

# Maintaining the Recovery of Tampa Bay

Past Successes & Future Challenges with a Changing Climate

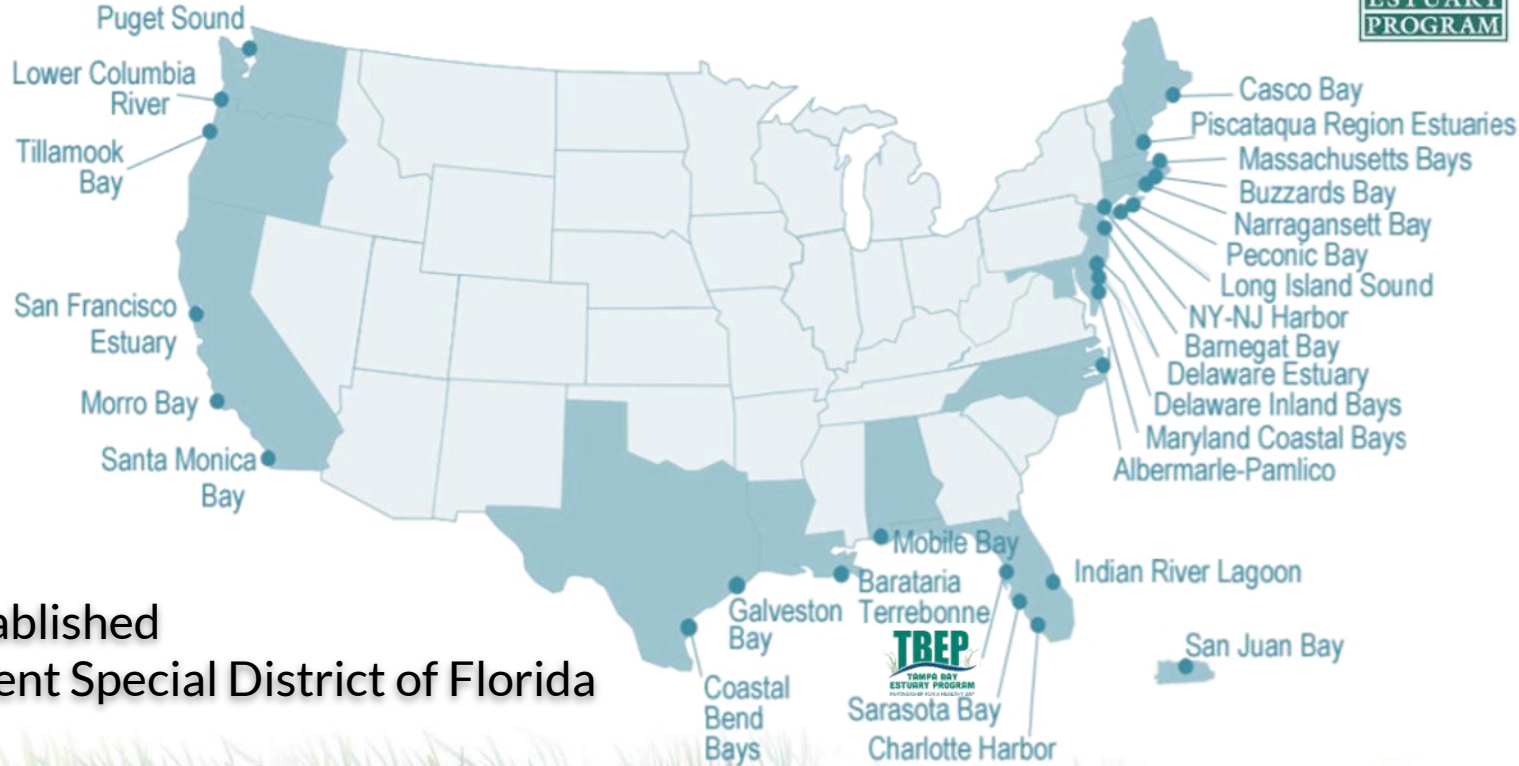
- TBEP Background
- Tampa Bay Seagrass: A Success Story
- Key Partnerships & Initial Strategies
- Primary Stressors & New Solutions
- Future Strategies & Supporting Initiatives



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# Partnership for a Healthy Bay

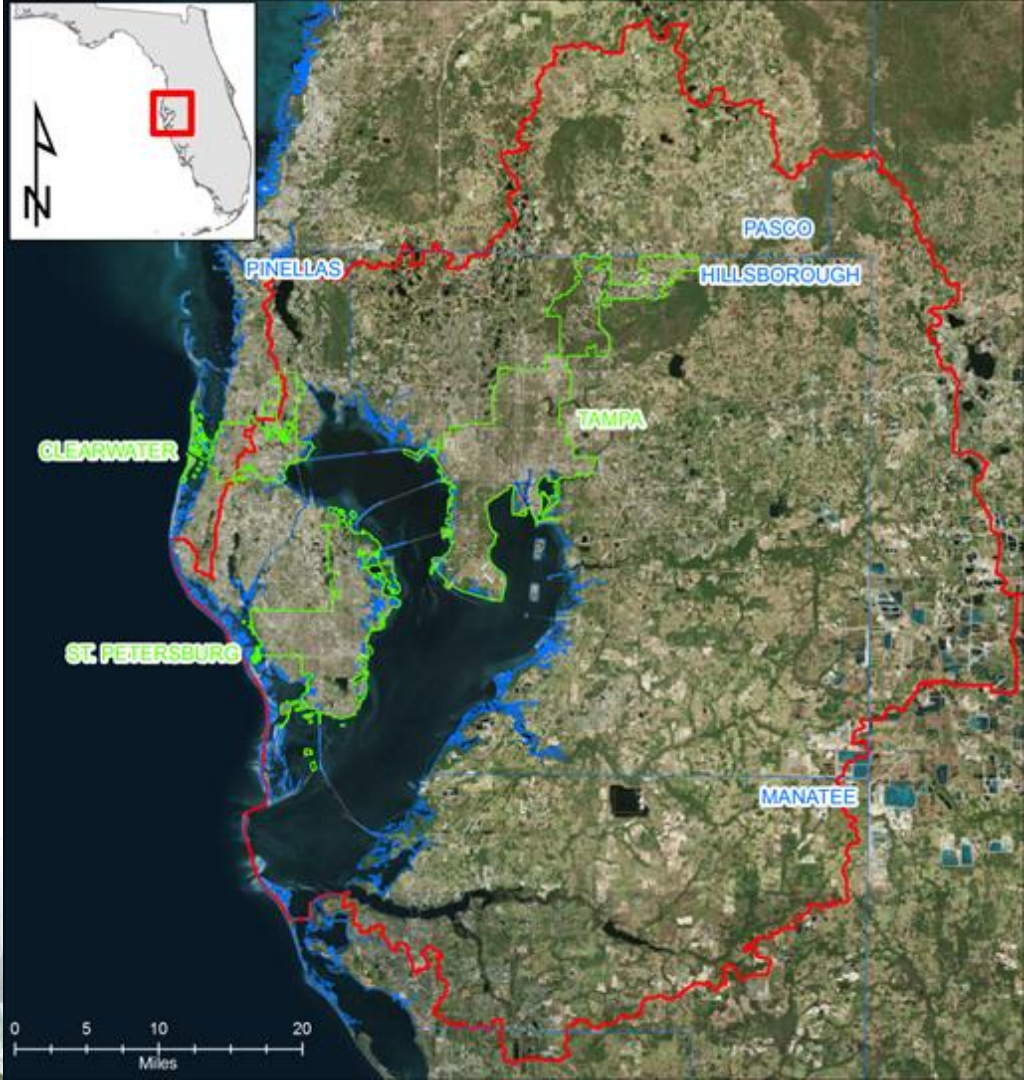


**1991:** TBEP Established

**1998:** Independent Special District of Florida







**Mission:** Develop and foster partnerships to implement [a science-based, management and restoration plan](#) for the Tampa Bay.

# 2017 Comprehensive Plan Update

## Programmatic Priorities

- Clean Water & Sediments
- Thriving Habitats & Abundant Wildlife
- Informed, Engaged & Responsible Community

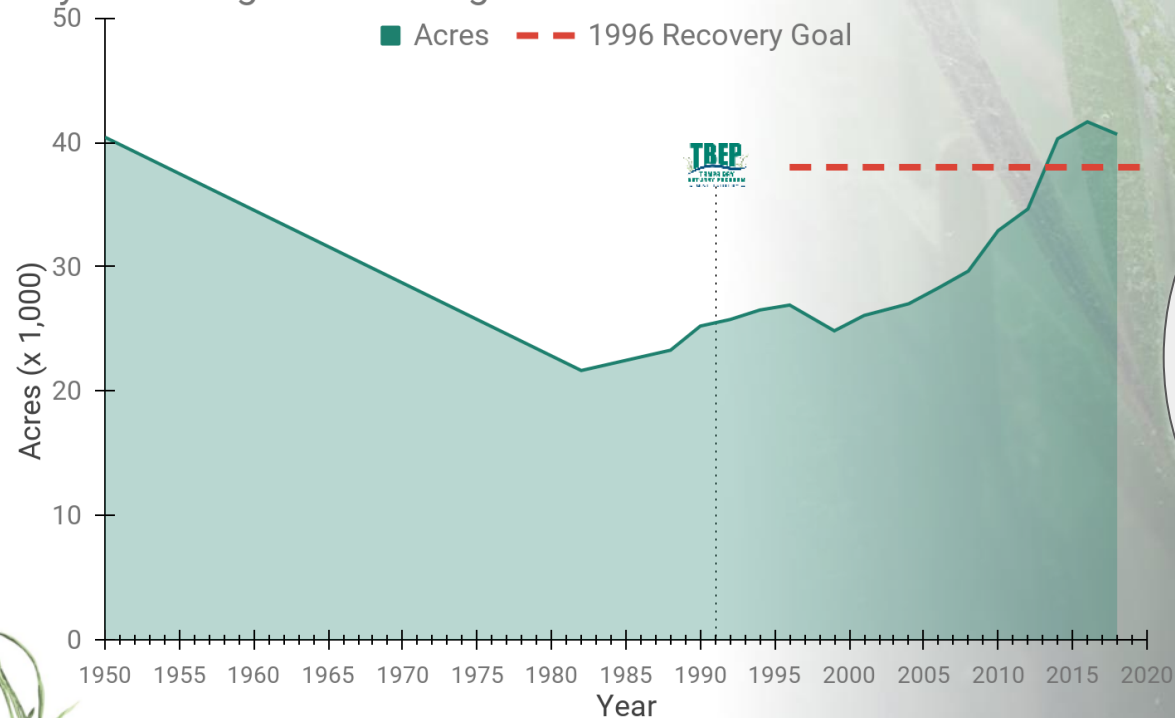
**Action Plans: 39**  
**Specific Strategies: 166**



# Primary Recovery Goal:

## Restore & Sustain Seagrass at Historic Levels

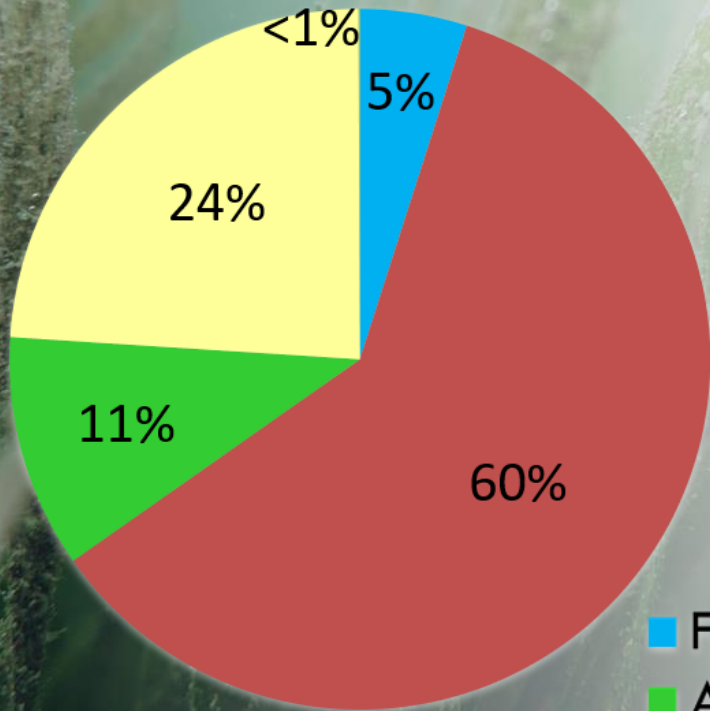
Baywide Seagrass Coverage





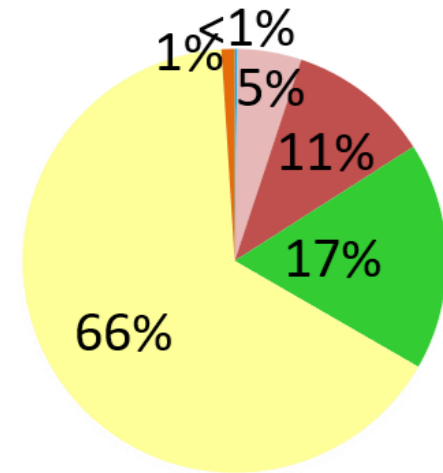
# Tampa Bay Coastal Nutrient Sources Have Been Reduced, Now Dominated by Stormwater Runoff

**1970s:** TN Load  $\sim 9 \times 10^6$  kg/yr



■ Fertilizer Losses  
■ Atmospheric Deposition  
■ GW & Springs

**2010s:** TN Load  $\sim 3.4 \times 10^6$  kg/yr



■ Point Sources  
■ Nonpoint Sources

# TAMPA BAY

NITROGEN MANAGEMENT CONSORTIUM

A PUBLIC - PRIVATE PARTNERSHIP



Coastal Stewardship Award for Stewardship (Organization)



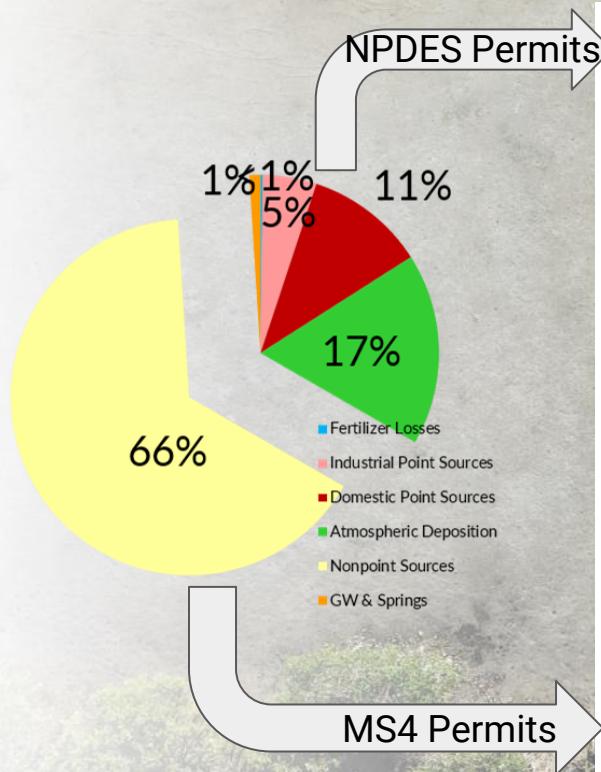
Tampa Bay Nitrogen Management Consortium of Tampa Bay NEP  
Tampa Bay Estuary Program

## Nitrogen load responsibility fully allocated & capped in watershed

Final NMC Approved Document  
September 11, 2009; Finalized addressing FDEP comments on January 22, 2010

**Table IX-2:** Proposed allowable, transferable nitrogen allocations for 2008-2012 for Hillsborough Bay. SW=Surface water discharge, RE=Reuse discharge.

Entity	Source	Proposed MS4 and Point Source Permit Limit (%)	TMDL Load (tons/year)
Hillsborough County	MS4	22.6%	235.6
	Point Source – Falkenburg SW		15.2
	Point Source – Falkenburg RE		2.8
	Point Source – South County SW		1.8
	Point Source – Valrico SW		5.6
	Point Source – Valrico RE		5.0
City of Lakeland	MS4	1.1%	10.9
	Point Source – Lakeland SW		20.0
	Point Source – Lakeland RE		0.2
City of Mulberry	MS4	0.2%	2.1
	Point Source – Mulberry SW		2.4
Pasco County	MS4	3.7%	38.4
	Point Source – Master Reuse System RE		5.8
City of Plant City	MS4	0.9%	9.2
	Point Source – Plant City SW		9.5
	Point Source – Plant City RE		1.0



### Public Partners:

- Hillsborough County
- Manatee County
- Pinellas County
- Pasco County
- Polk County
- Sarasota County
- City of Tampa
- City of St. Petersburg
- City of Clearwater
- City of Palmetto
- City of Bradenton
- City of Largo
- City of Lakeland
- City of Oldsmar
- City of Gulfport
- City of Mulberry
- City of Plant City
- City of Safety Harbor
- SWFWMD
- US EPA
- FDEP
- FDACS
- FDOH
- FDOT
- MacDill AFB
- TBRPC
- Tampa Bay Water
- Tampa Port Authority
- EPC of Hillsborough County
- AEDC of Hills. County

### Private Partners:

- Busch Entertainment
- Lowry Park Zoo
- Mosaic Co.
- CSX Transportation
- Florida Power & Light
- Tampa Electric Co.
- Kinder Morgan Bulk Term., Inc.
- Duke Energy
- Tropicana Products, Inc.
- Kerry I&F
- Trademark Nitrogen
- Yara N.A.
- Alafia Preserve, LLC
- Eagle Ridge, LLC
- LDC Donaldson Knoll Investments, LLC

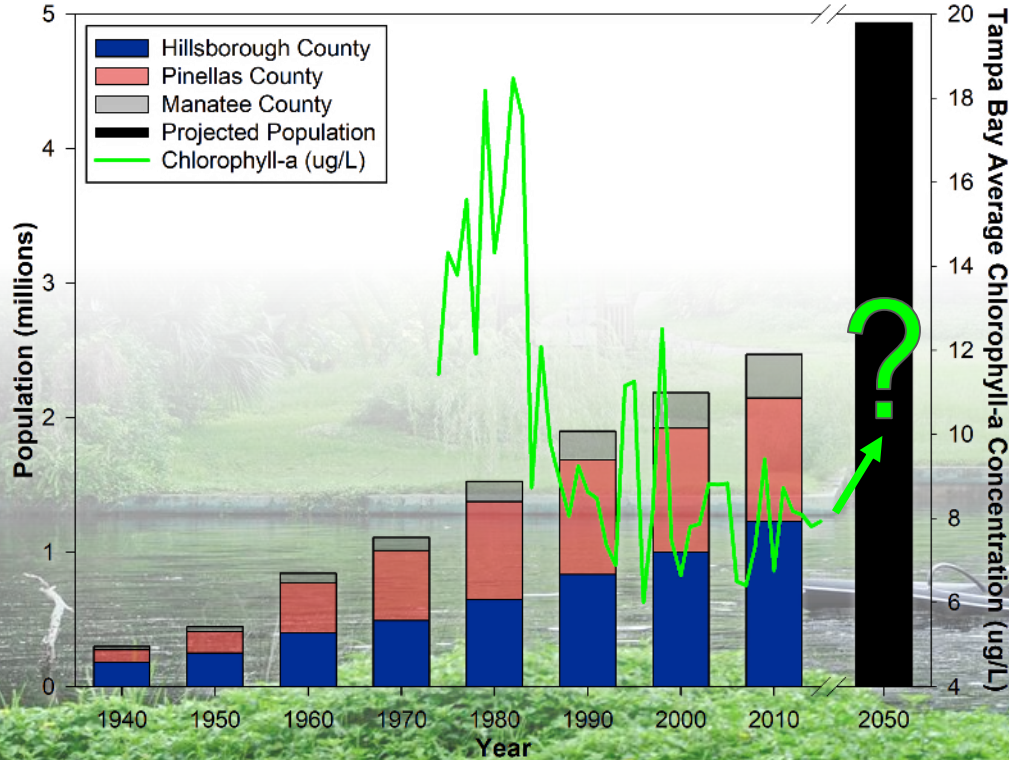
## Maintaining the Recovery into the Future

**Recognizing and Responding to Future Stressors:**  
Continuing coastal population increases; Aging infrastructure; Climate change effects.

**Collaboration, Collaboration, Collaboration:**  
Embracing Open Science; Respecting diverse perspectives; Reaching consensus.

## Calling on the Masses:

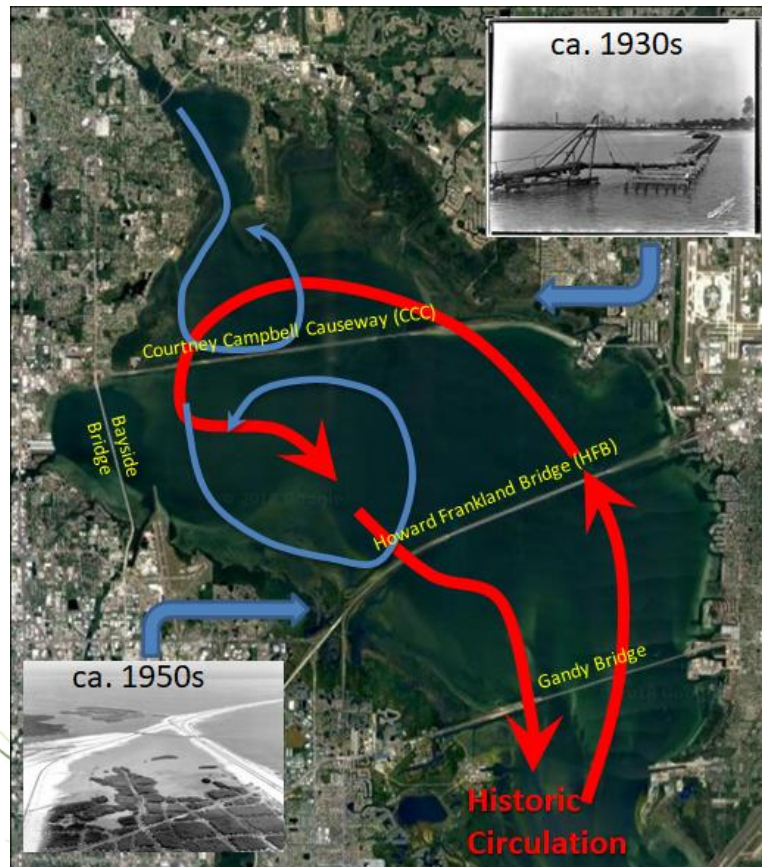
Effectively communicating our science;  
Implementing social science research techniques  
to foster behavior change; Engaging the entire  
community.





# Old Tampa Bay:

A Priority Area that Struggles to Meet Water Quality Goals



TBEP  
Annual  
Water  
Quality  
Report  
Card for  
Tampa  
Bay

Year	Old Tampa Bay	Hillsborough Bay	Middle Tampa Bay	Lower Tampa Bay
1975	Red	Red	Red	Green
1976	Red	Red	Red	Yellow
1977	Red	Red	Red	Red
1978	Red	Red	Red	Yellow
1979	Red	Red	Red	Red
1980	Red	Red	Red	Red
1981	Red	Red	Red	Red
1982	Red	Red	Red	Red
1983	Red	Yellow	Red	Red
1984	Red	Green	Red	Yellow
1985	Red	Red	Red	Yellow
1986	Red	Yellow	Red	Green
1987	Red	Yellow	Red	Green
1988	Yellow	Green	Yellow	Green
1989	Red	Yellow	Red	Yellow
1990	Red	Green	Red	Yellow
1991	Green	Yellow	Yellow	Yellow
1992	Yellow	Green	Yellow	Yellow
1993	Yellow	Green	Yellow	Yellow
1994	Yellow	Yellow	Red	Red
1995	Red	Yellow	Red	Yellow
1996	Yellow	Green	Yellow	Green
1997	Yellow	Green	Red	Yellow
1998	Red	Red	Red	Red
1999	Yellow	Green	Yellow	Yellow
2000	Green	Green	Yellow	Yellow
2001	Yellow	Green	Yellow	Yellow
2002	Yellow	Green	Green	Green
2003	Red	Yellow	Green	Yellow
2004	Red	Green	Green	Yellow
2005	Green	Green	Yellow	Yellow
2006	Green	Green	Green	Green
2007	Green	Green	Green	Green
2008	Yellow	Green	Green	Yellow
2009	Yellow	Yellow	Green	Green
2010	Green	Green	Green	Green
2011	Red	Green	Yellow	Green
2012	Green	Green	Green	Green
2013	Green	Green	Green	Green
2014	Green	Green	Green	Green
2015	Yellow	Green	Yellow	Green
2016	Yellow	Green	Green	Green
2017	Yellow	Green	Green	Green
2018	Yellow	Green	Green	Green
2019	Yellow	Green	Green	Green

# Old Tampa Bay: Solutions, Part 1

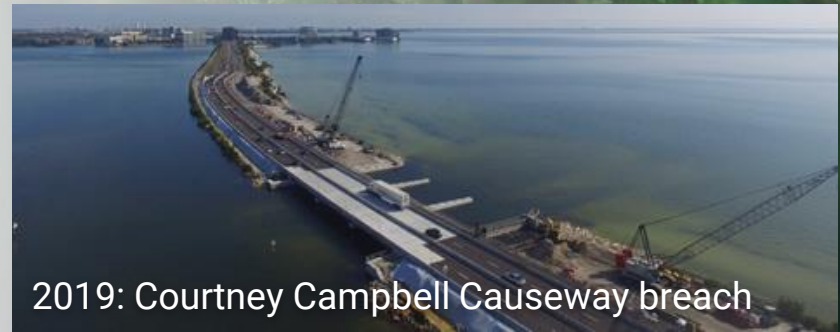
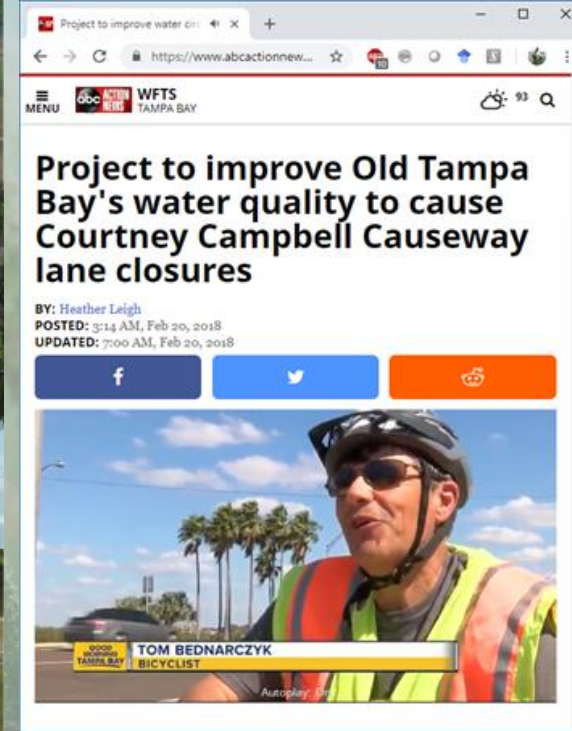
## Improve hydrology:

- Reducing 'flashy' inputs
- Tidal creek restoration
- Salinity barrier removals

## Improve tidal circulation:

- Causeway alterations and breaches
- Focused on Courtney Campbell & Howard Frankland causeways

Tidal creek salinity  
barriers



2019: Courtney Campbell Causeway breach



# Old Tampa Bay:

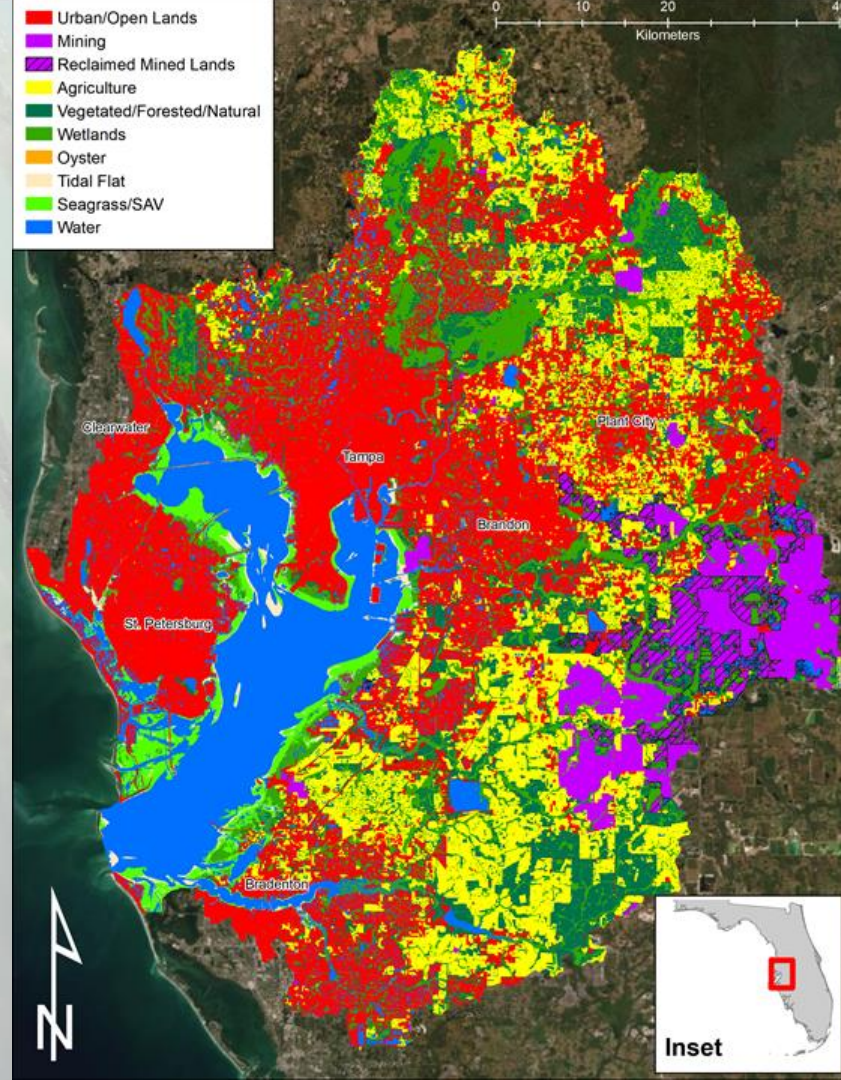
## Solutions, Part 2

### Addressing Nutrients from a Different Perspective:

- 2008-2020: A Renewed Call for Community Stewardship
- Urban stormwater inputs (i.e. residential fertilizer and atmospheric sources)
- Aging infrastructure & sanitary sewer overflows (e.g. private lateral maintenance & repair)



**Policy Drivers, Social Marketing & Education**

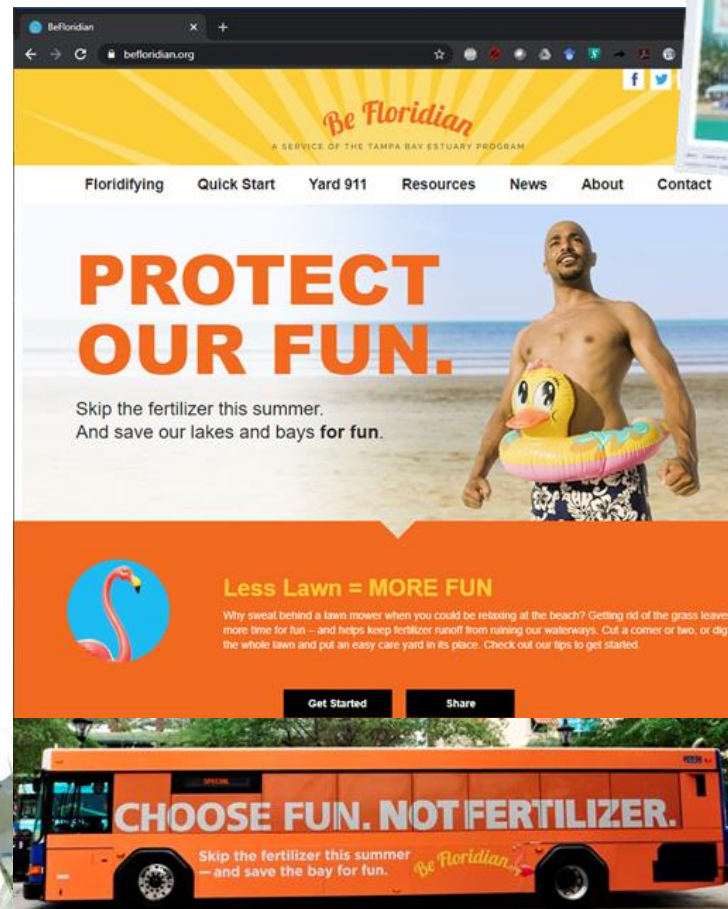
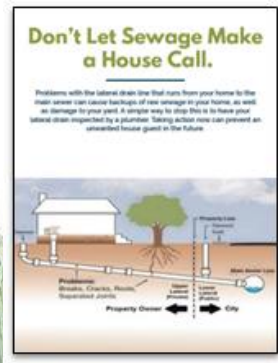






# Social Marketing for Change

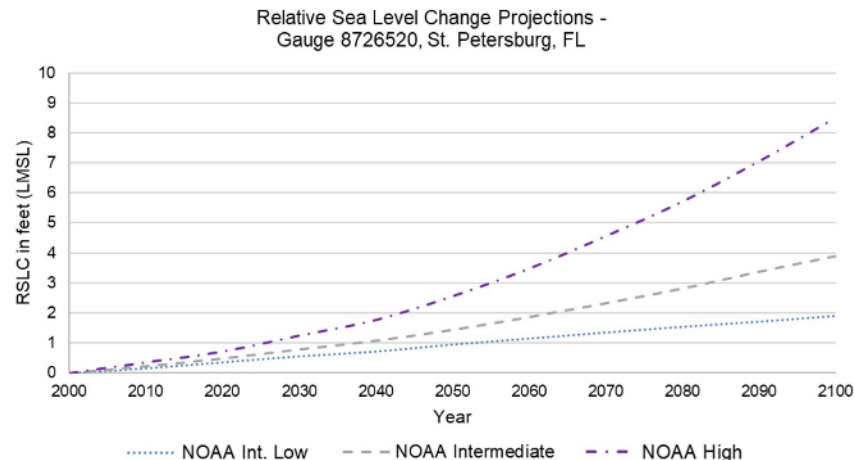
- Focus Groups Guide Campaign
  - Know Your Audience, Focus Messaging Accordingly
- Fun is Better than Fear!
- Engage People Where They Are
  - Traditional mediums + new technologies
  - Retail stores/Garden centers
- Adapting to OTHER Campaigns:



# Building Resilience by Maintaining Focus:

## Ancillary Benefits of Investing in Estuary Restoration

- Tampa Bay expected to see ~1-3' of sea level rise over the next 30 years (by 2050)
- Hydrologic regimes may be shifting and coastal water quality and habitats are responding to ↑ stormwater loads
- Bay water temperatures are increasing, confounding algal bloom management

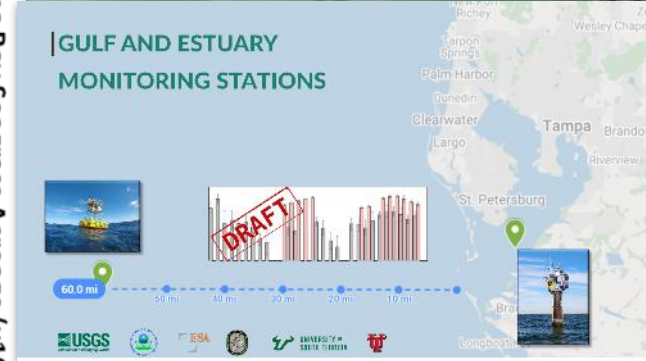
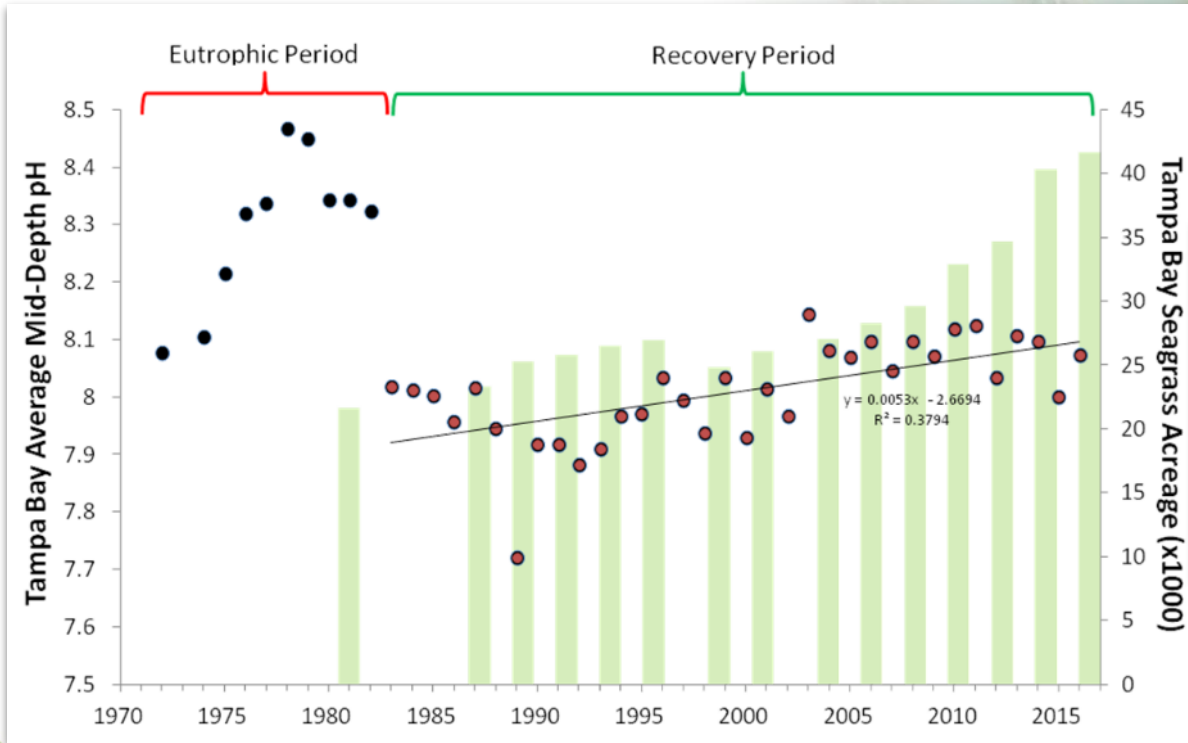


## Fix Coastal Nutrients, Scars of Prior Habitat Impacts = Ecosystem Recovery & Resilience Possible



# Ancillary Benefits of a Recovering Estuary:

Will Tampa Bay's seagrass recovery buffer impacts of future coastal acidification?





# Ancillary Benefits of a Recovering Estuary:

A Healthy Bay = Jobs



Tampa Bay Times

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## Meet Tampa Bay's newest oyster: the LoCo, from Lost Coast Oyster Co.

It's the first aquaculture oyster farming operation of its kind in the Tampa Bay area.



Lost Coast Oyster Company owner Brian Rosegger shows a cleaned oyster, called a LoCo, at his oyster farm in the Tampa Bay Aquatic Preserve on Saturday, August 29, 2020. [NY OEBALLO / Times]

COVER STORY

TAMPA BAY BUSINESS JOURNAL

## CLEAN WATER MEANS MORE THAN YOU THINK

Despite massive growth, water quality in Tampa Bay has improved dramatically in 20 years



Dorian Photography Inc.



## HEALTHY BAY

1 out of every 5 jobs in the TBEP Watershed depend on a healthy bay.

**\$22B**

within all six counties

**13%**

of economy for all six counties

# Continuing to Follow the Recipe

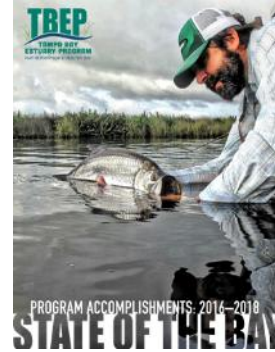
## Key Ingredients to Approach & Realized Success

- **TENACIOUS Partners**
- **Long-term monitoring**
- **Target resources identified by both public and scientists as “worthwhile” indicators (e.g. clear water, seagrass, critical coastal habitats, snook, ...)**
- **Science-based, realistic numeric goals & targets**
- **Multiple tools: Regulations, Public/private collaborative actions, Citizen actions**
- **Ensure an “honest broker” is there to track, facilitate, re-assess progress**
- **Ongoing assessment & adjustment (Adaptive Management!)**
- **Linking to broader Socio-Economic Benefits**



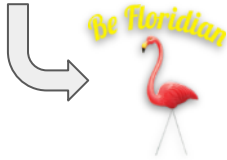


#**LOVE**  
Tampa Bay



[stateofthebay.tbep.org](http://stateofthebay.tbep.org)

# Thank you, any questions?



[Be Floridian Partner Video Series](#)

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