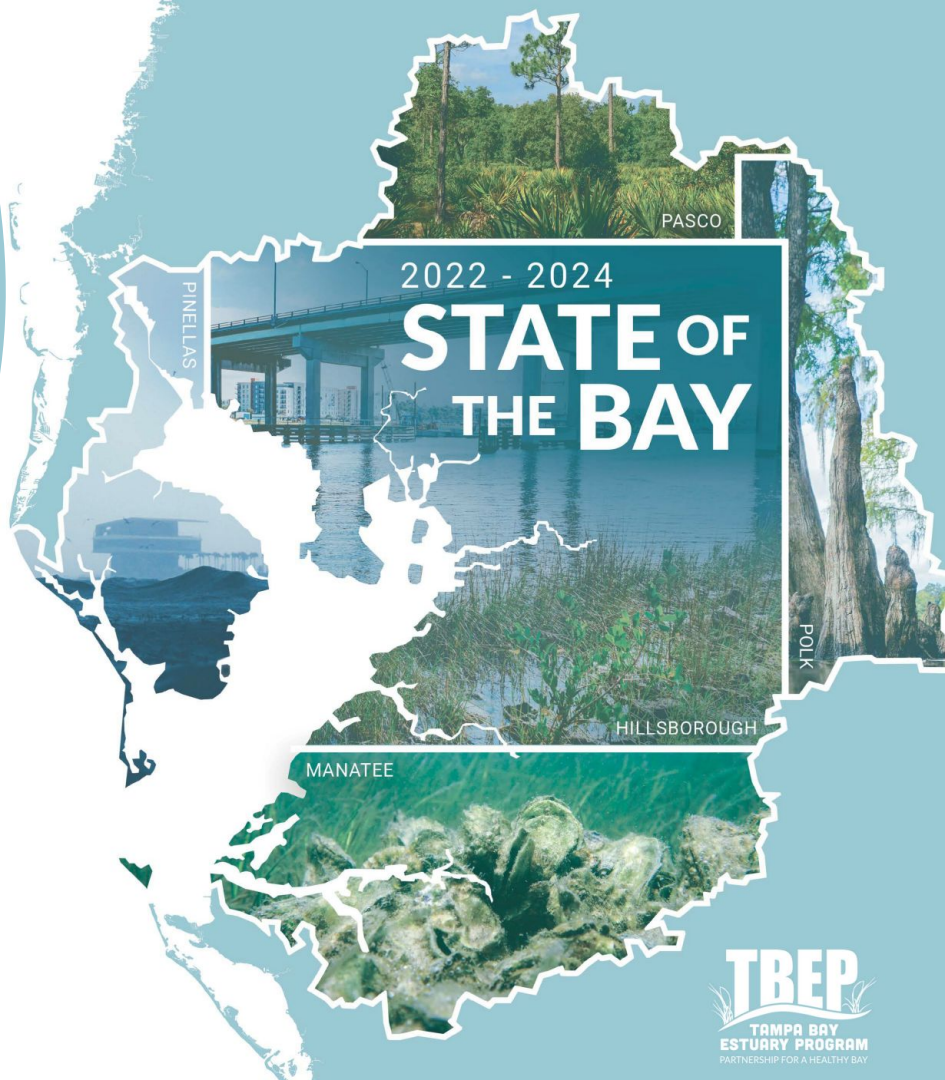
Tampa Bay Estuary Program 2025 Update

Ed Sherwood
Executive Director

October 17, 2025
Joint Board of County Commissioners' Regional Roundtable
Pinellas, Hillsborough & Pasco Counties



Tampa Bay Watershed

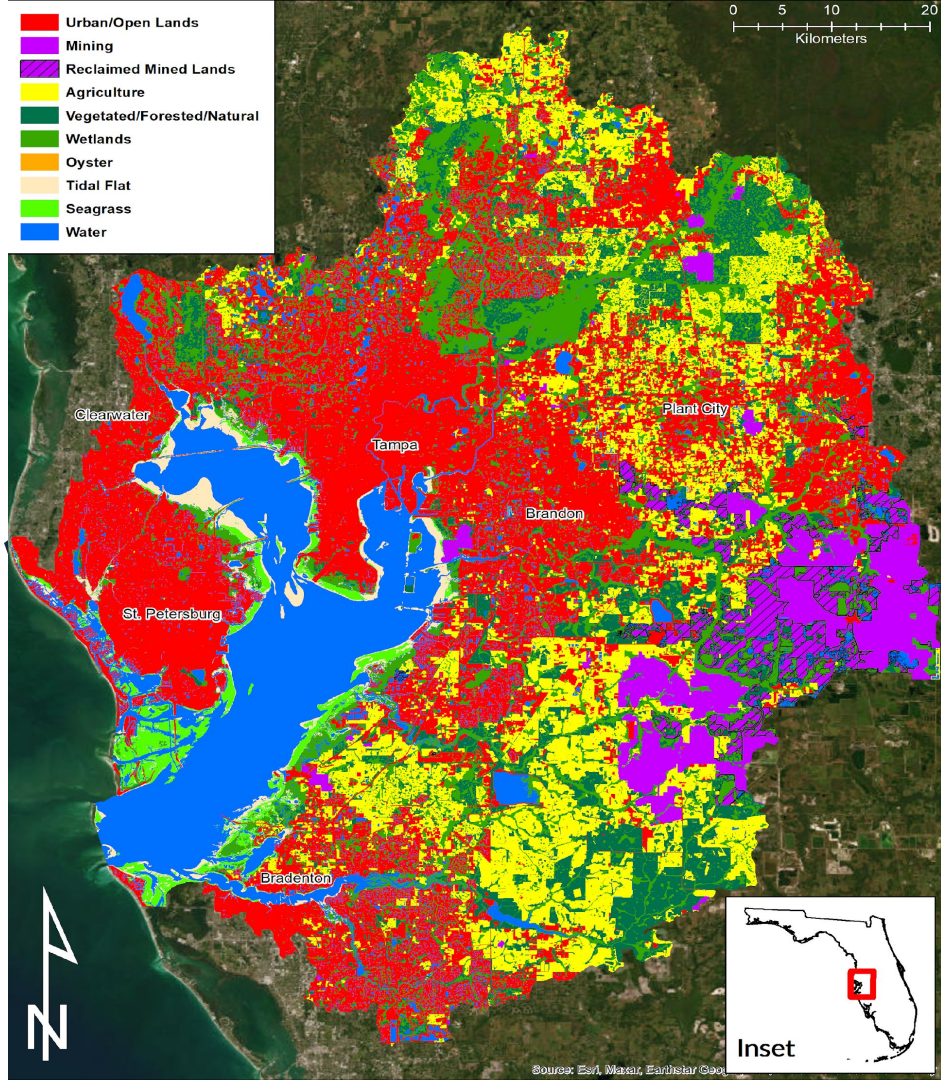
Size
Tampa Bay Proper: 400 square miles
Tampa Bay Watershed: 2,200 square miles

Depth
Average Depth: 11 Feet
Maximum Depth: 43 Feet (100'+ by Egmont)

Major Tributaries
Hillsborough, Palm, Alafia, Little Manatee, Manatee & Braden Rivers

Population
> 3.1 million in the watershed alone

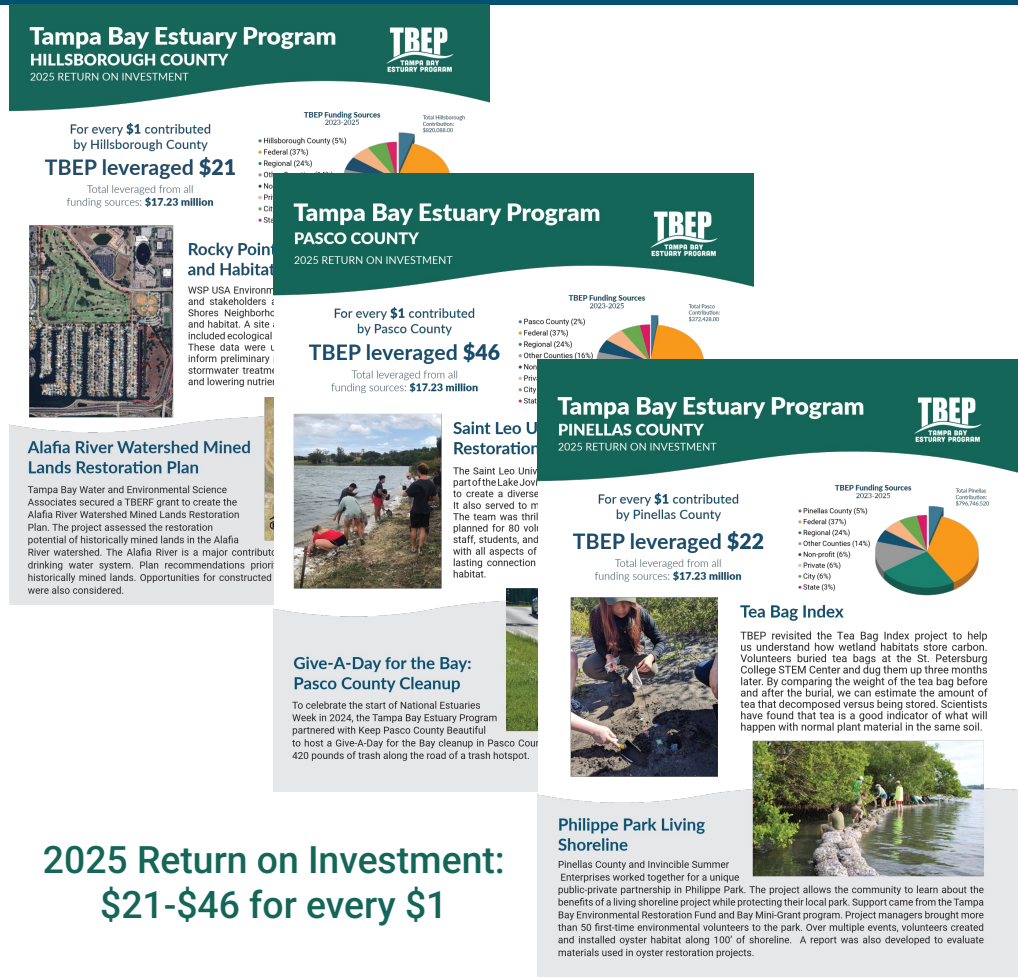
Land Use
32% Undeveloped
42% Urban/Suburban
17% Agriculture
9% Mining



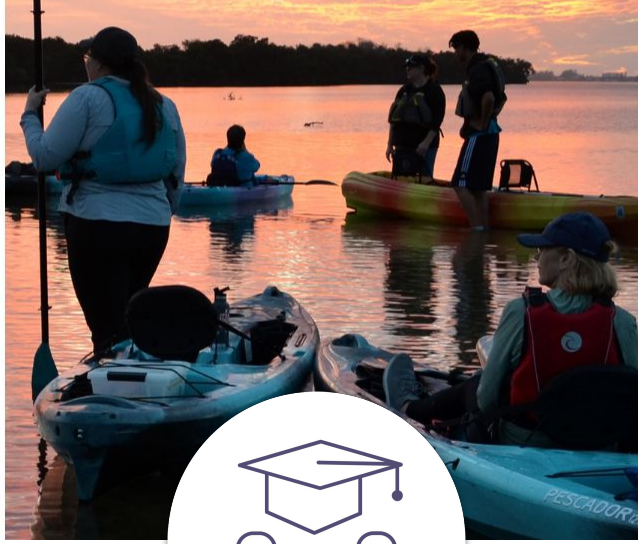
tbep.org/uniform-special-district-accountability-act

Quick Facts

- Established in 1991
- 1 of 28 National Estuary Programs (4 Total in Florida)
- Interlocal Agreement establishes a federal-local cost-share partnership
- Additional grant funds & programs support Comprehensive Conservation & Management Plan implementation
- Annual Budget ≅ $3 - $4 Million
- 8 Full-time and 1 Part-time Staff



2025 Return on Investment: $21-$46 for every $1



Clean Waters
& Sediments

Thriving Habitats
& Abundant Wildlife

Informed, Engaged,
& Responsible Community

ccmp.tbep.org

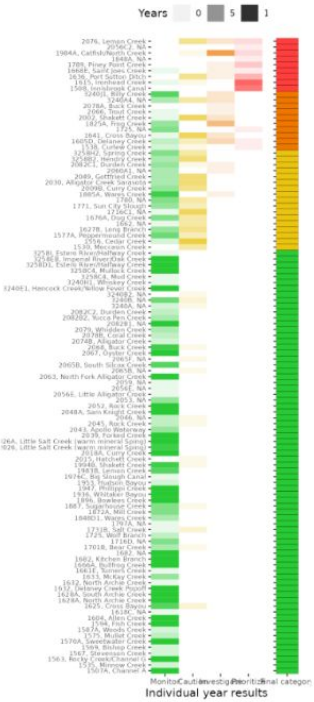
Water Quality

Benthic

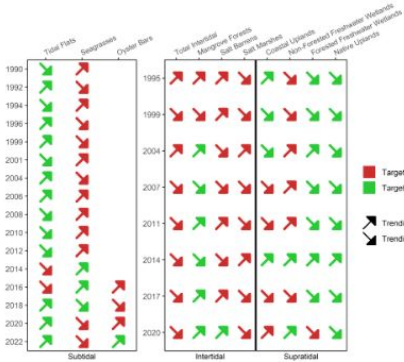
Nekton

Seagrass

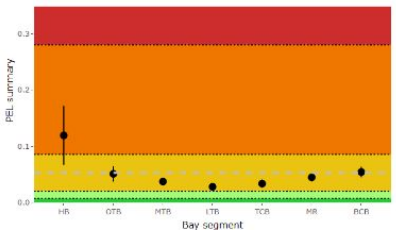
Tidal Creeks

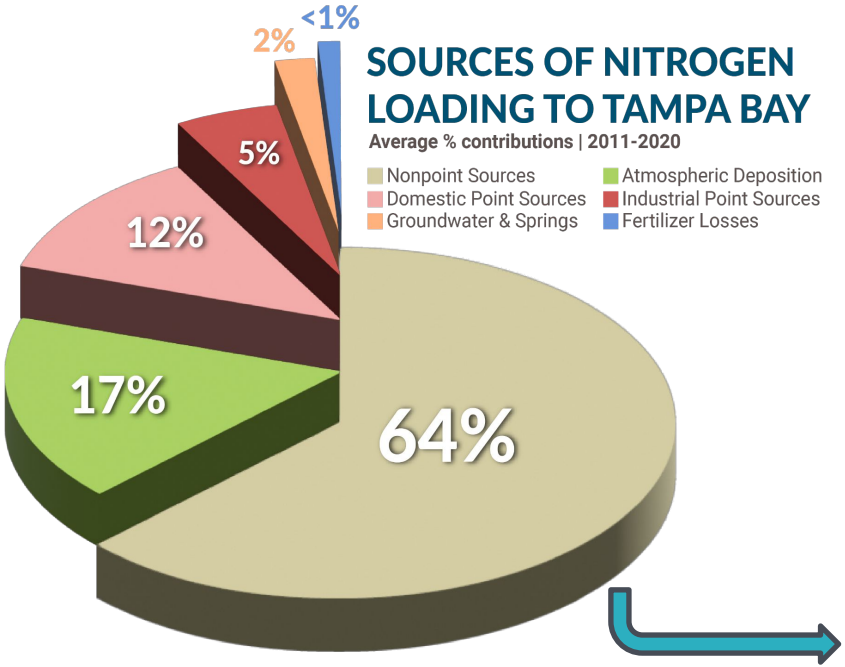


Habitats



Sediments

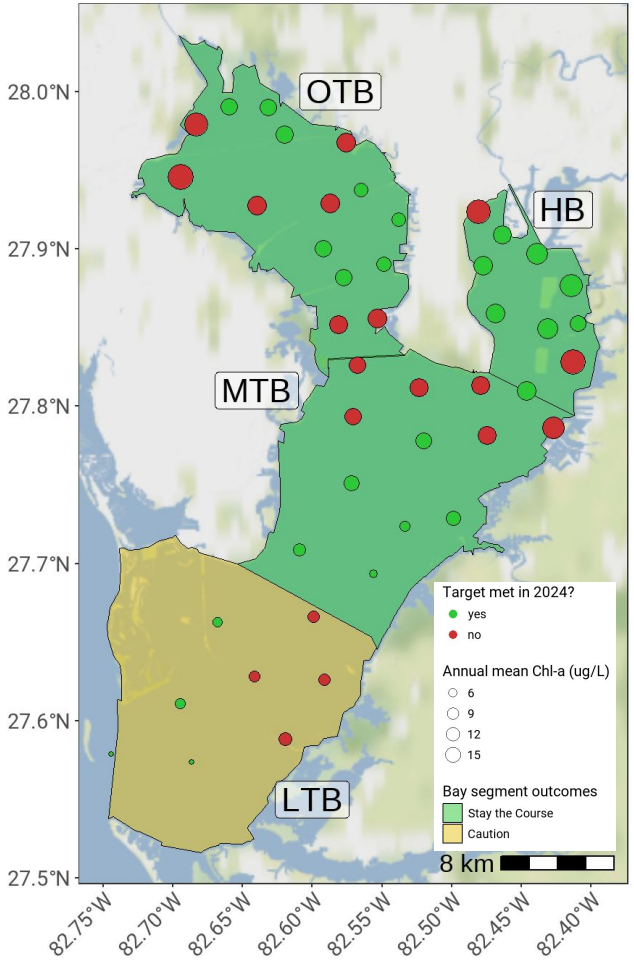


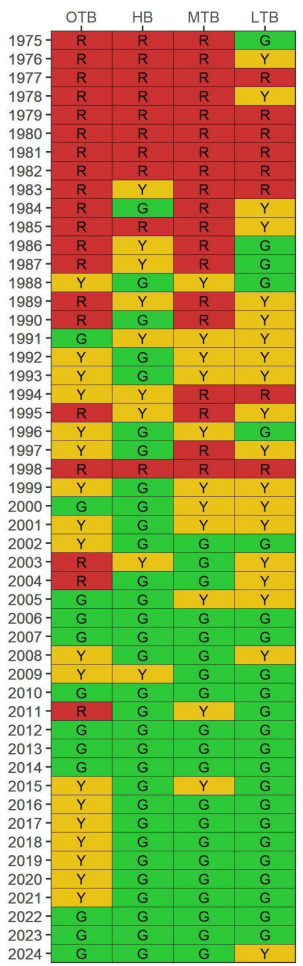


PRIMARY POLLUTANT OF CONCERN

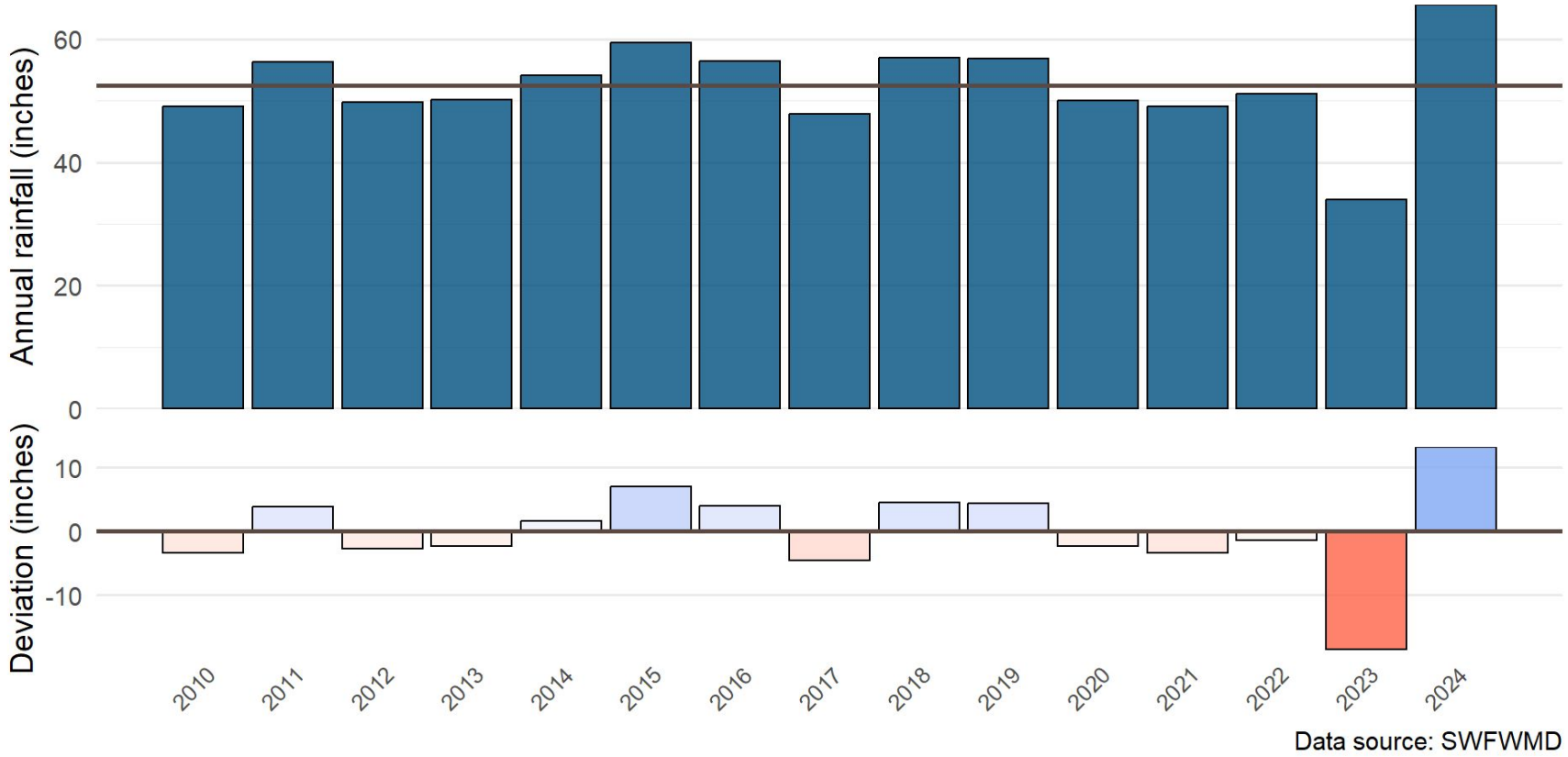
WATER QUALITY

- Results show attainment of **chlorophyll and light attenuation** management targets
- All segments as “Stay the Course”, except Lower Tampa Bay = “Caution”
- More info at: shiny.tbep.org/wq-dash



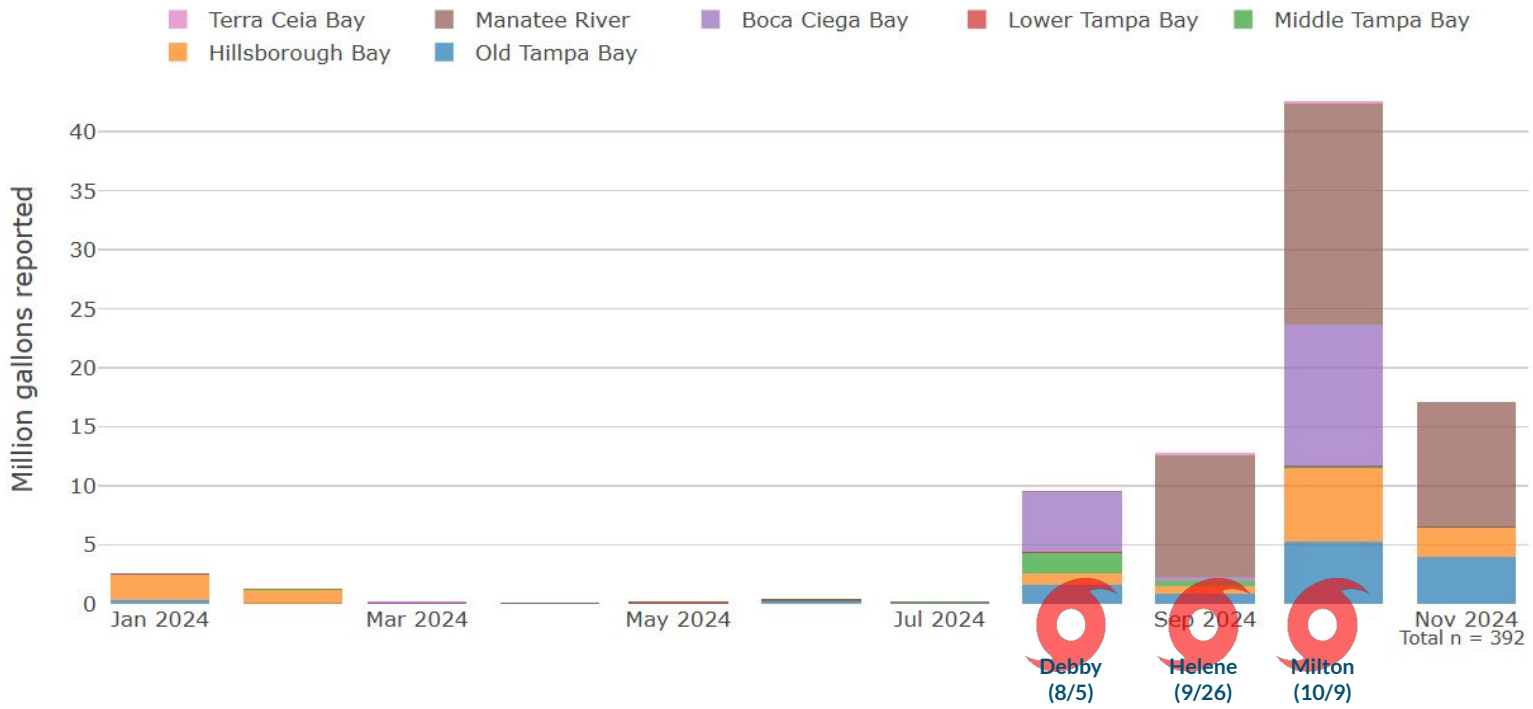


TAMPA BAY ANNUAL RAINFALL



Data source: SWFWMD

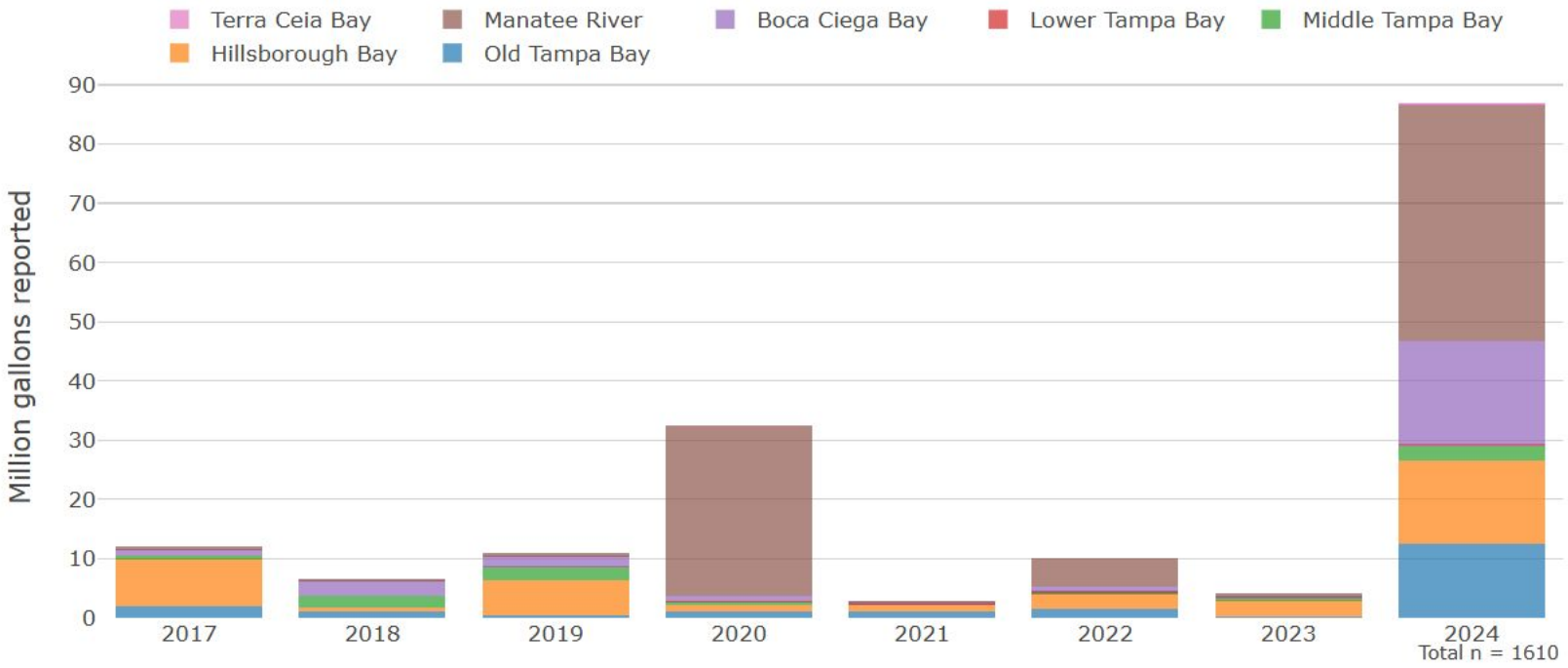
SANITARY SEWER OVERFLOWS *(by month)*



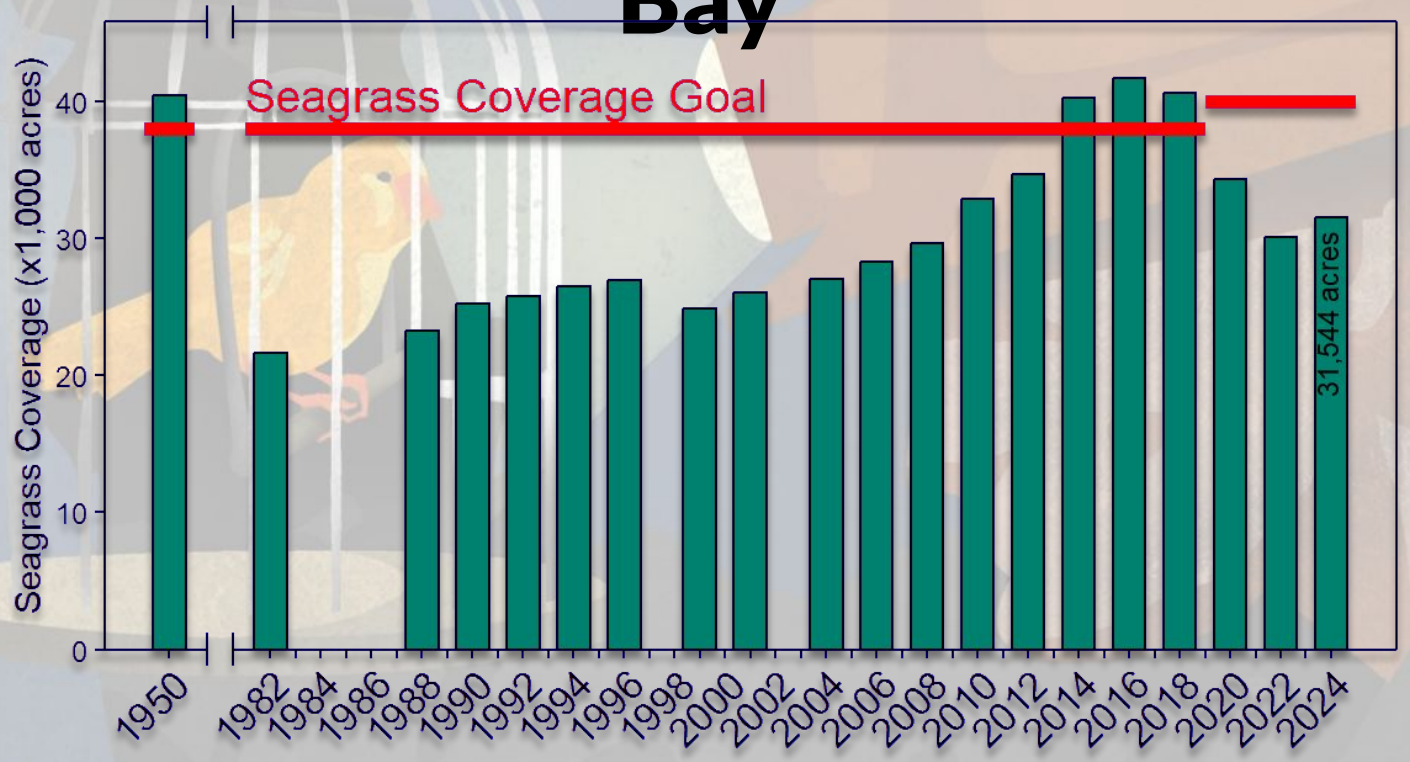
+200M GALLONS

2016

SANITARY SEWER OVERFLOWS *(2017-2024)*

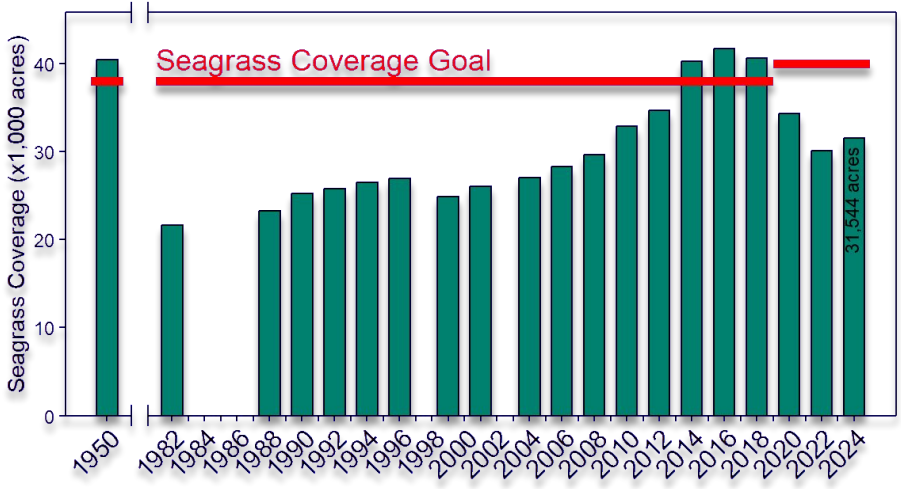


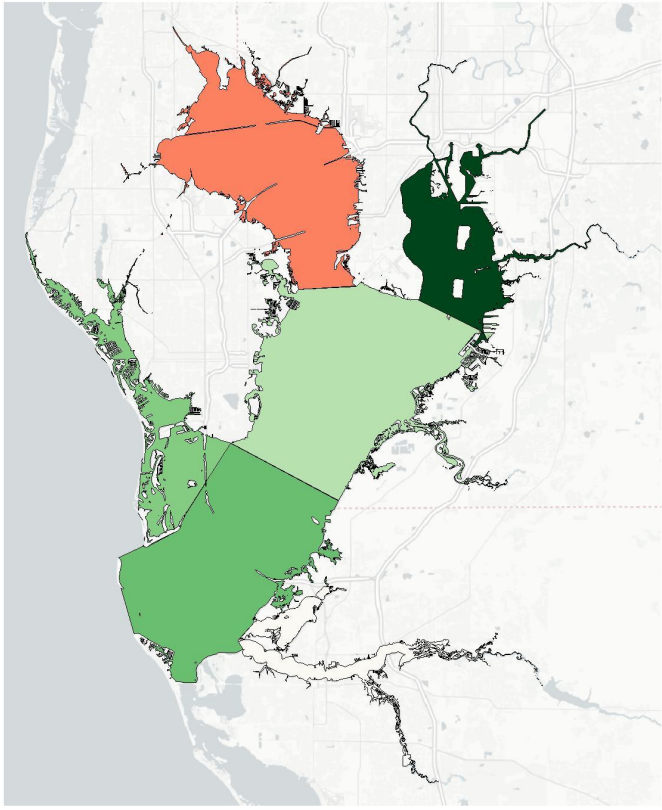
Underwater Seagrass Coverage: Primary Indicator of a Healthy Tampa Bay



SEAGRASS MAPPING RESULTS

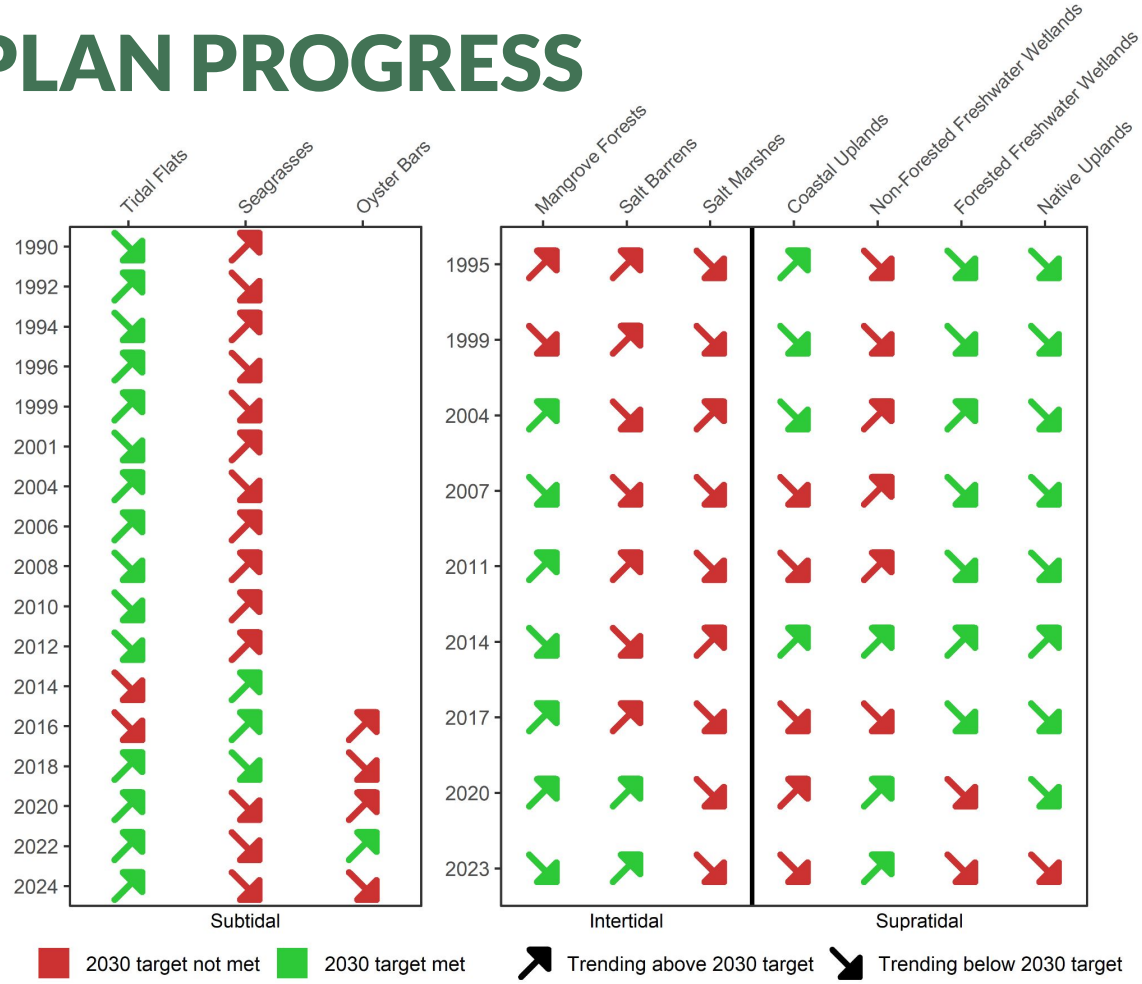
- Baywide, seagrasses increased by 5% (1,407 acres)
- Majority of gains observed in Hillsborough Bay
- Lower Tampa Bay at record-high
- Old Tampa Bay lost 326 acres





HABITAT MASTER PLAN PROGRESS

- Falling behind on:
  - Seagrass
  - Oyster
  - Salt Marsh
  - Coastal & Native Uplands
  - Forested Freshwater Wetlands
- Recent trends showing effects of continuing coastal development & climate change
- More info & data at: shiny.tbep.org/landuse-change



When You Build It, They Will Come …

Investing in nature-based solutions also bolsters important fish nurseries in the Bay

RESTORATION ECOLOGY

The Journal of the Society for Ecological Restoration

SER

RESEARCH ARTICLE

Coastal wetland restoration improves habitat for juvenile sportfish in Tampa Bay, Florida, U.S.A.

Kailee Schulz[1,2], Philip W. Stevens[3], Jeffrey E. Hill[1,4], Alexis A. Trotter[3], Jared L. Ritch[3], Kyle L. Williams[3], Joshua T. Patterson[1,5], Quenton M. Tuckett[1,4]

Increasing human populations and urban development have led to losses of estuarine habitats for fish and wildlife. Where resource managers are restoring coastal wetlands, in addition to meeting goals related to hydrologic connectivity, biodiversity, and recreational opportunities, efforts are being made to provide habitat that is suitable for juvenile sportfish. An 18-month study was conducted to compare juvenile sportfish use of natural, restored, and impacted sites along Tampa Bay, Florida, shorelines. Juvenile sportfish densities at restored sites were broadly comparable to natural sites and greater than at impacted sites. However, site-specific differences in sportfish use did occur within site types. For example, one restored site had significantly higher densities of red drum *Sciaenops ocellatus* than any other site, while black drum *Pogonias cromis* were found exclusively at another restored site. To evaluate whether the restored sites are providing suitable habitat for juvenile fish, we assessed growth (estimated from counts of daily rings on otoliths) and condition (determined by lipid analyses) of juvenile common snook *Centropomus undecimalis*, an archetypal coastal wetland-dependent species. Growth (0.43–0.56 mm SL/day) and condition (4.6–6.1% lipid of dry weight) exhibited only site-specific differences and did not vary among natural, restored, and impacted site types. Although mortality rates of juvenile sportfish were not determined, use of a 40-m seine found that densities of potential piscine predators in these coastal wetlands were relatively low compared to published studies of open estuarine shorelines. The restoration and creation of coastal wetlands in Tampa Bay provides improved habitat for juvenile sportfish.

Key words: common snook, estuary, habitat mosaic, impacted shoreline, Tampa Bay

Implications for Practice

- Sportfish represent an important segment of fisheries management in areas where recreational fishing has economic and ecological implications. Thus, habitat restoration often aims to support sportfish populations.
- In estuaries with several popular sportfish species co-occurring as juveniles, habitat heterogeneity and site-specific use patterns are important. Linkages between habitat restoration and sportfish use will be beneficial for cost–benefit analyses of restoration.
- In addition to density and abundance, fish growth and condition may be useful to evaluate habitat quality and probability of recruitment into adulthood. Impacted sites with high sportfish densities but low growth and condition may be good targets for restoration.
- Overall, results support coastal habitat restoration as a viable management strategy to achieve the aim of supporting sportfish populations.

Introduction

Fishes that are dependent upon estuaries and other coastal habitats may be particularly vulnerable to population declines due to habitat loss (Peterson et al. 2000, Amorim et al. 2017). Noticeable effects of urbanization are primarily physical, including the reduction of submerged vegetation and structurally complex features; however, decreased water quality and altered freshwater flow to estuaries have also been observed (Lewis III & Estevez 1988; Lewis III & Gilmore 2007; Rhody et al. 2010; Cicchetti & Greening 2011; Amorim et al. 2017). Three-dimensional features such as rock outcrops, oyster reef formations, vegetation (marsh grasses and sedges, mangroves, seagrasses), and other complex topography provide heterogeneity and structural complexity, which are important components of productive systems, enhancing ecosystem function (Grabowski et al. 2005; Kovalenko et al. 2012; Graham & Nash 2013; Pierre & Kovalenko 2014). Healthy estuaries commonly support a

Author contributions: JTP, QMT, JEH, PWS, AAT conceived and designed the study; PWS, AAT provided training in both the field and laboratory; JLR, KLW conducted field and laboratory work, contributed to methods text, and helped prepare datasets and figures; KS led field work, data analysis, and writing and all authors contributed.

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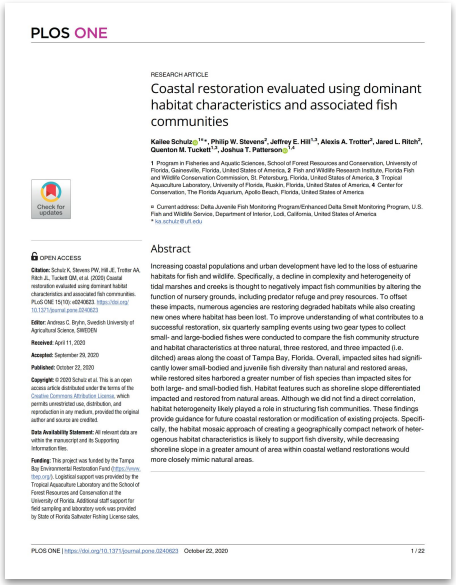
Supporting information at:
http://onlinelibrary.wiley.com/doi/10.1111/rec.13215/suppinfo



PLOS ONE

RESEARCH ARTICLE

Coastal restoration evaluated using dominant habitat characteristics and associated fish communities

Kailee Schulz[1]*, Philip W. Stevens[2], Jeffrey E. Hill[1,3], Alexis A. Trotter[2], Jared L. Ritch[2], Quenton M. Tuckett[1,3], Joshua T. Patterson[1,4]

1 Program in Fisheries and Aquatic Sciences, School of Forest Resources and Conservation, University of Florida, Gainesville, Florida, United States of America, 2 Fish and Wildlife Research Institute, Florida Fish and Wildlife Conservation Commission, St. Petersburg, Florida, United States of America, 3 Tropical Aquaculture Laboratory, University of Florida, Ruskin, Florida, United States of America, 4 Center for Conservation, The Florida Aquarium, Apollo Beach, Florida, United States of America

☯ Current address: Delta Juvenile Fish Monitoring Program/Enhanced Delta Smelt Monitoring Program, U.S. Fish and Wildlife Service, Department of Interior, Lodi, California, United States of America
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Abstract

Increasing coastal populations and urban development have led to the loss of estuarine habitats for fish and wildlife. Specifically, a decline in complexity and heterogeneity of tidal marshes and creeks is thought to negatively impact fish communities by altering the function of nursery grounds, including predator refuge and prey resources. To offset these impacts, numerous agencies are restoring degraded habitats while also creating new ones where habitat has been lost. To improve understanding of what contributes to a successful restoration, six quarterly sampling events using two gear types to collect small- and large-bodied fishes were conducted to compare the fish community structure and habitat characteristics at three natural, three restored, and three impacted (i.e. ditched) areas along the coast of Tampa Bay, Florida. Overall, impacted sites had significantly lower small-bodied and juvenile fish diversity than natural and restored areas, while restored sites harbored a greater number of fish species than impacted sites for both large- and small-bodied fish. Habitat features such as shoreline slope differentiated impacted and restored from natural areas. Although we did not find a direct correlation, habitat heterogeneity likely played a role in structuring fish communities. These findings provide guidance for future coastal restoration or modification of existing projects. Specifically, the habitat mosaic approach of creating a geographically compact network of heterogenous habitat characteristics is likely to support fish diversity, while decreasing shoreline slope in a greater amount of area within coastal wetland restorations would more closely mimic natural areas.

Check for updates

OPEN ACCESS

Citation: Schulz K, Stevens PW, Hill JE, Trotter AA, Ritch JL, Tuckett QM, et al. (2020) Coastal restoration evaluated using dominant habitat characteristics and associated fish communities. PLoS ONE 15(10): e0240623. https://doi.org/10.1371/journal.pone.0240623

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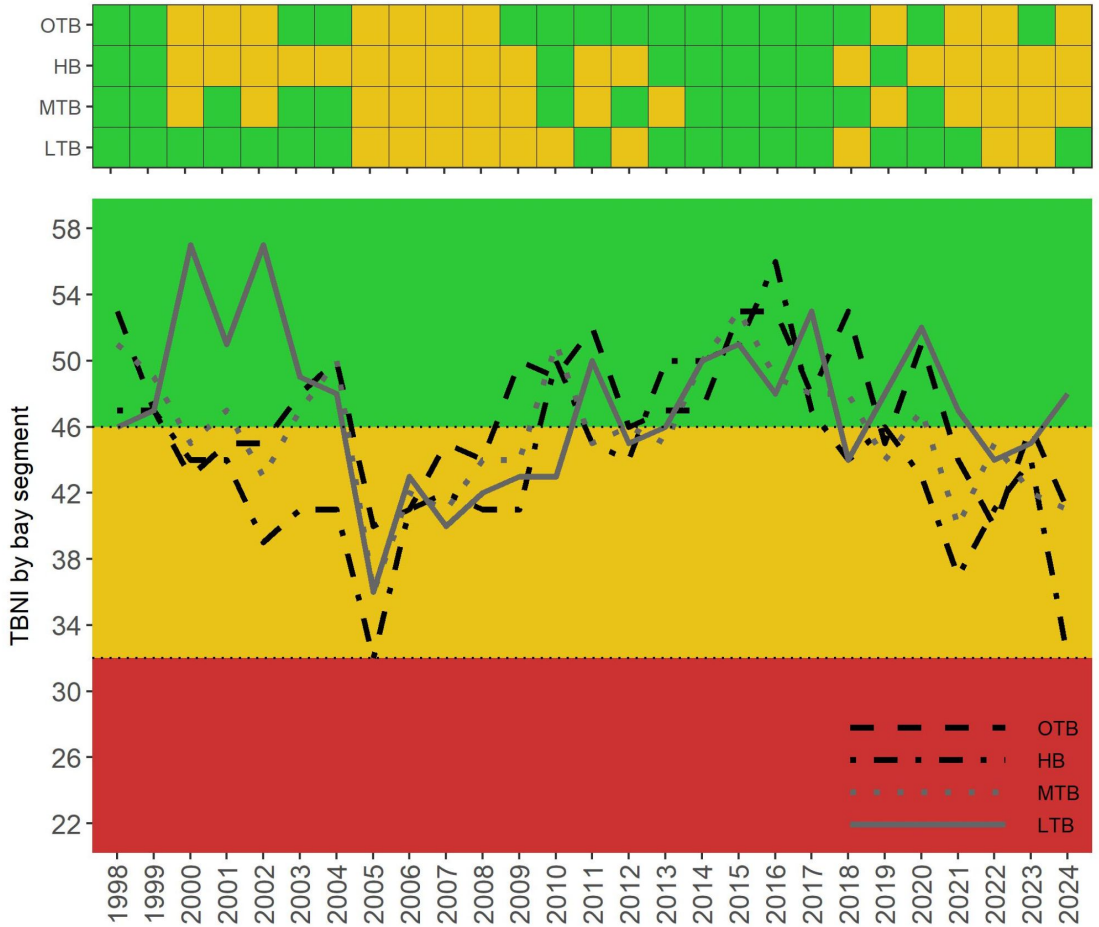
Funding: This project was funded by the Tampa Bay Environmental Restoration Fund (https://tbnep.tbep.org/). Logistical support was provided by the Tropical Aquaculture Laboratory and the School of Forest Resources and Conservation at the University of Florida. Additional staff support for field sampling and laboratory work was provided by State of Florida Saltwater Fishing License sales,

NEKTON INDEX

- Reports on the health of fish, shrimp and crabs
- Responds to water quality and habitat degradation
- 2024 results show all bay segments as caution, except Lower Tampa Bay
- More data & info at: shiny.tbep.org/nekton-dash

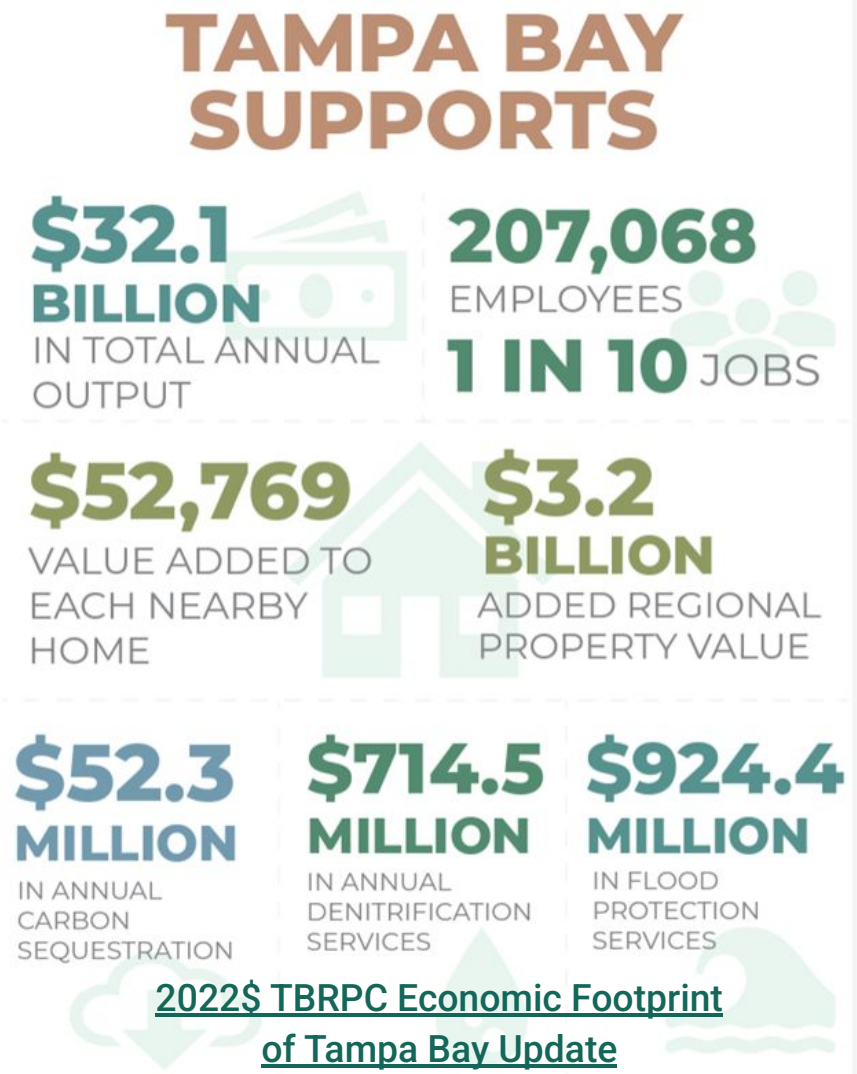


In Summary: Protect & Restore or Lose a Whole Lot More

- **Seagrasses:**
  A key indicator of Tampa Bay's estuarine health

- **Other Critical Coastal Habitats:**
  Falling behind in the face of a rapidly developing coast that is already experiencing climate change impacts

- **Why Should We Care?**
  A healthy Tampa Bay brings substantial regional economic benefits & environmental services that maintain our waters, wildlife & way of life



2026 Interlocal Agreement Update

- Amended & Restated in 2015 & 2021
- 5-Year Sundown Review
- Identifies local funding contributions based on watershed population
- Current Funding Partners:
  - US EPA (50%)
  - SWFWMD
  - Hillsborough Co.
  - Pasco Co.
  - Pinellas Co.
  - Manatee Co.
  - City of Tampa
  - City of St. Petersburg
  - City of Clearwater

TAMPA BAY NATIONAL ESTUARY PROGRAM
INTERLOCAL AGREEMENT

THIS TAMPA BAY NATIONAL ESTUARY PROGRAM INTERLOCAL AGREEMENT (the "Agreement") is executed and made effective the 27th day of February, 1998, by and between the following governmental entities: 1. CITY OF CLEARWATER, a Florida municipal corporation; 2. CITY OF ST. PETERSBURG, a Florida municipal corporation; 3. CITY OF TAMPA, a Florida municipal corporation; 4. FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION, a Florida state agency; 5. FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION'S FLORIDA MARINE RESEARCH INSTITUTE, an institute; 6. FLORIDA GAME AND FRESH WATER FISH COMMISSION, a Florida state agency; 7. HILLSBOROUGH COUNTY, a Florida political subdivision; 8. HILLSBOROUGH COUNTY ENVIRONMENTAL PROTECTION COMMISSION, a Hillsborough County agency; 9. MANATEE COUNTY, a Florida political subdivision; 10. PINELLAS COUNTY, a Florida political subdivision; 11. SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT, a Florida water management district; 12. the TAMPA PORT AUTHORITY, a Florida port authority; and 13. the TAMPA BAY REGIONAL PLANNING COUNCIL, a Florida regional planning council, (collectively the "Parties" and each singularly a "Party"), and the following recitation of facts are provided in support of this Agreement:

(A) The Tampa Bay National Estuary Program was established in 1991 to assist the Tampa Bay area in developing a comprehensive plan to restore and protect Tampa Bay. The Tampa Bay National Estuary Program is governed by a Policy Committee and advised by a Management Committee. The Tampa Bay National Estuary Program is a part of a national network of twenty-eight (28) estuary programs established under the Federal Clean Water Act and administered nationally by the United States Environmental Protection Agency.

(B) Local government and regulatory agency participants in the Tampa Bay National Estuary Program consisting of the Parties described in the Preamble above, as well as the United States Environmental Protection Agency and the United States Army Corps of Engineers, have developed and unanimously adopted a Comprehensive Conservation & Management Plan for Tampa Bay, known as *Charting the Course*, dated December, 1996, (the "CCMP"), and are committed to its successful implementation. *Charting the Course* seeks to ensure that Tampa Bay remains a vibrant part of the region's environmental and economic landscape by preserving and enhancing its roles as a recreational resource, international seaport and home for fish and wildlife.

(C) The CCMP presents goals for the improvement of Water & Sediment Quality, Bay Habitats, Fish & Wildlife, Spill Prevention and Response and Dredging and Dredged Material Management, which will be reexamined at least once every five (5) years and updated as appropriate. To achieve the CCMP goals, this Agreement emphasizes regional cooperation and regulatory flexibility that allows the Parties to select cost-effective and environmentally beneficial bay improvement options for their communities, so long as the goals of the CCMP are met.

1998: Original Interlocal Agreement

Questions?

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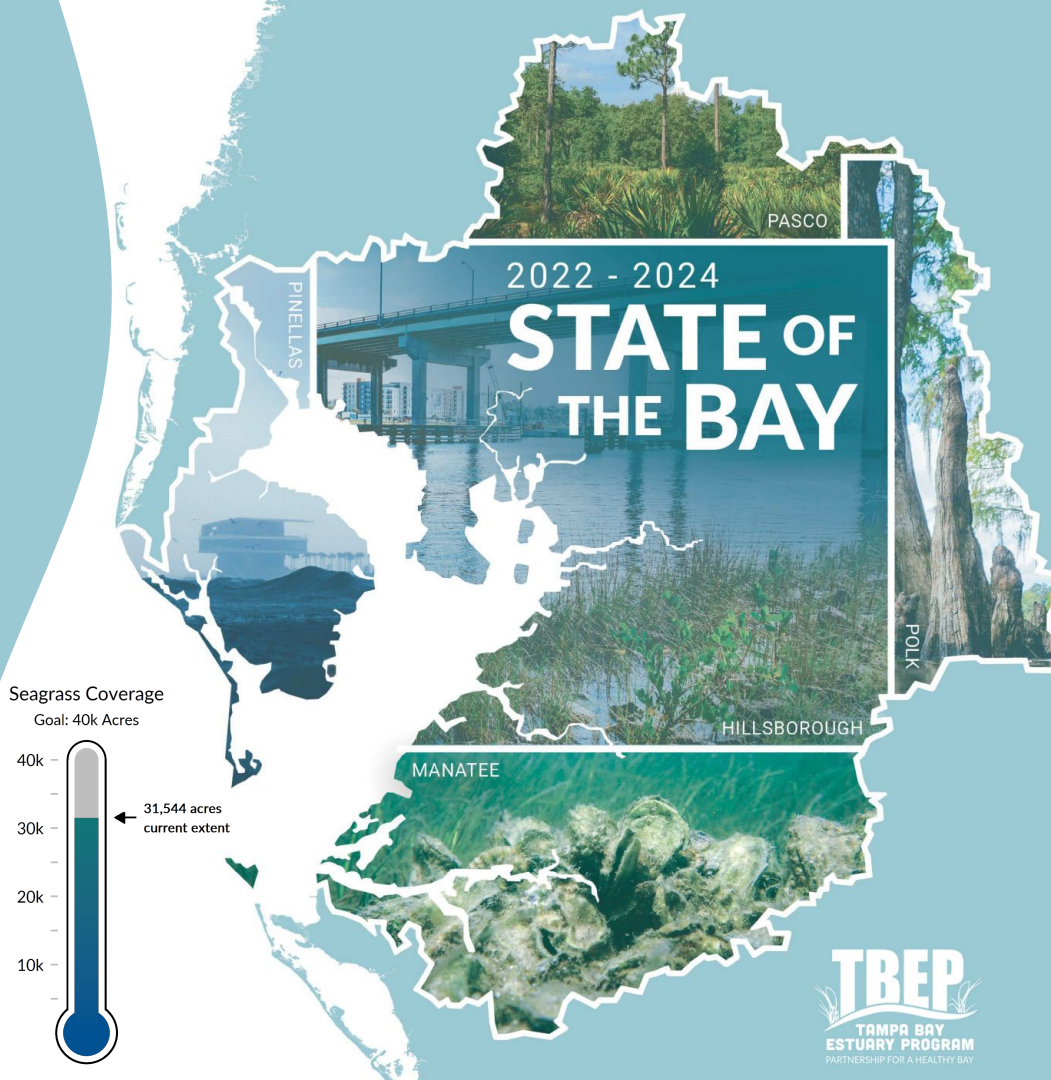


BACKUP & ADDITIONAL SLIDES

Clean Water & Sediments

2022-2024

86%

Of sanitary sewer overflows between 2022-2024 occurred in 2024

26

Local ordinances prohibiting fertilizer application in the summer to reduce nitrogen runoff

61%

Of tidal tributaries needed more data, but 63 of the 227 showed healthy nitrogen concentrations in 2024

Baywide benthic species assessment remains “fair”

FAIR

STAY THE COURSE

All 7 bay segments attained chlorophyll water quality standards from 2022 to 2024

20 YEARS

During this time, 2023 was the driest year and 2024 was the wettest year

Thriving Habitats & Abundant Wildlife

2022-2024

11,370

Acres of new restoration opportunities identified by the NOAA Coastal Change Analysis Program

192

Projects and 166.3 acres of habitat restored

8,500

Acres of seagrass needed to make the bay wide target

9

Acres above our 2030 oyster habitat target

$1.7B

Yearly value of ecosystem services provided by Tampa Bay habitats

Fisheries monitoring needed to ensure future improvements

CAUTION

Informed, Engaged & Responsible Community

2022-2024

25

Give-A-Day events completed

$326K

Revenue from Tampa Bay Specialty License Plate sales

$2.2M

In total funding & $5.2M in matching funds awarded to 19 projects through TBERF

2,977

New followers across TBEP's social media channels

57

Community-based projects awarded $278k through Bay Mini-Grants

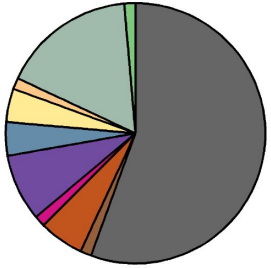
Media interviews completed by TBEP staff

105

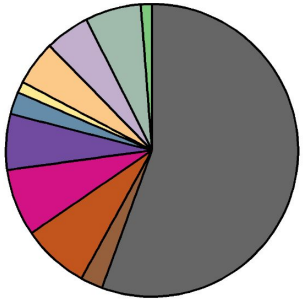
RESTORATION PROJECTS

- Artificial Reefs
- Coastal Uplands
- Forested Freshwater Wetlands
- Hard Bottom
- Intertidal Estuarine (Other)
- Living Shorelines
- Low-Salinity Salt Marsh
- Mangrove Forests
- Non-forested Freshwater Wetlands
- Oyster Bars
- Salt Barrens
- Seagrasses
- Tidal Tributaries
- Uplands (Non-coastal)

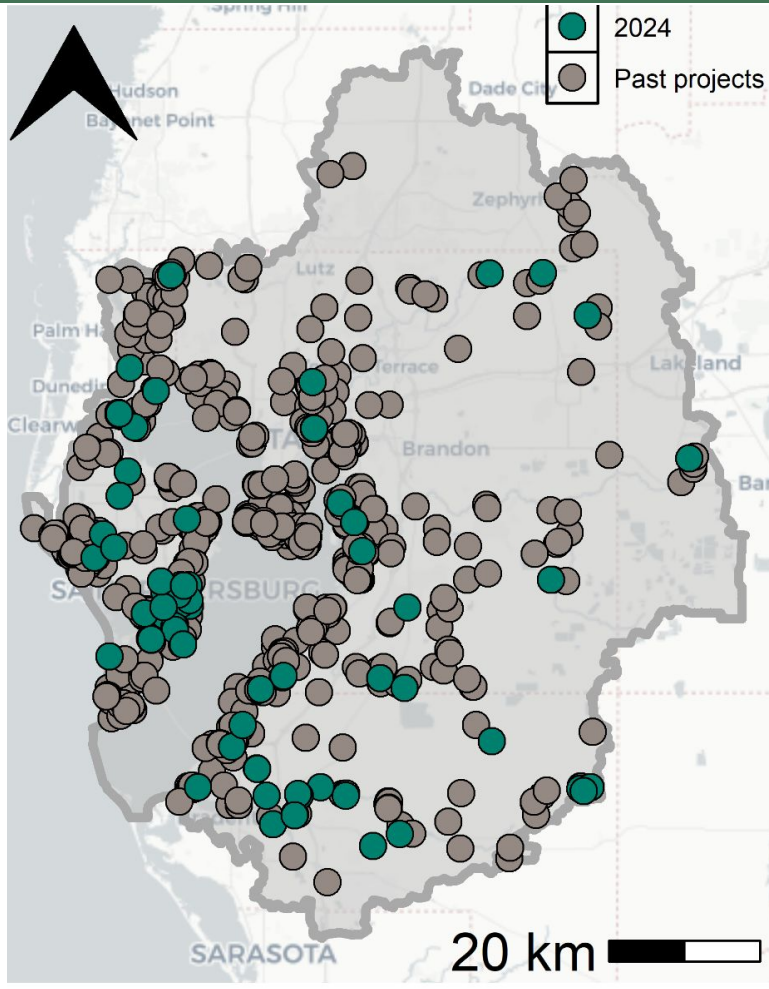
2022: 39



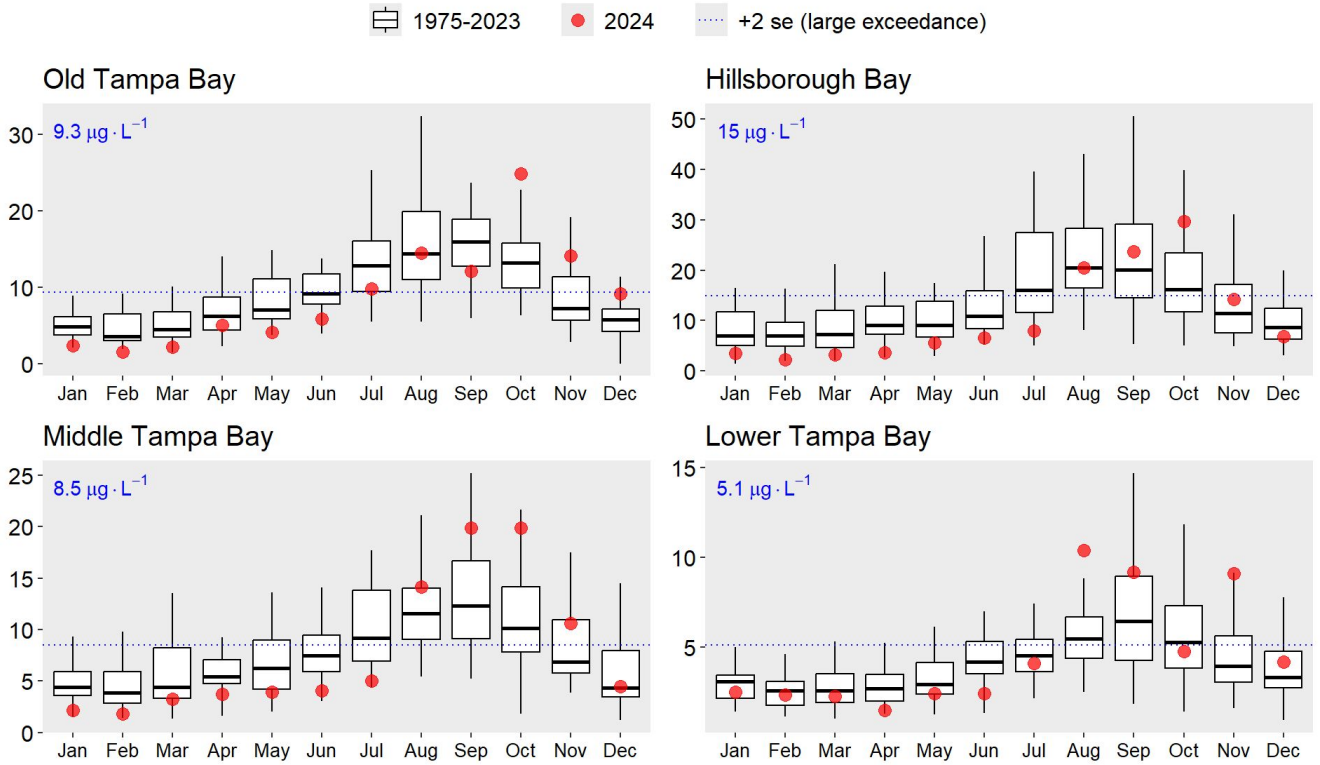
2023: 72



2024: 81



SEASONAL CHLOROPHYLL TRENDS



RIVER FLOWS

- Peak flows for major rivers totaled ~36,290 cfs
- 250x greater than estimated volumes from wastewater discharges