

BARBARA ALBRECHT

PANHANDLE WATERSHED ALLIANCE

**HERE COMES
THE RAIN AGAIN**

**WATER QUALITY
CONDITIONS IN
THE BRUCE
BEACH AREA**

BREAM FISHERMEN ASSOCIATION



GOOD WATER QUALITY IS THE BASIS OF HEALTH AND WELL BEING

Northwest Florida is in the Coastal Plain & hosts these characteristics:

- Highly erodible sandy soils
- Annual rainfall ~ 65"
- Groundwater is close to the surface
- Stormwater issues are difficult + aged infrastructure
- Incompatible recreational activities
- Many migrants and year-round visitors pass through the area



**BRUCE BEACH IS A NEGLECTED GEM
WHICH IS RETURNING TO A HEALTHY MARITIME FOREST**



BRUCE BEACH HAS BEEN IDENTIFIED AS ONE OF SEVERAL CATALYTIC PROJECTS – ‘THE JEWEL OF THE COMMUNITY’



WHO USES BRUCE BEACH?

**AN ENTIRE COMMUNITY CONNECTED TO NATURE, INCLUDING:
AUDUBON, NATIVE PLANT SOCIETY, PADDLERS, ARTISTS,
VARIOUS SCHOOLS, THE COMMUNITY, VISITORS, ETC.**

BRUCE BEACH PROVIDES A LANDSCAPE LEVEL LABORATORY FOR HANDS-ON TRAINING AND THE TRANSFER OF KNOWLEDGE

- Bruce Beach lends itself to exploration and further investigation in that the site has three distinctive water types (a man-made mitigation wetland, an underground creek which becomes daylighted within 300 meters of the bay, and the bayfront) and at least five upland habitat types. This waterfront park highlights the beauty and resulting conditions of sea-level rise and climate change on coastal systems and provides an opportunity to observe resiliency.



BRUCE BEACH WEEKLY MONITORING

1. Washerwoman Creek
2. Sandy Shoreline
3. Mitigated Wetland

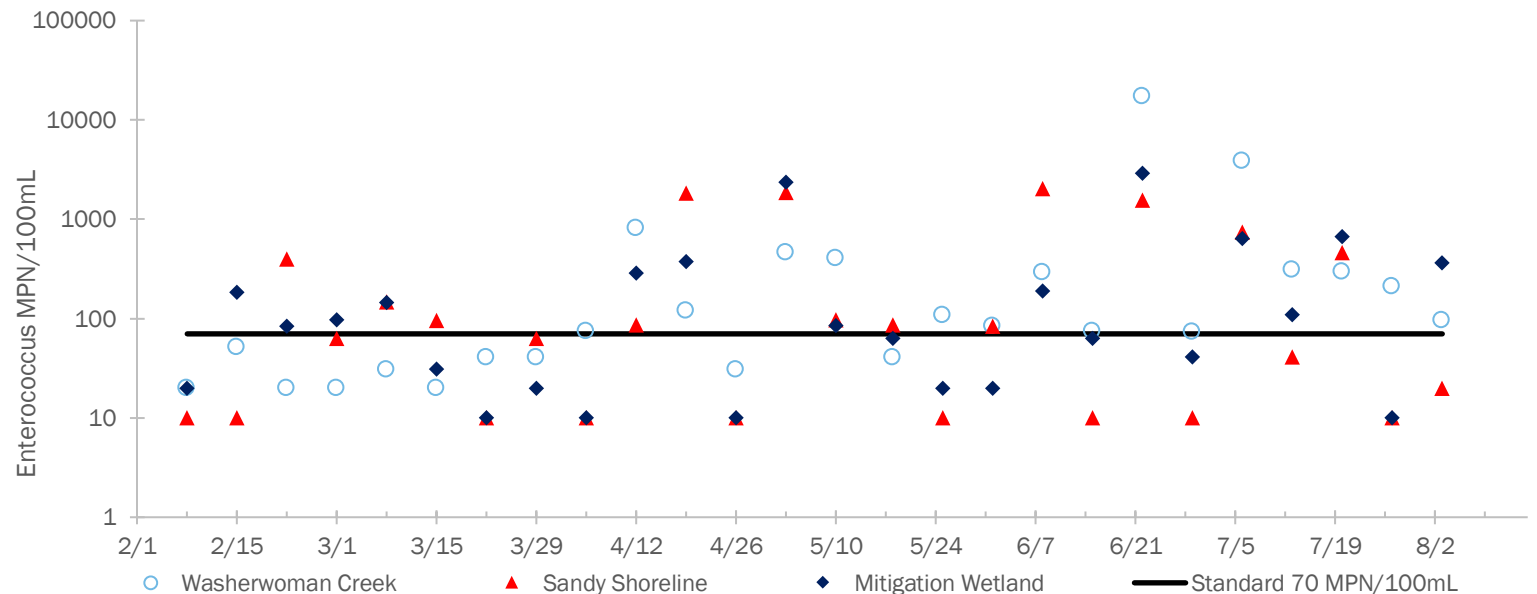
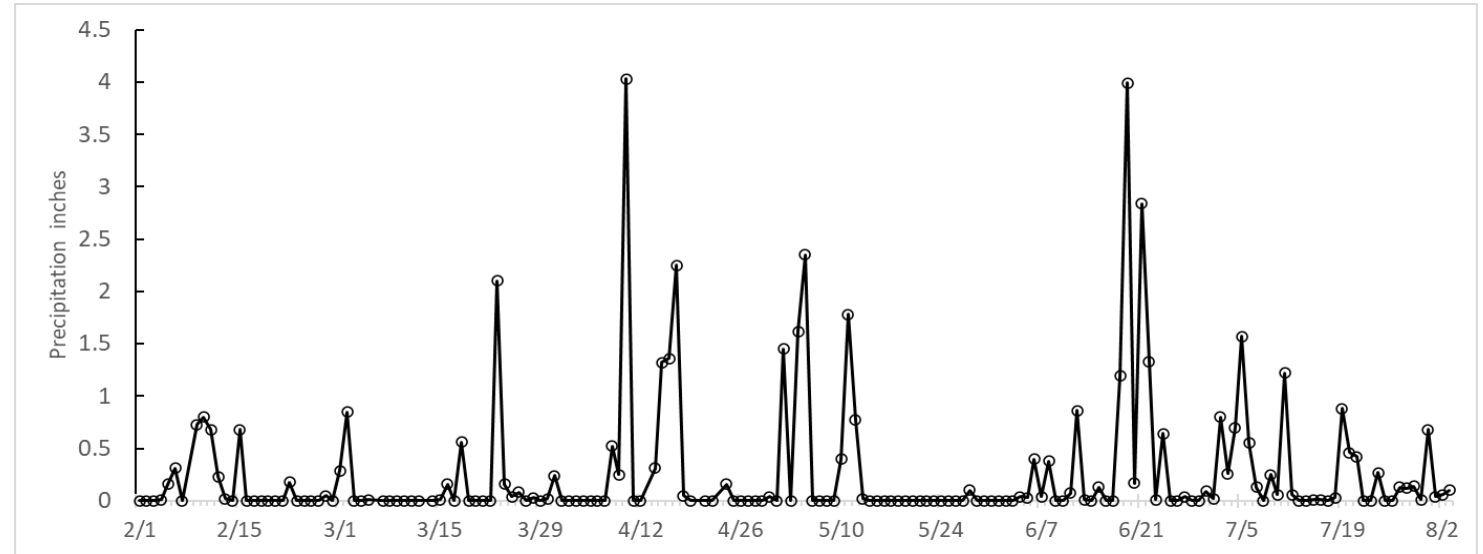
- Collect: Hydrographic Data
- DO, pH, Conductivity, Salinity
- Total Suspended Solids
- *Chlorophyll a*
- Dissolved inorganic nutrients
- Total Bacteria
- Enterococcus



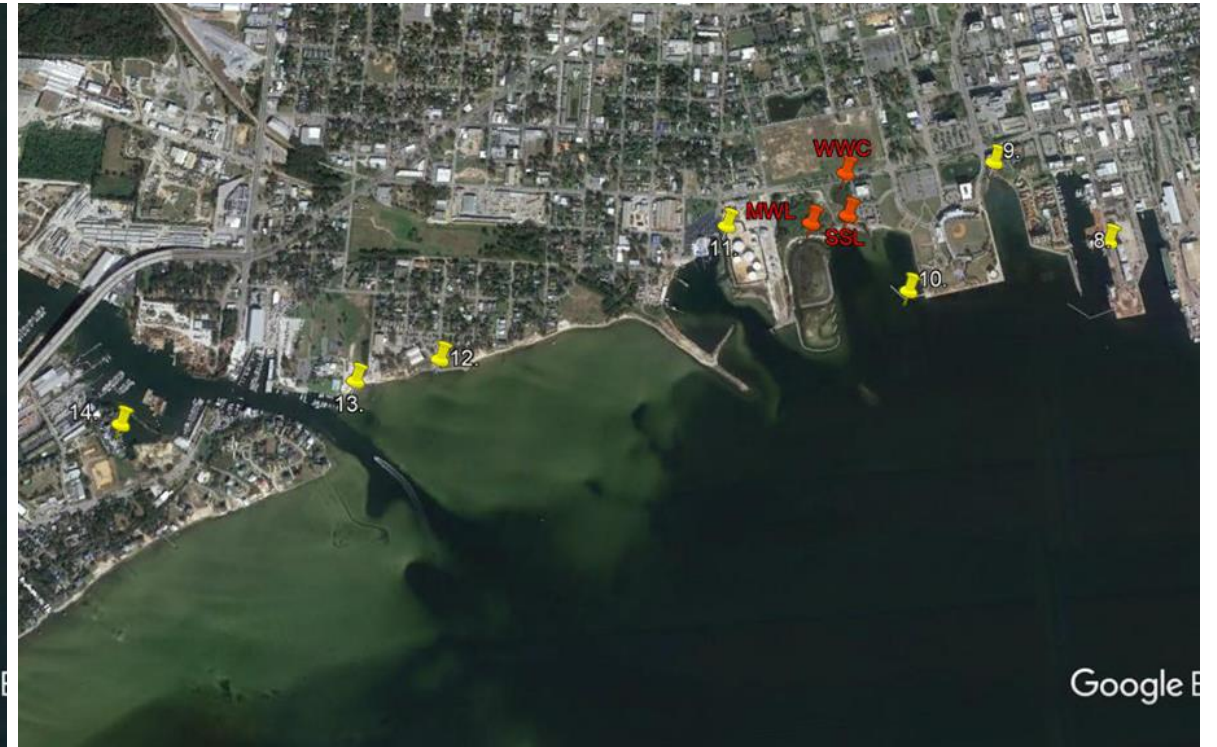
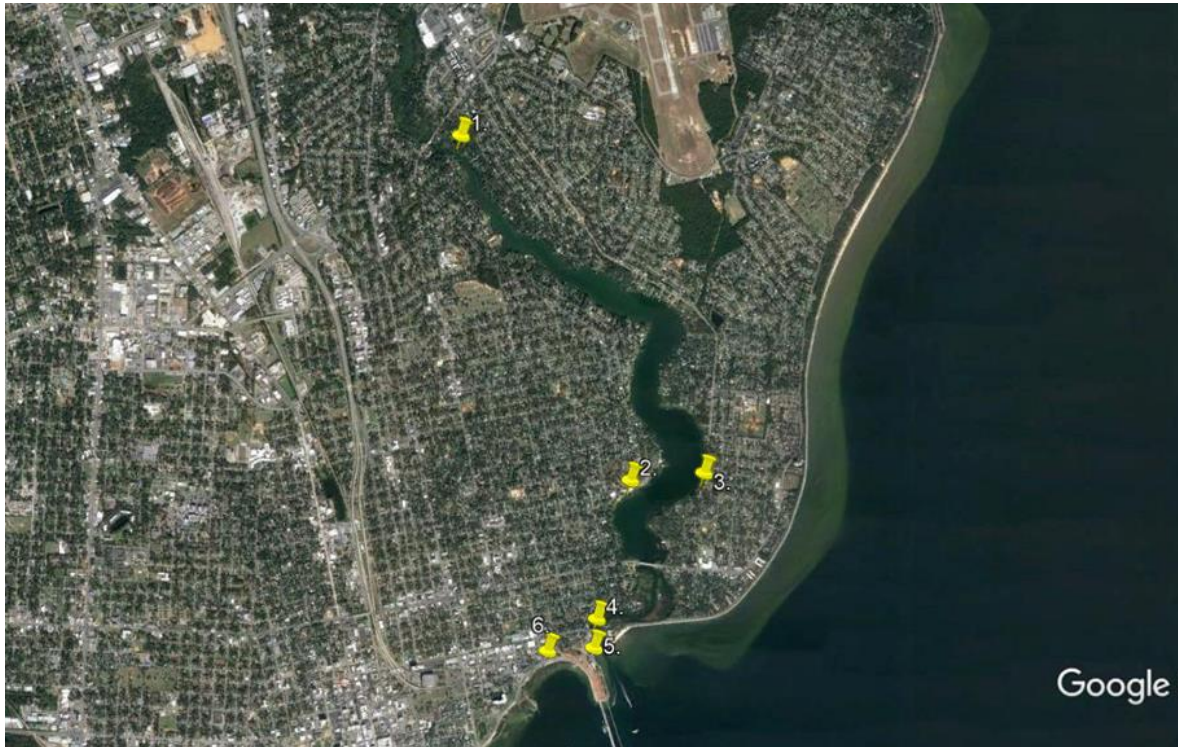
RAINFALL EVENTS OVER SIX MONTHS COMPARED TO ENTEROCOCCUS LEVELS

- Water Quality is impaired at Bruce Beach
- Water Borne Pathogens are above DOH thresholds more than 50% of the monitoring period
- Exposure may result in rashes, ear/nose/throat infections, diarrhea, antibiotic resistant infections, etc.

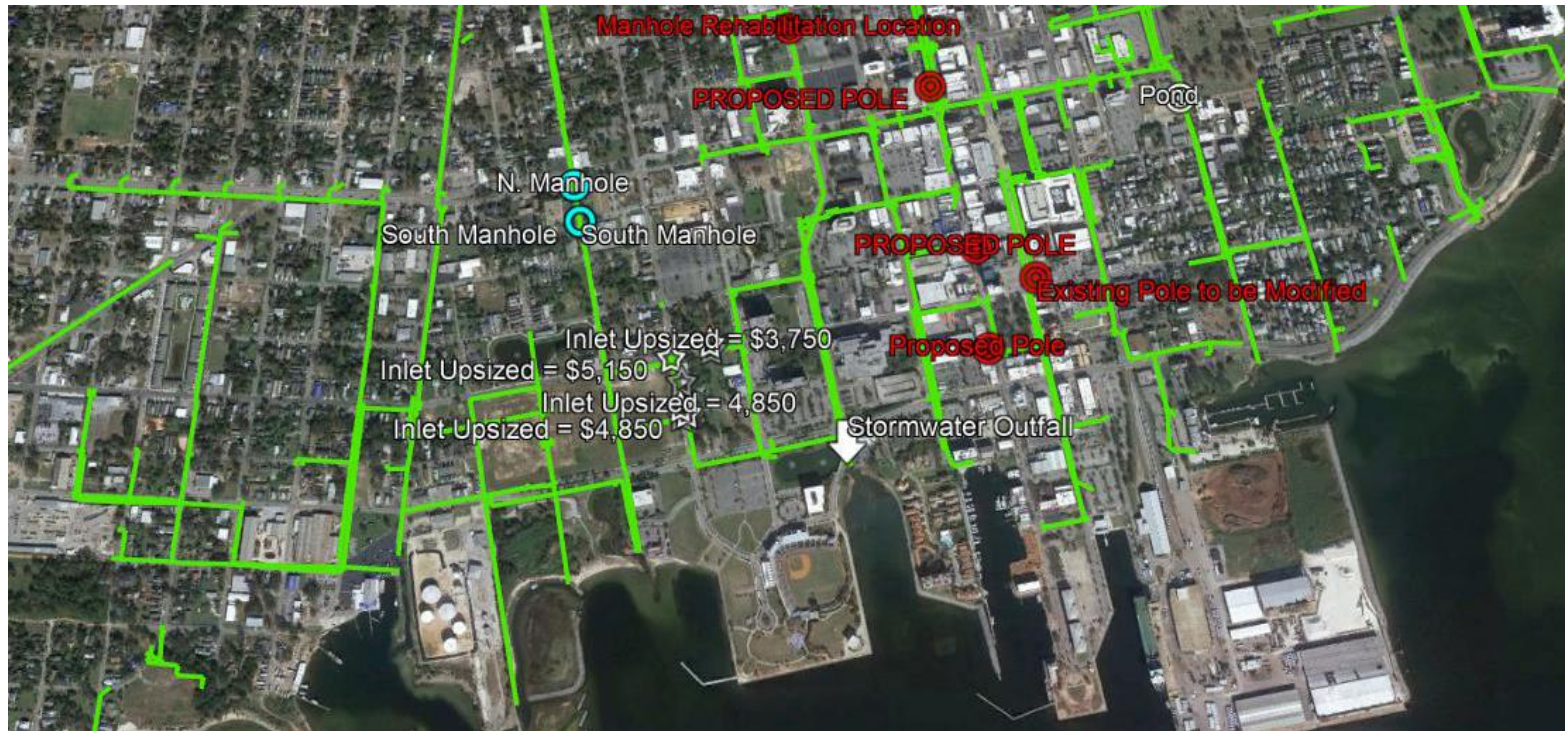
When the public is informed; the public can make informed decisions.







**WHAT'S THE SOURCE OF THESE PATHOGENS?
IS IT LOCALIZED OR UBIQUITOUS?**

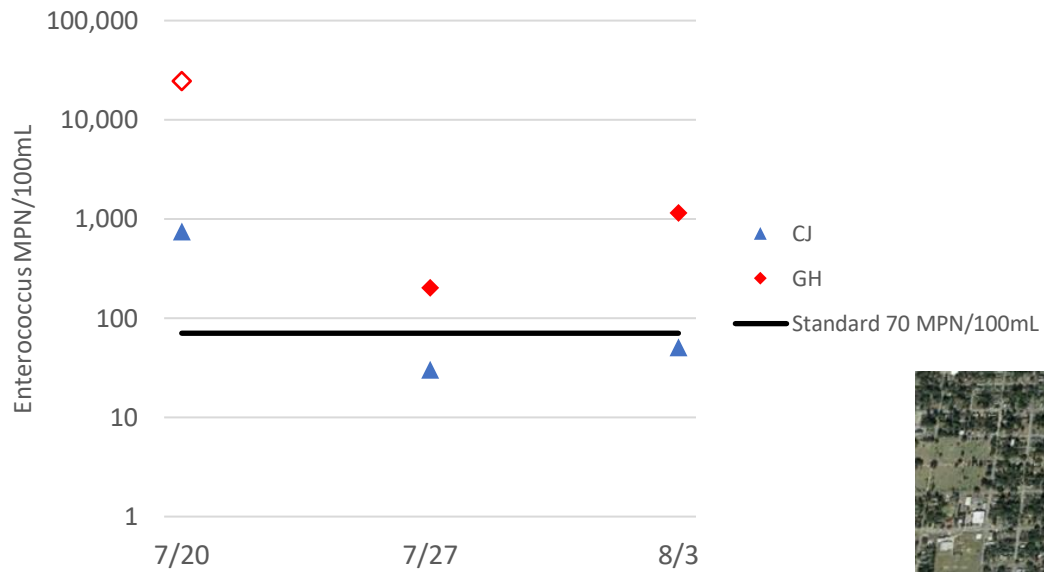


WHAT'S THE SOURCE OF THESE PATHOGENS?

**STORMWATER?
SEWAGE? SEPTIC?
AGED INFRASTRUCTURE?**



WE BEGAN LOOKING INLAND FOR POTENTIAL SOURCES...



NATURAL RESOURCES HAVE LURED PEOPLE TO PENSACOLA BAY FOR HUNDREDS OF YEARS

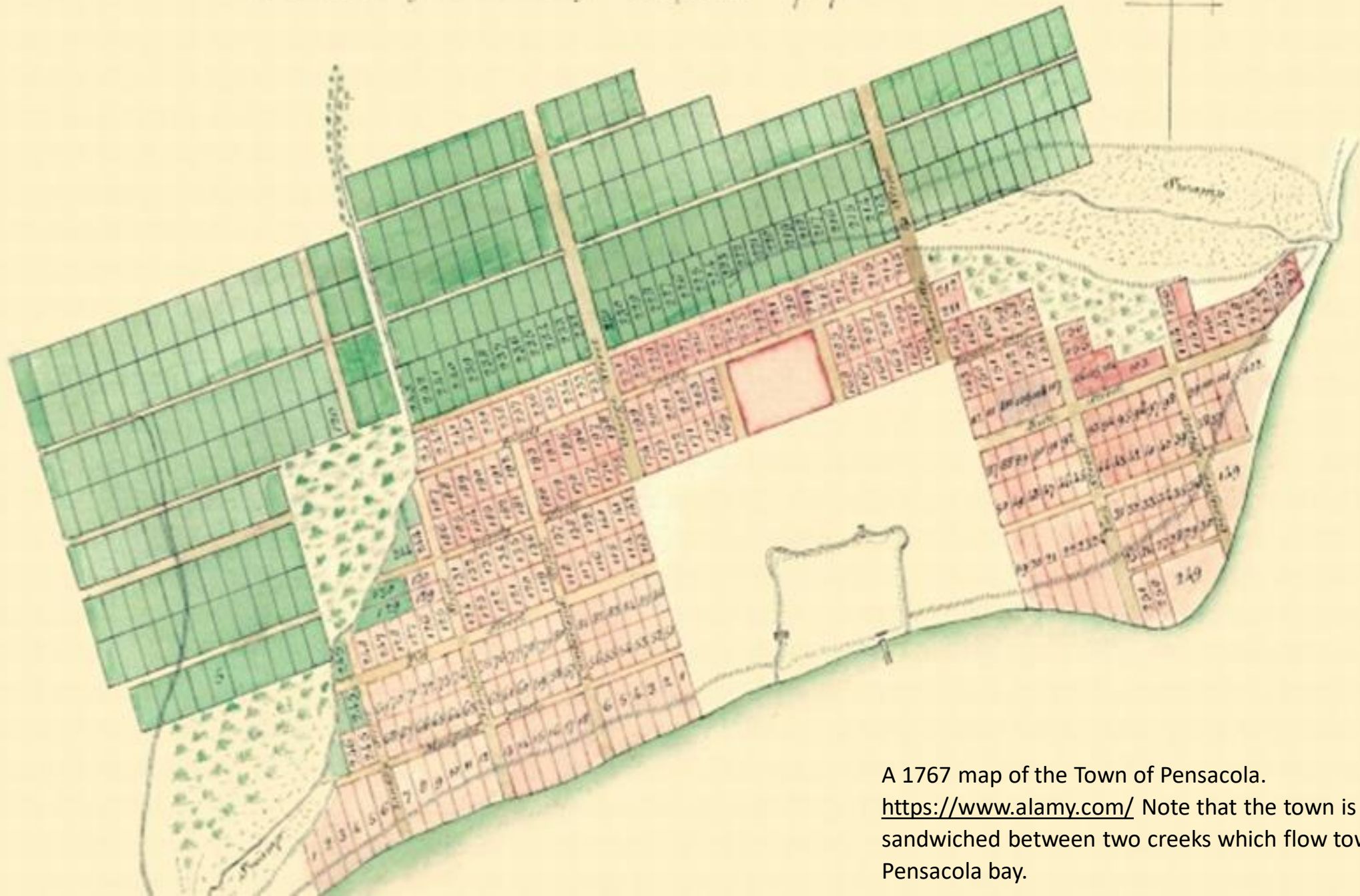
1559 - 1561	Tristan DeLuna and 1,500 colonists entered Pensacola Bay & planned to establish the first permanent European colony in North America. Santa Maria de Ochuse DeLuna . After hurricanes destroyed the camp and most of the ships, the plan was abandoned in 1561
1698-1719	The French and Spanish intended to take control of the only deep-water port in the northern Gulf of Mexico. The Spanish won, and built San Carlos de Austria , and with the help of 400 mestizos (from central Mexico).
1756-1763	Florida was awarded to the British at the close of the Seven Years War. After several settlements, the colonists moved to San Miguel de Panzacola (near today's downtown Pensacola).
1781	Florida was once again under the Spanish flag
1821	Spanish Government officials exchanged flags with Andrew Jackson, ceremony officiates Florida as an American entity. Today we celebrate Escambia County as 200 yrs old.
1785 - 1848	The Paton Leslie Company (later John Forbes and Company) moved their headquarters from Bagdad to Pensacola, and commenced trading with Creek Native Americans for deerskins, which were popular in Europe. The Paton Leslie Comp. tan yards were located west of town

NATURAL RESOURCES BECAME ECONOMIC OPPORTUNITIES

- Timber, Turpentine & Naval Stores
- Bricks
- Snapper Smacks
- Oyster Fishery
- Cotton
- Tourism
- Military
- Oil & Gas



A PLAN of the Town of Pensacola 1767.



A 1767 map of the Town of Pensacola.
<https://www.alamy.com/> Note that the town is
sandwiched between two creeks which flow towards
Pensacola bay.

THE LAST CENTURY

1919	Bruce Dry Dock moved their headquarters from Bagdad to Pensacola
1942	Bruce Dry Dock is not listed in city directory
During Segregation	Site was used by the African American community. Later a swimming pool was built.
1970's - 2010	Used as a dump by Public Works
2004	Hurricane Ivan
2010	BP Oil Spill
2014	Fish Hatchery
2019	SCAPE – Pensacola Waterfront Framework Plan



1920 aerial of Bruce Beach and downtown
Pensacola Waterfront.

(Photo from UWF Archives to the Pulse).



By 1953, Bruce Beach had already been transformed from the drydocks and bustling ship building region to open access lands near the waterfront.

(Photo from UWF Archives to the Pulse).



SEVENTY YEARS LATER...
NATURAL RESOURCES CONTINUE TO LURE PEOPLE TO THE COAST

HOW DO WE FACTOR IN CLIMATE CHANGE & SEA LEVEL RISE?

- Record Flood Events
- Raging Storms
- Deadly Heat
- Fires
- Loss of tree canopies and native vegetation (root network)
- More impermeable surfaces (hardening) = more stormwater runoff.
- More & warmer runoff = more diseases and loss of sensitive species.
- The current trajectory is not good...

DESIGN UPDATE



ARRIVAL/HISTORY PLAZA

LEARNING GARDEN

BLUFF OVERLOOK

BEACHFRONT

STORMWATER

THEN & NOW

Stormwater ponds were originally intended to manage localized flooding; however, over the past decade, they have been increasingly expected to (or in some states required to) address water-quality concerns for receiving waters, including the removal of pollutants (nutrients, bacteria, inorganic, and organic contaminants, and sediment). In addition, stormwater ponds are often used for recreation (e.g., boating or fishing), to enhance aesthetics or to increase residential property value, and to provide wildlife habitat even where their intent was strictly for stormwater management (Hirschman et al. 2009, Schuler 2009). They also provide a source of fill material for site construction in low-lying coastal areas that would otherwise raise development costs.

BREAM FISHERMEN
ASSOCIATION
HAVE BEEN
ENVIRONMENTAL
STEWARDS IN THE
PANHANDLE FOR OVER
50 YEARS.

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- The BFA has collected water quality samples from 48 set stations quarterly resulting in a rich database that is part of the foundation of the new Pensacola and Perdido Bay Estuary Program (PPBEP).
 - This data allows researchers to look at land use changes over time and correlate that information with water quality.
 - BFA has a partnership with UWF whereby we teach students how to properly sample surface waters.
 - BFA developed a Citizen-Science Project using oysters in cages over 18 months to monitor survival, growth and recruitment.

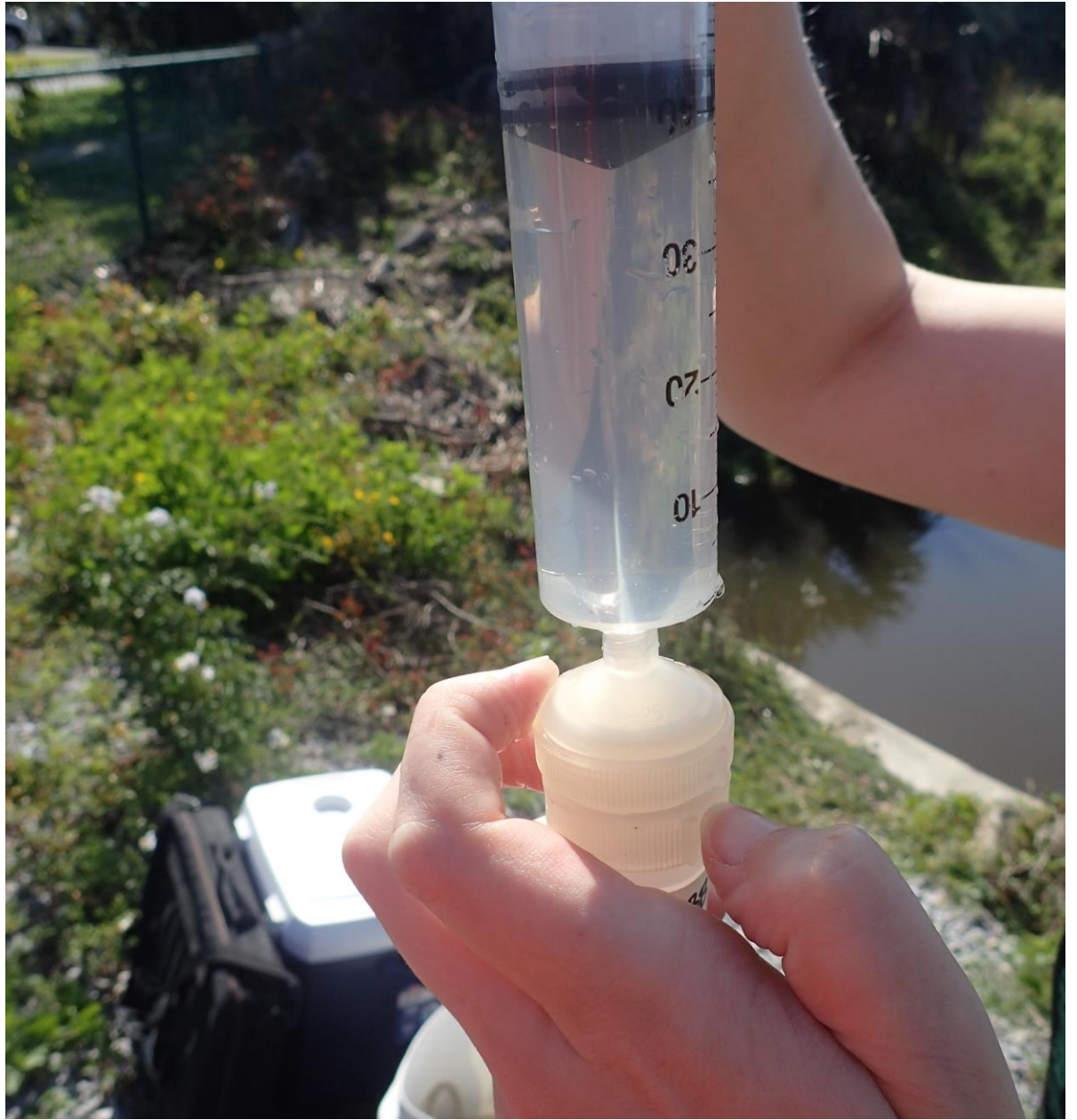
BFA HAS A PROVEN TRACK RECORD & BACTERIAL SOURCE TRACKING IS WELL WITHIN OUR MISSION

- **Bruce Beach Stormwater Source Tracking**
- What is the Scope?
- Popping stormwater lids (12 locations) to track “hot” spots + 3 existing Bruce Beach locations.
- This project will support 1-2 part-time students.
- Cost: \$46,055
- **Weekly Monitoring** of publicly accessible areas (**Paddling Trails**) where the public might encounter human pathogens
- What is the Scope?
- Sample for 13 weeks at 14 locations where the public might encounter human pathogens.
- This project will support 1-2 part-time students.
- Cost: \$42,450

Both projects will serve to provide *relevant opportunities* to undergraduate and graduate students while also providing important information to multiple interests including the citizens of the area, the FDOH, FDEP, WMD, FWC, Escambia County & the City of Pensacola.

















20 March 4/16/21 TSS (G + Srg)				March 2021
Location	Date	Time	W/L	W/L
BB WNC	04/16/21	0:03:35	211	100%
BB SW	04/16/21	0:05:45	150	100%
		0:09:18	150	100%
		0:10:00	212	100%
BB MWL	04/16/21	0:08:30	212	100%
		0:08:30	212	100%
4 April 2021 TSS (G + Srg)				April 2021
Location	Date	Time	W/L	W/L
BB WNC	04/16/21	-	-	-
BB SW	04/16/21	-	-	-
BB MWL	04/16/21	-	-	-
BB WNC	02/15/21	0:00:00	200m	
BB SW	02/15/21	0:00:00	200m	
BB MWL	02/15/21	0:00:00	200m	
BB WNC	03/11/21	0:03:00	200m	
BB SW	03/11/21	0:03:00	200m	
BB MWL	03/11/21	0:03:00	200m	



Thank you for your time and interest.

Questions?

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