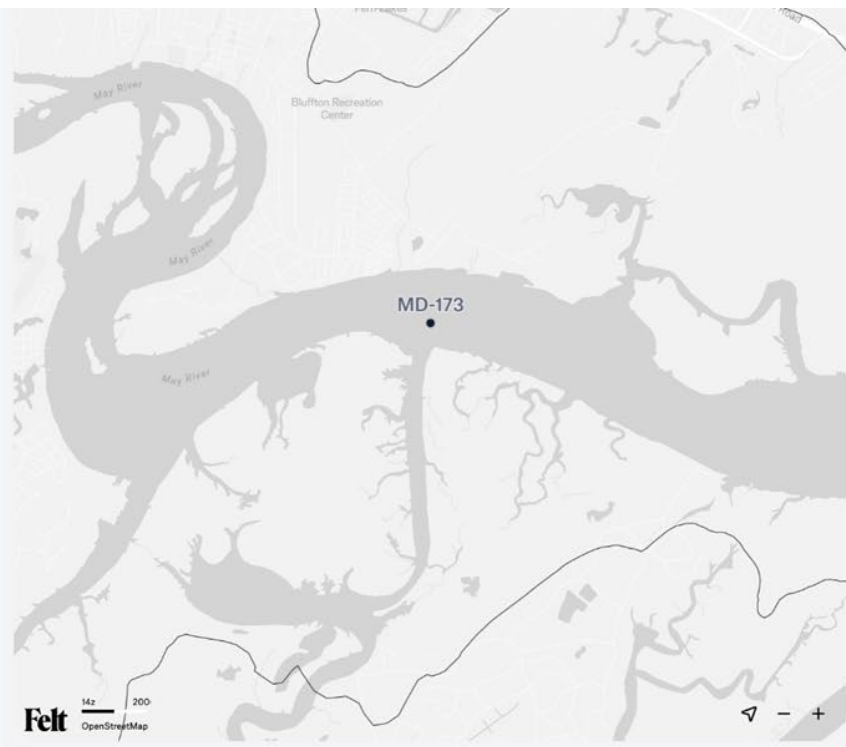
Monthly Average - (Water Temperature deg C)



Water Temperature (deg C)

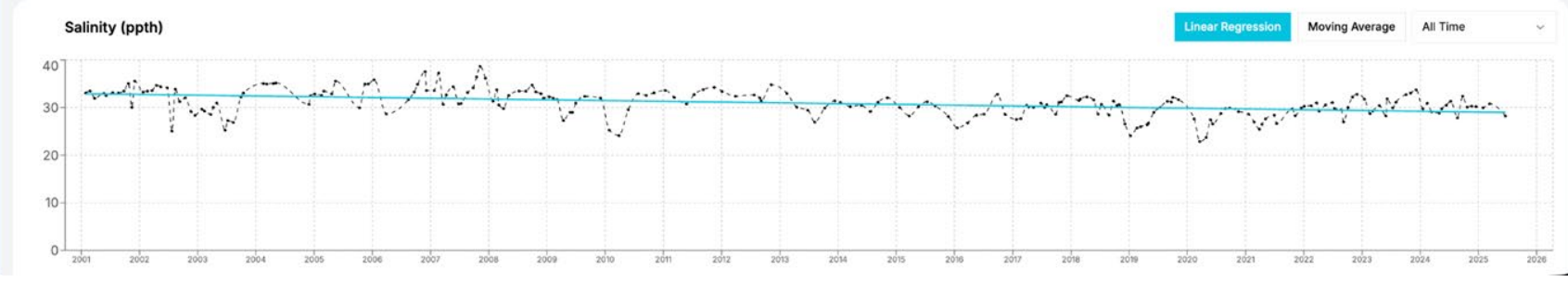
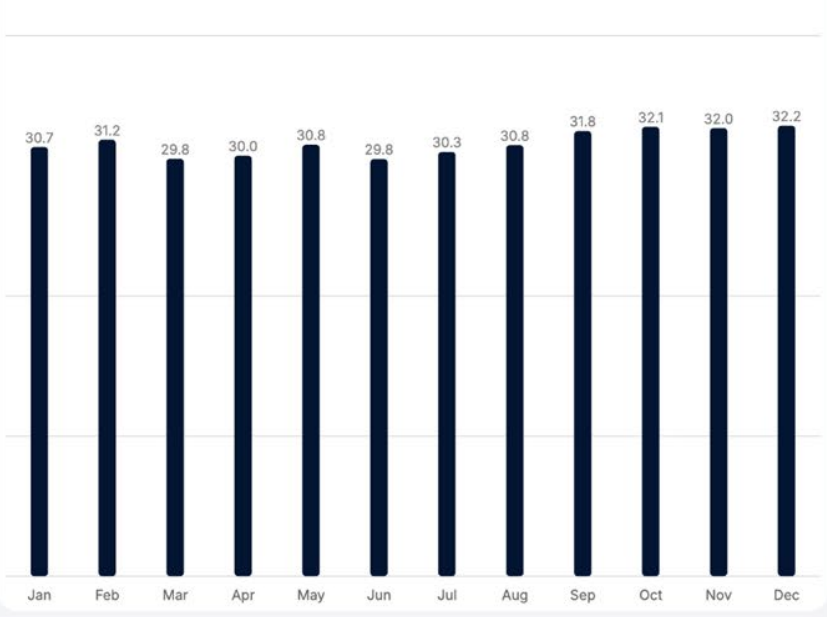
Linear Regression | Moving Average | All Time





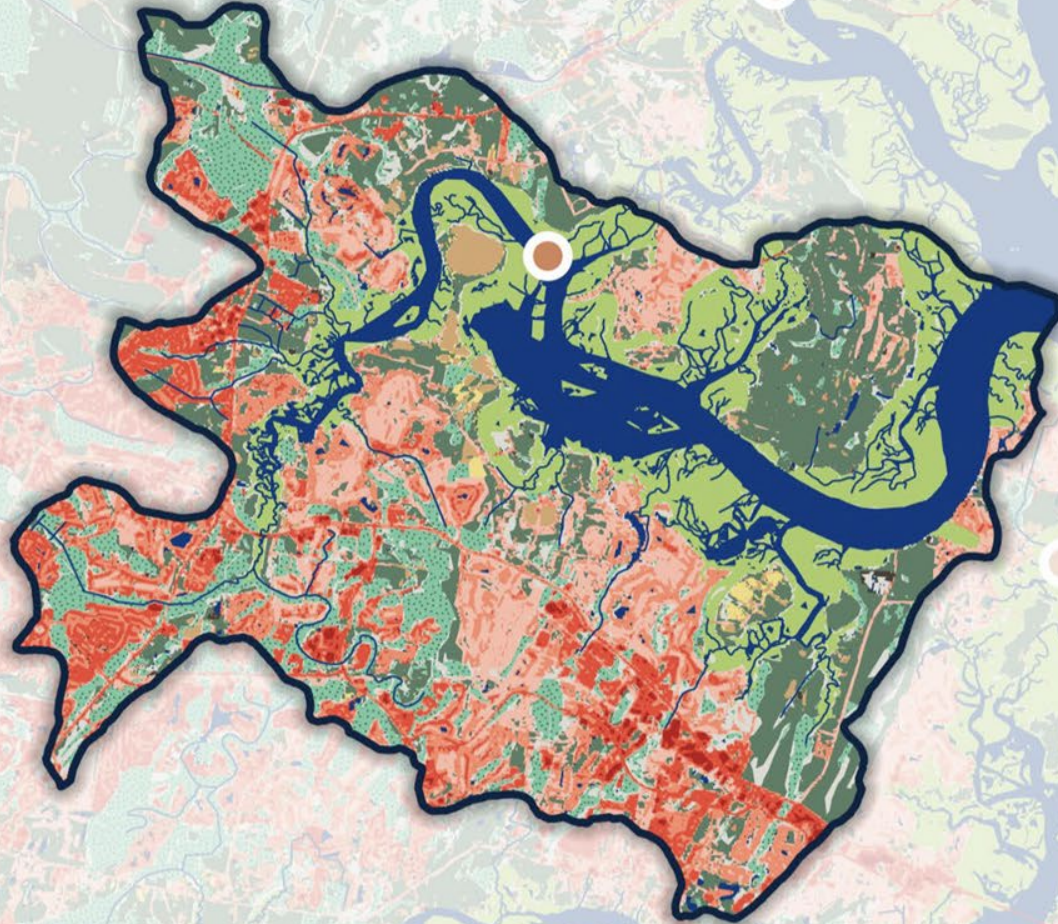
May River
 MD-173
 Salinity
 Search

Monthly Average - (Salinity ppt)



Colleton River

030502080606 – LOWER WATERSHED



Freshwater
Wetlands

Developed



Salt Marsh

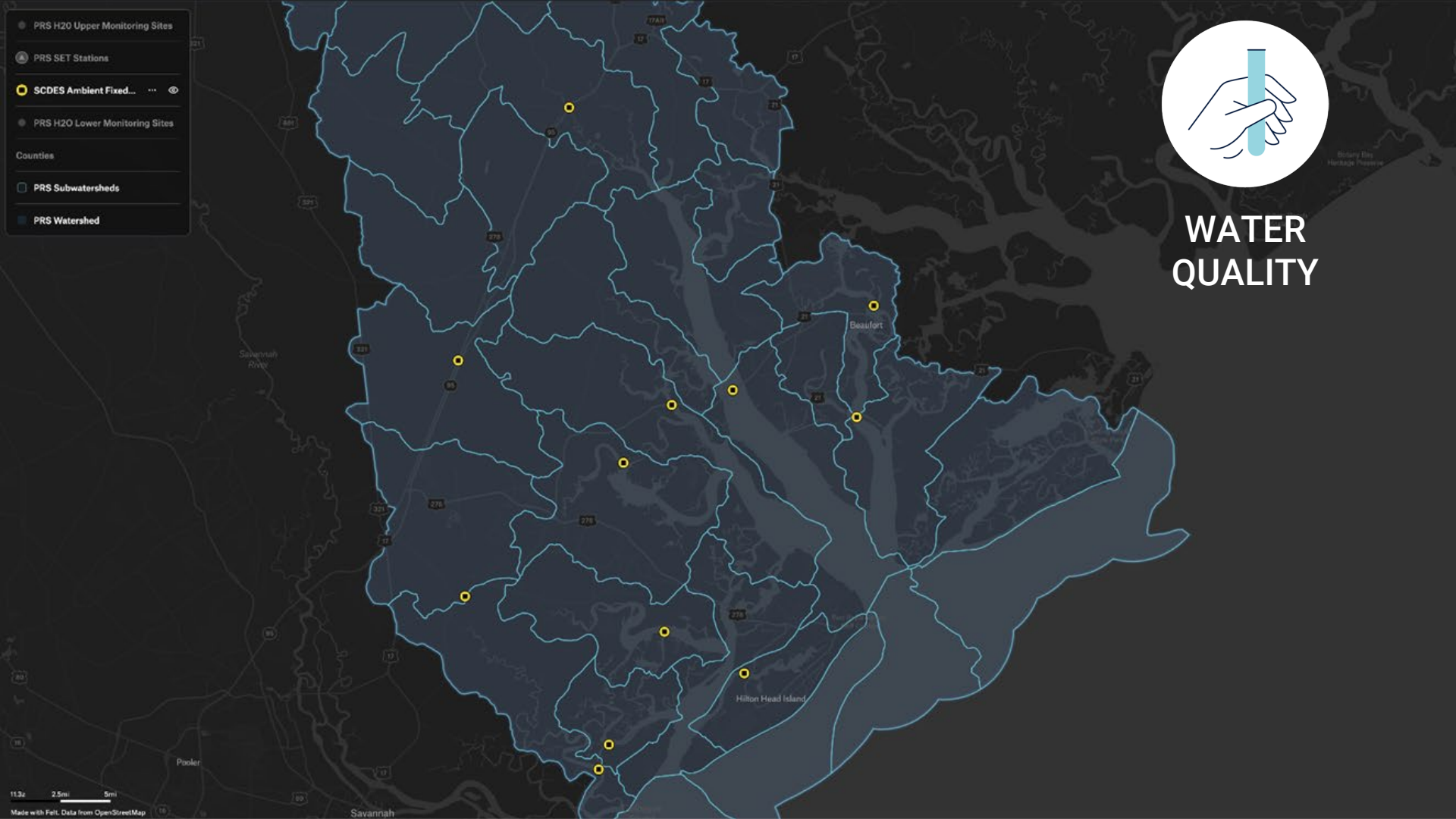
Forests



- PRS H2O Upper Monitoring Sites
 - PRS SET Stations
 - SCDES Ambient Fixed...
 - PRS H2O Lower Monitoring Sites
- Counties
- PRS Subwatersheds
 - PRS Watershed



WATER QUALITY



PRS Level 2 Water Quality Monitoring Program



Supplementing state monitoring at scale & frequency to achieve higher resolution and closer to real-time data for the PRS

Quality Assurance Project Plan (QAPP) for Port Royal Sound Water Quality Monitoring Network

version 1
January 2025



Managed by
Port Royal Sound Foundation
310 Okatie Highway
Okatie, SC 29909
portroyalsoundfoundation.org

Port Royal Sound QAPP
Revision No. 01
Revised January 24, 2025
Page 1 of 61

New Water Quality Entry

Enter the water quality data for this location.

Sampling Event Info

User ID

ckimmel@portroyalsoundfoundation.org

Date

08/14/2025

Time (24-hour format)

22:10

Site ID

BATT01

Site Location

Parris Island Boat Ramp

Sample ID

BATT01_20250814_2210

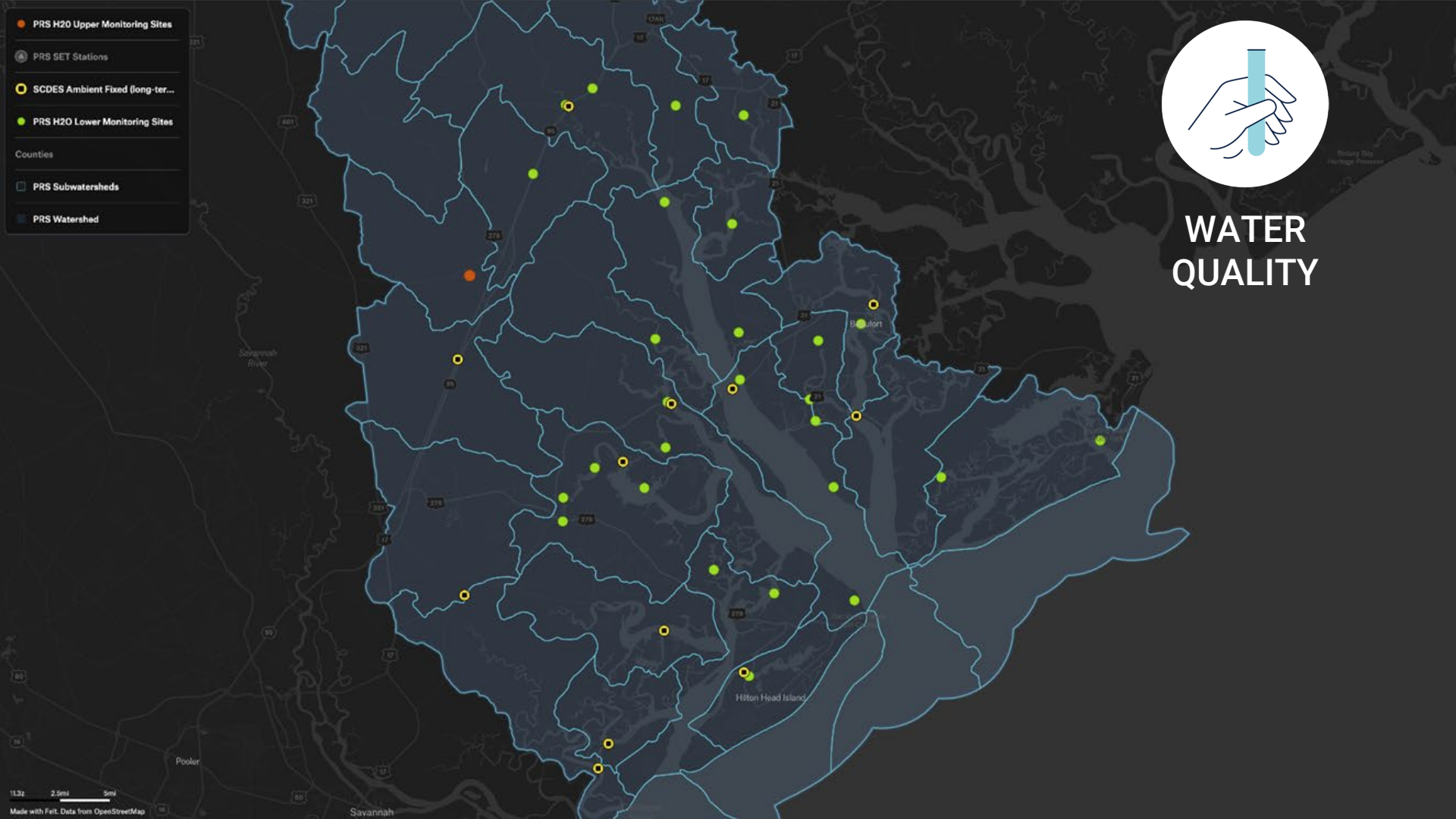
← Water Quality Monitoring



- PRS H2O Upper Monitoring Sites
 - PRS SET Stations
 - SCDES Ambient Fixed (long-ter...
 - PRS H2O Lower Monitoring Sites
- Counties
- ▢ PRS Subwatersheds
 - PRS Watershed



WATER QUALITY



Increasing Conditions for Problems Caused by Stormwater

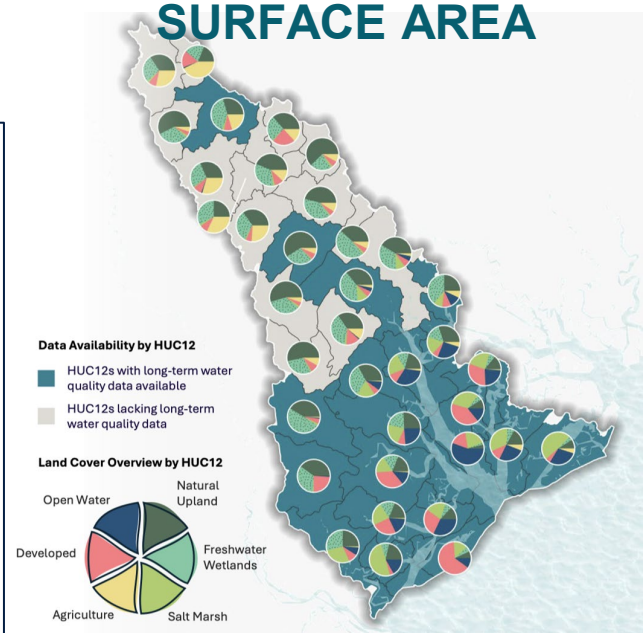
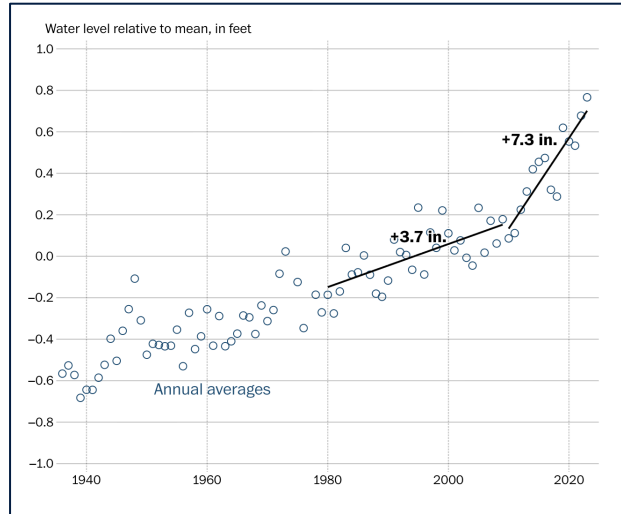
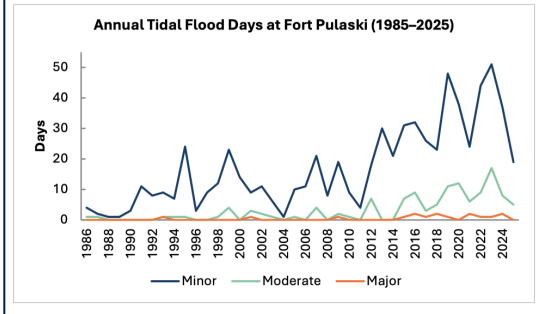
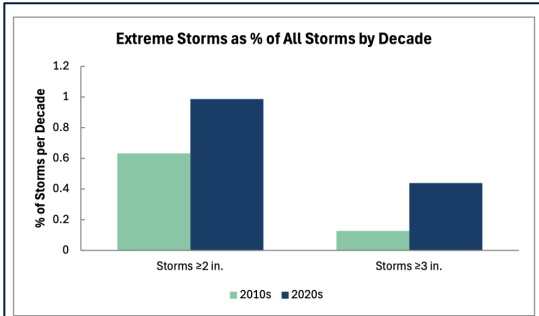
↑ RAIN & FLOODING



↑ SEA LEVELS



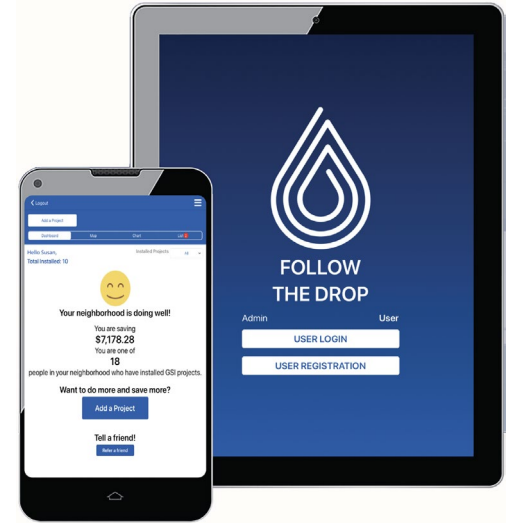
↑ IMPERVIOUS SURFACE AREA



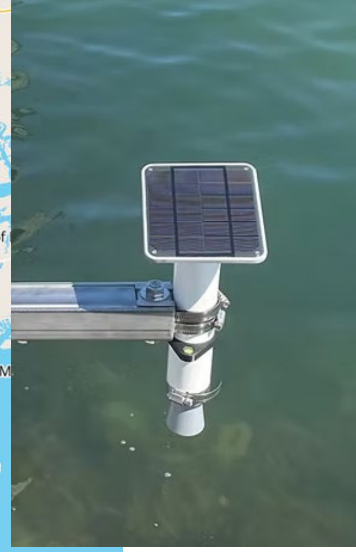
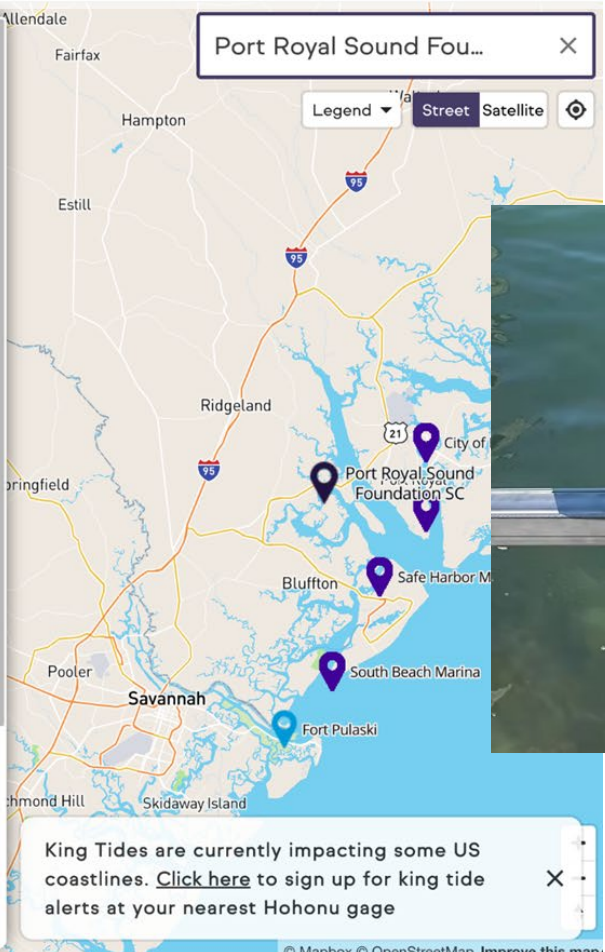
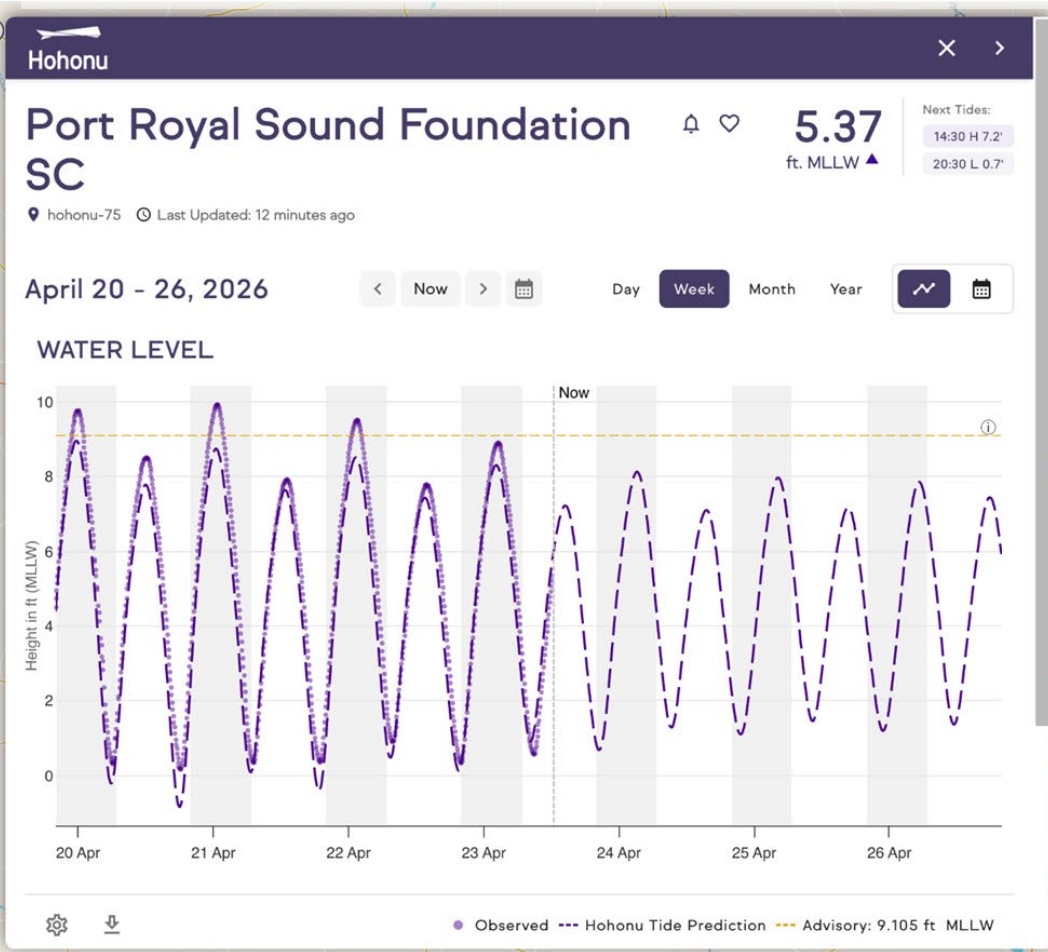
Response Project: Stormwater Management for Healthy & Resilient Port Royal Sound



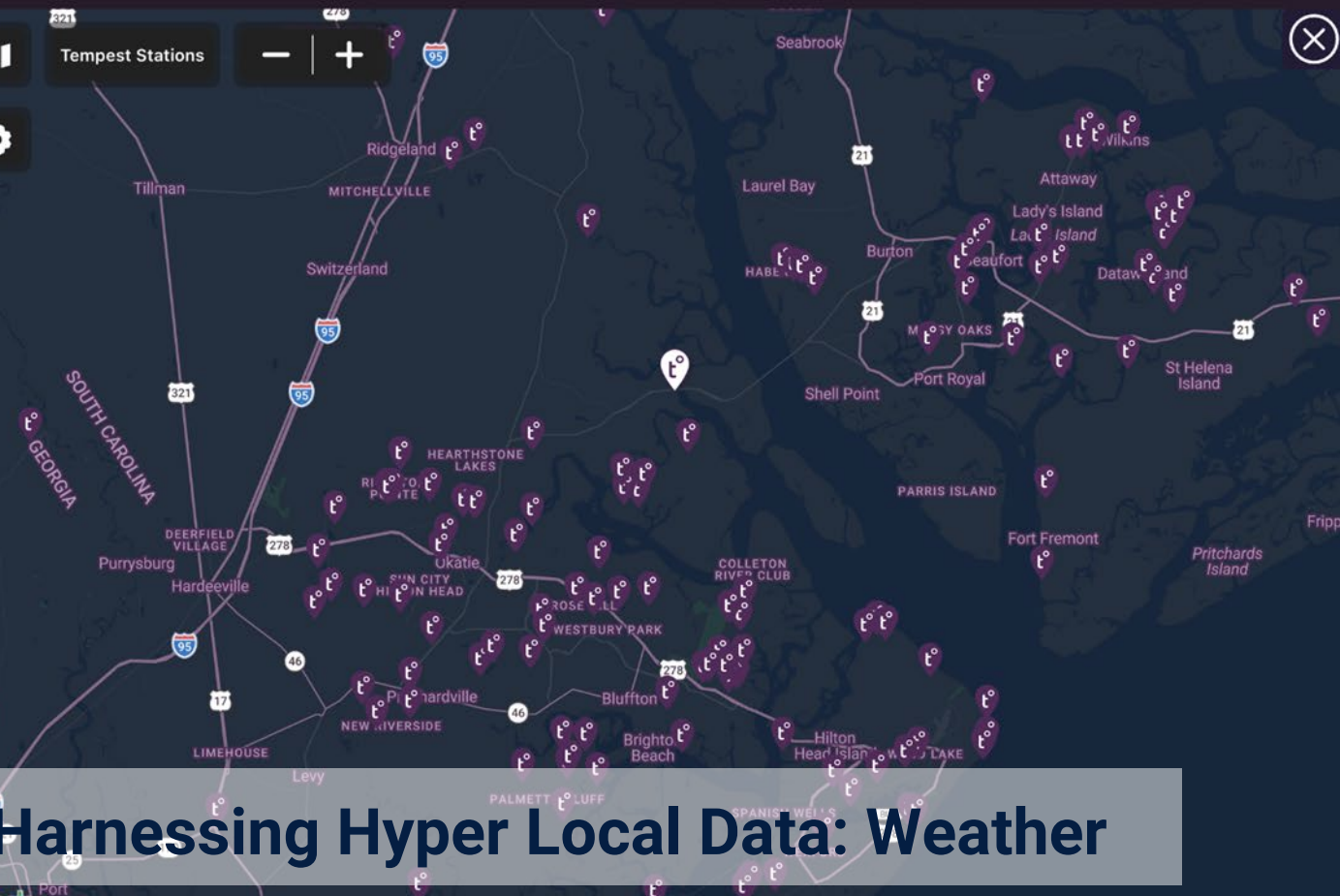
Collaborative approach to reducing barriers to stormwater management at a watershed scale



Harnessing Hyper Local Data: Water Level & Tides



PRSF Maritime Center



Okatie Hwy

Current Conditions

Air Density	0.07583 lbs/ft3
Air Temperature	66.4 °F
Station Pressure	1019.0 mb
Brightness	0 lux
Delta T	5.2° F
Dew Point	57.9 °F
Feels Like	66.4 °F
Heat Index	66.4 °F
Lightning Strike Count	0
Lightning Detected Last 3 Hrs	0
Lightning Distance Detected	10 - 12 mi
Lightning Last Detected	19 hours
Rain Intensity	NONE (0.0 mm / hour)
Rain Accumulation (Today)	0.2 mm

Harnessing Hyper Local Data: Weather

GIFT™ Data: Flood Risk Ranking

<https://data-scdnr.opendata.arcgis.com/datasets/9c34aea7a889460f9b08831ac8a46dbc/about>

PRS Gift 1M Elevation Layers

Southeast Blueprint 2025 Priority

<https://apps.fws.gov/southeastblueprint/>
0 = lowest priority; 4 = highest

Ecosystem Services Values-Port Roy...

Adaptation Strategies - Port Royal S...

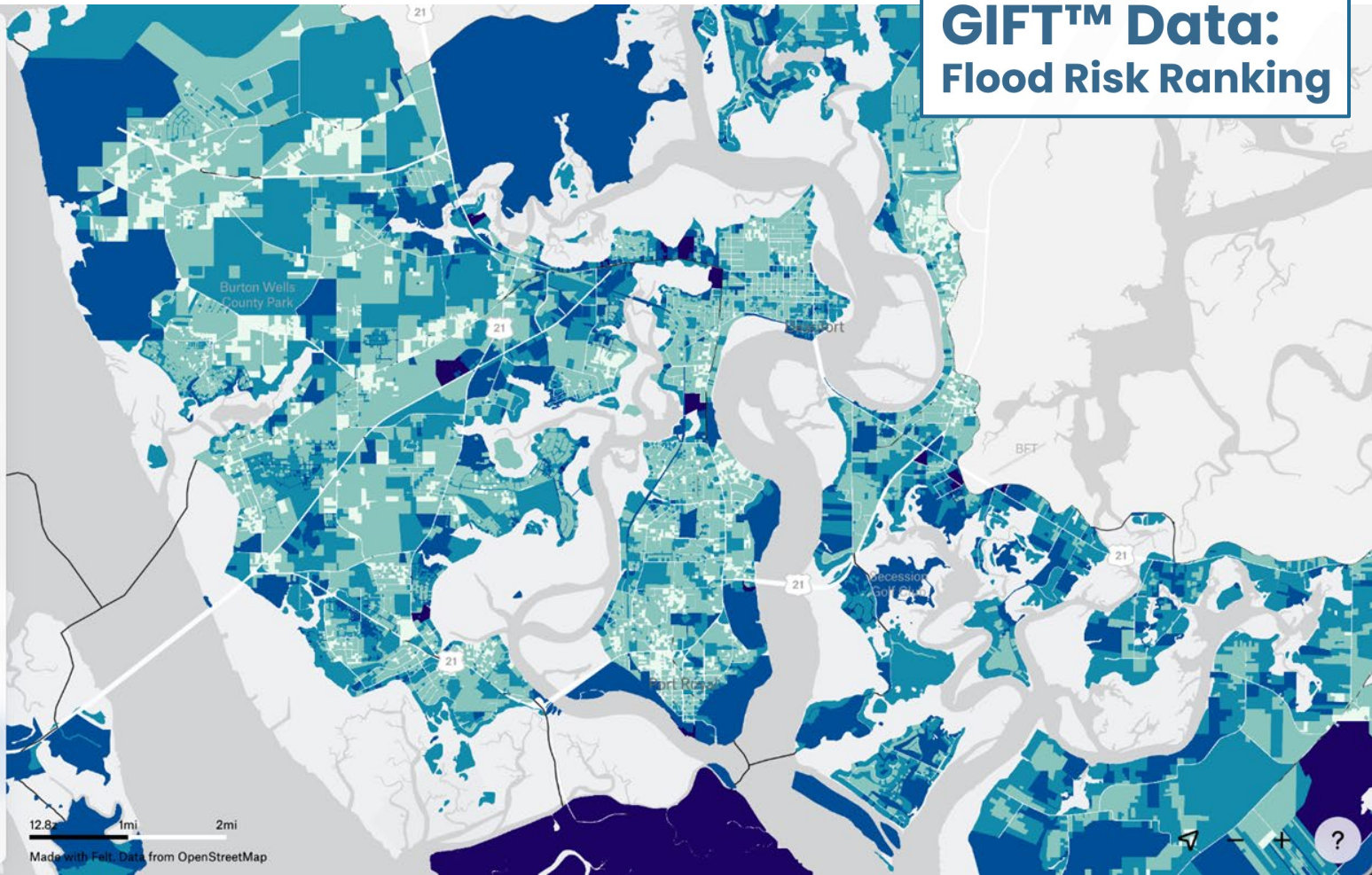
NOTE: Need to update to account for agriculture; currently focused on urban areas

Flood Risk Score (Low-Res 10-m DE...



Heat Risk (0-100 scale) - Port Royal ...

Tree Canopy (%) - Port Royal Sound ...



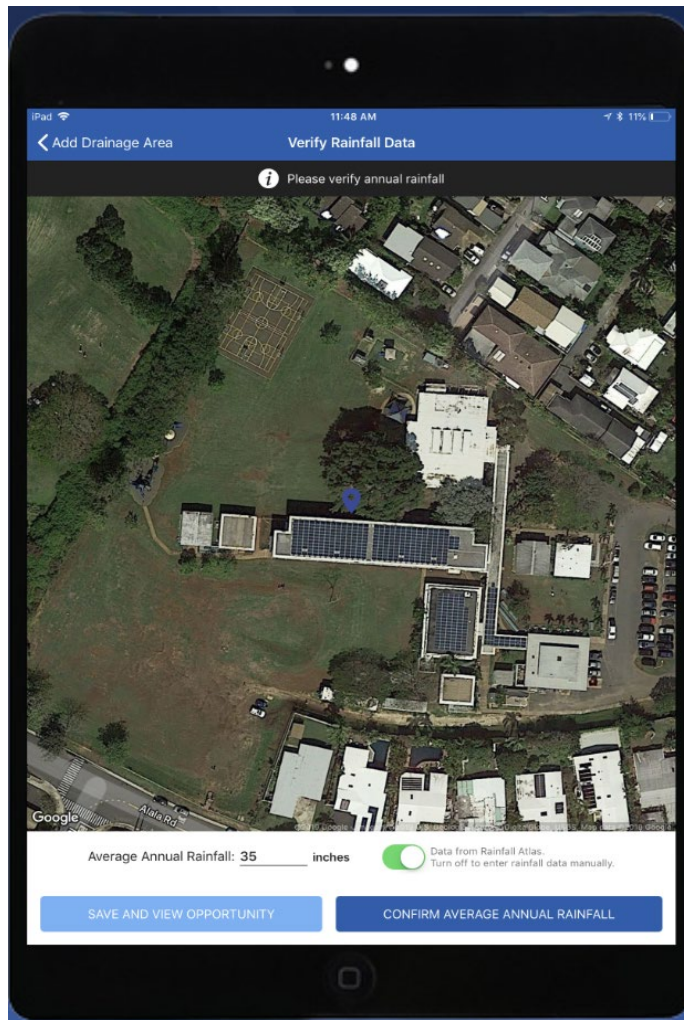
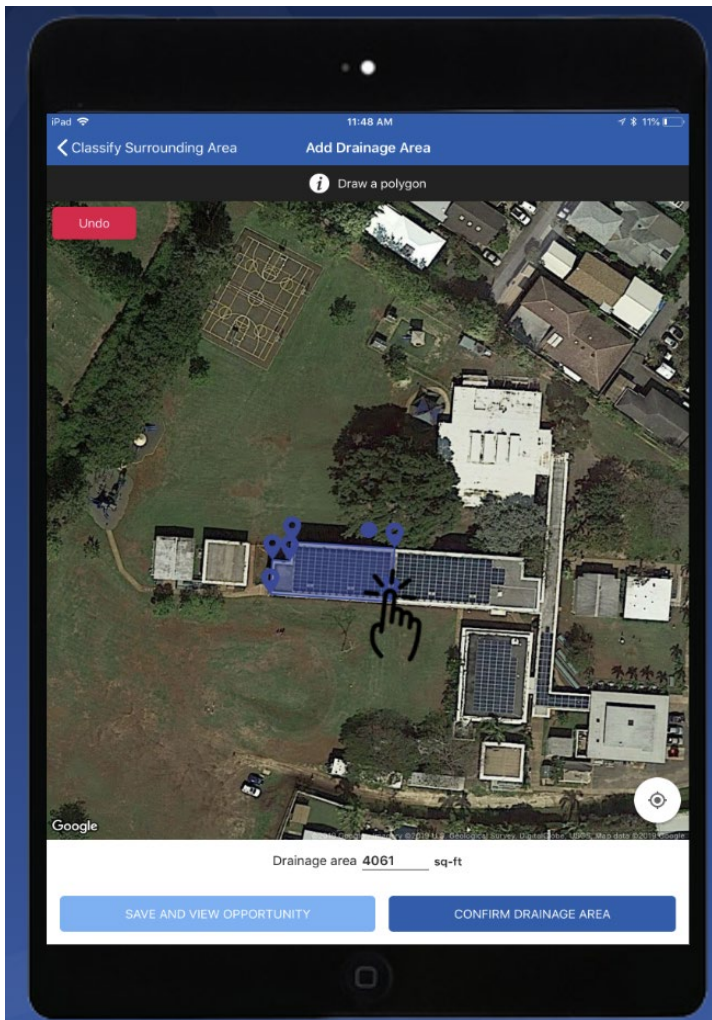




photo by Miles Sanders

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