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League of Women Voters
Natural Resource Management Meeting on the
State of our Local Waters and the
new Pensacola and Perdido Bay Estuary Program
August 2022



Water Quality, then, now, and hope for the future

Understanding our Past,
lets us become better Stewards in the Future

Natural Resources allowed People to settle in Northwest FL

- Native Americans have lived in the region for thousands of years
- Sixteenth century Conquistador and explorer Tristán de Luna y Arellano was sent to establish a settlement on the Gulf Coast
 - Eloquent descriptions of Ochuse Bay were described as early as 1558.
 - The First permanent European colony in North America would be designated as Santa Maria de Ochuse DeLuna, however, hurricanes destroyed the camp and most of the ships, so the plan was abandoned in 1561.
- Fast forward to eighteenth century, region became an economic hot spot
 - Mainly due to the naturally occurring deep water entrance (Pensacola Pass) – provided safe harbor for sailing ships. Timber, Naval stores (rosin, turpentine, etc.), Seafood especially snapper, oysters, crabs and shrimp, Gravel from creeks (look at old roads, sidewalks, even the wall at Ft Pickens, etc.) Bricks once uniform brick molds were developed and an endless supply of fresh water.

Natural Resources Enhanced and Supported the Local Community

Tristan De Luna sent to the New World to establish a settlement along the Gulf Coast

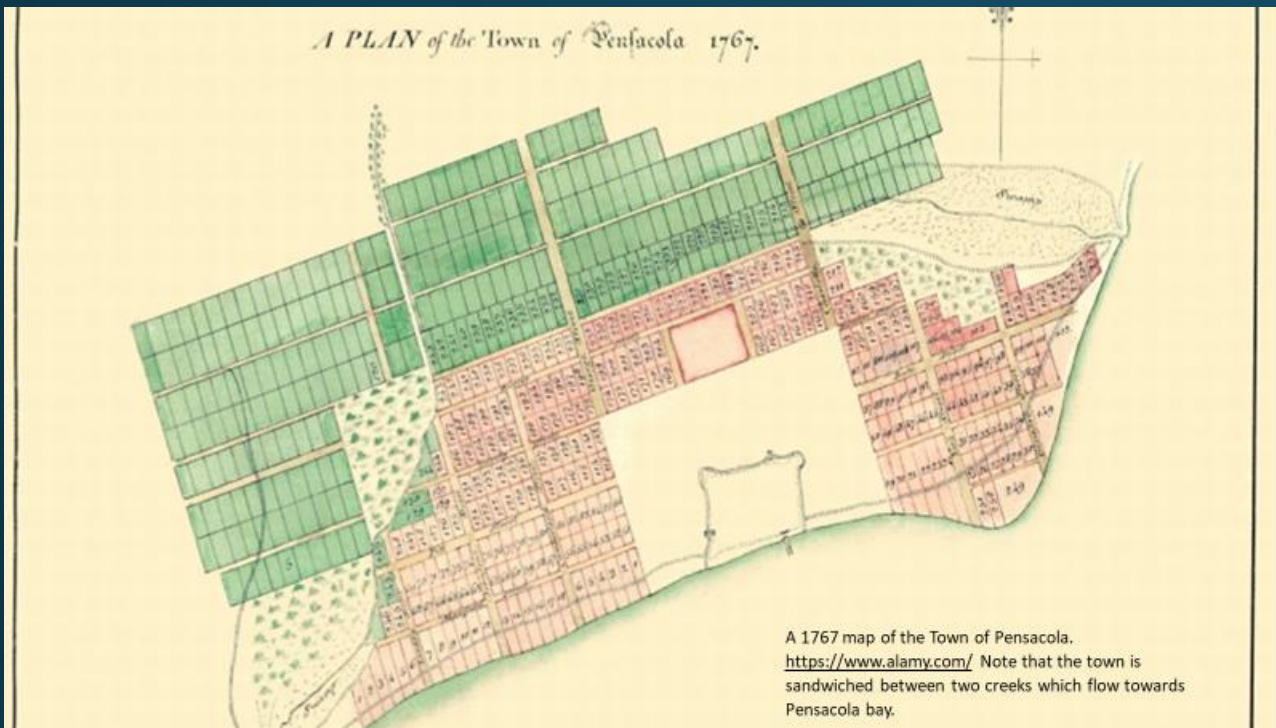
1558-1561

Late 1800s

2022

NW Florida is at a crossroads.
Which path will we take?

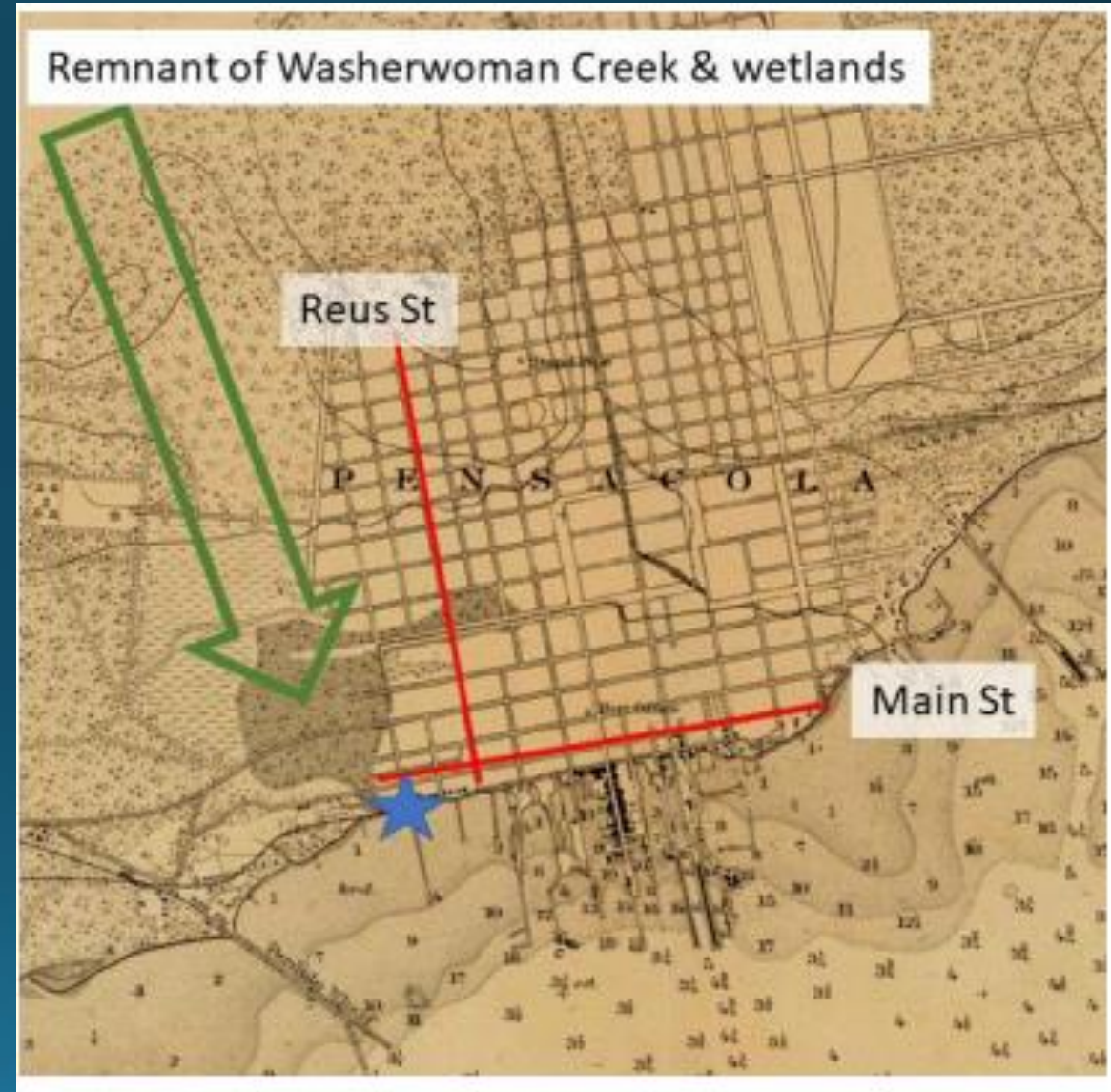
Pensacola is a bustling city along the waterfront. Tall masted ships lining the harbor, transporting longleaf pine to Europe and major cities along the NE.



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.

Above, map of the town and settlement of Pensacola, 1767. Note the wetlands to the east (today known as Admiral Mason Park) and wetlands to the west (today known as the property where the earlier ECUA WWTP was located, and discharges into the area known as Bruce Beach).

Right, Map of City of Pensacola, Enlargement of 1908 Coast and Geodetic Survey Map. Blue star indicates mouth of Washerwoman Creek. Green arrow indicates remnant wetlands. Reus and Main Streets outlined in red.



Water Quality Then...

- Water has shaped our landscape for thousands of year...
- Early accounts describe area waters as teeming with life;
 - Migrating ducks so numerous, they would shade out the sun when they flew overhead;
 - Escambia Bay was 'crystal clear' with mosaics of seagrasses on white sandy bottoms. From the bluffs you could observe the schools of fish, like dark clouds moving throughout the bay;
 - When the mullet would leave the bays to go offshore to spawn, the old timers said you could walk on their backs as they swam through the pass and never get wet, they were so plentiful and abundant.

What Changed?

- Early on, the shift in ecological conditions wouldn't have been noticeable...
 - Population increased from ~28,000 (1900's) to ~54,000 (1930), and over 205,000 (1970's).
- *source US Census*
 - Today, FL is the third most populous state after CA (1st), TX (2nd) and followed by NY (4th)
 - Antiquated concepts:
 - *The solution to pollution is dilution*
 - *Unlimited resources*
 - *Man has dominion over Nature*

As Lifestyles Advanced, the Habitat and Water Quality Declined

- Population Growth increased the need for food and shelter
 - The development of chemically synthesized fertilizers in the 1940s began the cascade...more crop yield from the land
 - *If a little is good, a lot must be better!*
 - After the War(s), achieving the American Dream – home ownership, suburbs, the beginning of suburban sprawl, the car and the unintended fragmentation of ecological systems through roads.
 - Pharmaceuticals become more readily available (Today, >66% population depend on daily Rx's)

The NW FL Ecosystem: Tidal Wetland & Salt Marsh



Habitat	Decrease Dates	Acres Lost
Saltmarsh	1950-2010	2,600
Tidal Wetland	1950-2014	4,200
Seagrass beds	1940-2010	6,138
Oyster reefs	1972-2015	8,143

Source: Draft Pensacola Bay System Surface Watershed Characterization, Northwest Florida Water Management District, December 2016.

Citizens Stepping up to Help their Community

Locals returning to their communities after military service or support noticed a change, the die-off of sea life and the change in habitat.

1950's to 1960's

Late 1960's

1970

The loosely organized Bream Fishermen began driving to Tallahassee monthly, via Hwy 90, to remind elected officials that 200 miles to the west, the bays were dying.

The Bream Fishermen Association officially became a 501c3 in Jan 1970.

The First Earth Day was celebrated April 22, 1970; and the

US EPA was formed in Dec 1970

The Bream Fishermen Association is committed to Environmental Stewardship

- The BFA is a highly respected citizen-science based organization which have been environmental stewards in protecting and monitoring NW FL and S AL waters for over 50 years.
 - Worked closely with the various agencies and groups, including the newly formed UWF, researchers at EPA, the Game and Freshwater Fish Commission, FDER, FL Wildlife Federation, and the military.
 - Developed a water quality monitoring program which is still on-going over 50 years later.
 - As locals, they were an integral part - assisting researchers collect information and data which was published in 1975 (EPA) Olinger Report , Environmental and Recovery Studies of Escambia Bay and the Pensacola-Bay System, FL .

Some BFA Accomplishments

- Developed a comprehensive Water Quality Monitoring Program (100% Volunteer Based) was 93 Stations Quarterly (18 parameters) now 48 Stations* Quarterly. (*suspended due to Covid March 2020, to resume in fall of 2022)
- Compiled a bibliography with all research conducted in the region from 1900-1985 (updated by UWF in 2010 PERCH Study)
- Partnership for Environmental Research and Community Health (PERCH)
 - <https://uwf.edu/centers/environmental-diagnostics-and-bioremediation/cedb-research/perch/>
- Identified high bacteria loads in a creek and traced the source to the City of Atmore, AL, where they had a sewage leak.
- Worked closely with new USEPA and Smithsonian Institute after fishermen caught fish with unusual lesions. This research resulted in a publication that linked environmental contaminants in water to health effects in fish. (this supported using fish as surrogate species for toxicity tests)

Roadblocks to Environmental Improvements??

IN THE CIRCUIT COURT OF THE FIRST JUDICIAL CIRCUIT
IN AND FOR ESCAMBIA COUNTY, FLORIDA
TO THE HONORABLE JUDGES OF THE COURT

We, Grand Jurors of the State of Florida, lawfully selected, empaneled and sworn, inquiring in and for Escambia County, for a special term, do respectfully present this report.

Report of the Special Grand Jury
on
Air and Water Quality

The Chief Judge of the First Judicial Circuit of the State of Florida empaneled this Special Grand Jury, at the request of the State Attorney who found it in the public interest: (1) to inquire into factors that are affecting, or that are likely to affect, the area's air and water quality; and (2) to assess the efforts of regulators in protecting, maintaining, and improving the area's air and water quality. Accordingly, this Special Grand Jury, in and for Escambia County, Florida, has inquired into these matters concerning the area's air and water quality and submits this report as directed by the Order of the Circuit Court.

- Two significant investigations (1999 & 2004) revealed that the very governmental agencies tasked with providing oversight and protecting environmental resources, were not doing their job!
- <https://www.escambiaclerk.com/194/Grand-Jury-Reports>

Recap of 1960's to 1999

- Clean Water Act 1972
 - Industry began addressing discharge, big improvement
- 1980's - Stormwater becomes next big threat area waters
 - 1985 – Escambia County, FL, installs the 1st stormwater pond on Bold Ruler Street (10-mile creek), Eleven Mile Creek (Perdido Watershed).
- USEPA expands the TMDL Model (Total Maximum Daily Load) focused on larger river systems
 - USEPA expands the acute to chronic toxicity tests to include life cycles, adding sediment matrix to the toolbox.
 - Expansion and integration of water quality, habitat, and biota surveys.
 - FDEP conducted stream assessments, aquatic insect surveys, etc.
- All the while, community growth is exploding
 - A slow creeping from urban to suburban areas, and then suburban to more rural areas

Catastrophic Impacts to the Region



- Hurricanes – Erin & Opal (1995), Ivan (2004), Dennis (2005),...Sally (2020), Ida (2021), etc.
- Oil Spill – 2010



Learning from the past

- Hurricane Ivan incapacitated the antiquated Pensacola WWTP.
 - Lesson, don't build WWTPs in vulnerable locations, retreat from water
 - (Pensacola Beach, Navarre Beach, City of Milton, etc.)
- Stormwater issues can be mitigated by maintaining buffers between upland areas and surface waters.
 - At the very least, a wetland buffer should be 30' (50' is better)



Government & citizen-led environmental organizations evolve

FL Dept of Environmental Protection

Dept of Pollution Control in NW FL (1970);

Became –

Dept of Environmental Regulation (1975);

Merged with

Department of Natural Resources to become –

The FL Dept of Environmental Protection (~1995)

Bream Fishermen Association

Organized in the 1960s by locals who were watching their area waters deteriorate.

BFA worked with other citizen groups such as the Perdido Bay Environmental Association, now the Friends of Perdido Bay, the Choctawhatchee Basin Alliance, and the St. Andrew Resource Management Area, now St. Andrew Bay Watch to help their communities protect their resources.

Members of the BFA have held positions on the BARC Technical Advisory Committee since 2005, and now participate with the PPBEP Technical Committee.

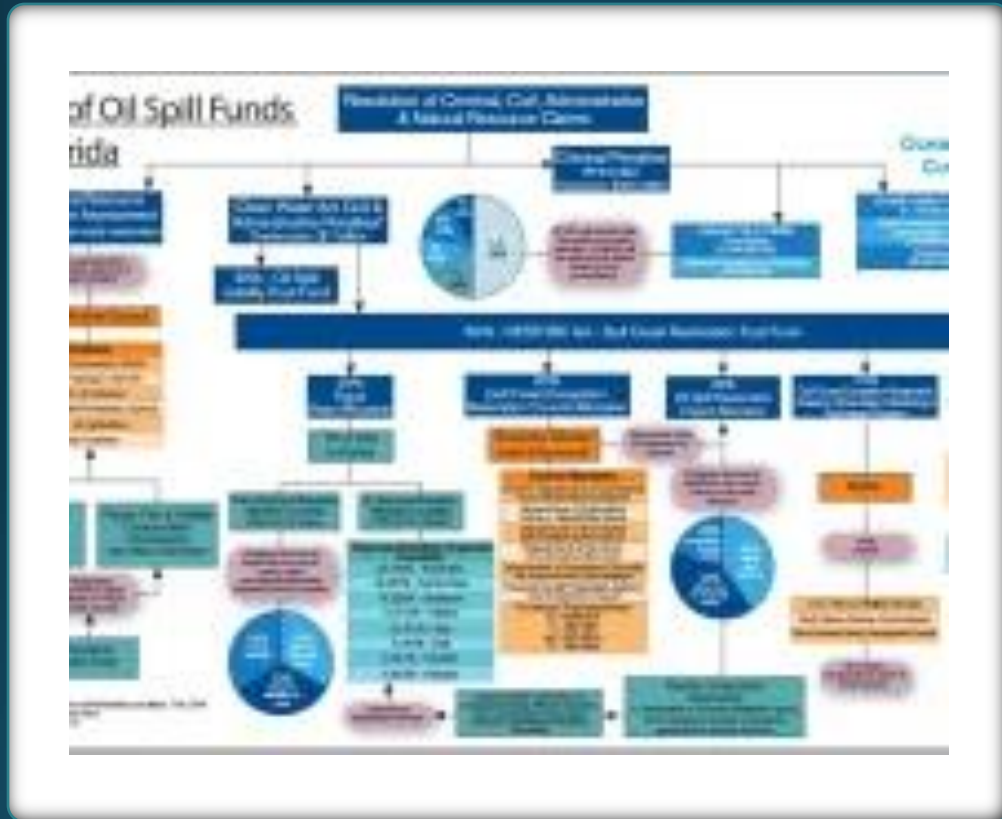
Pensacola and Perdido Bay Estuary Program

The Bay Area Resource Council (1987) was established to cross jurisdictional boundaries to identify and address environmental needs of local waters has been recognized for decades.

BARC was supported by local governments and administered by the West Florida Regional Planning Council.

In 2018, the USEPA awarded the region a \$2M grant to develop a comprehensive conservation management plan (CCMP), in essence a roadmap to fixing our water quality problems.

Since 2012 – Resources and Ecosystems, Sustainability, Tourist Opportunities, and Revived Economies (RESTORE) funds have begun trickling into the region

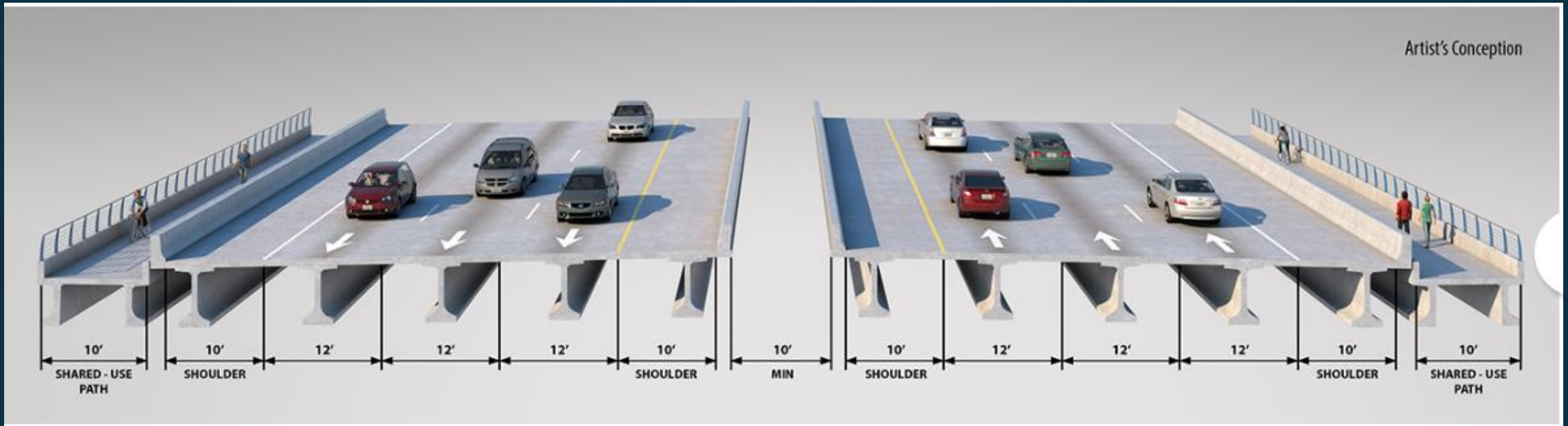


- Restore Funds - \$\$ to coastal communities impacted by oil
- NFWF Grants
- Gulf Restoration Funding
- Estuary Programs
- And various State Agencies

'Each' Program requires a Plan

- Each 'Plan' must be updated regularly, for example:
- In Florida, each of the 67 counties are required to have a Comprehensive Plan;
- This plan is updated ~every 10 years and is intended to mirror the Land Development Code;
- The Land Development Code is updated by the individual counties every 5 years, and in such a way reflects the communities needs and wants (need a new WWTP or school, want a new park or horse arena)
- State agencies are required to develop management plans and goals regularly.

Artist's Conception



These Plans are well Intended

- Often, there are disconnects between the best intended plans and the implementation of the project(s).
- An example is the new 3-mile Bridge – life span is 50-60 years

New 3-Mile Bridge cost, \$417M another missed opportunity....

- The new bridge will consist of two parallel structures;
 - Each equipped with three travel lanes,
 - Adjacent inside & outside shoulders, and
 - 10-foot multiuse path for pedestrians and bicyclists.
- Each Span is 66' wide and 3 miles long = ~30 acres of hardened surface (60 acres total for both spans)
- A one-inch rain event on a single acre generates 27,150 gallons of water (becomes stormwater if it flows off land)
- A one-inch rain on 60 acres = 1,629,000 gallons = ~2.5 Olympic size pools.
- Stormwater transports pollutants from auto exhaust, wear & tear of tires and brake pads into surface waters (in this case, Pensacola Bay).

Northwest Florida is in the Coastal Plain with these characteristics

- Highly erodible sandy soils
- Annual rainfall ~ 65”
- Groundwater is close to the surface
- Stormwater issues are difficult
- Older communities suffer from aged infrastructure



BFA Recent Undertakings include:

- Given the issues with Stormwater off roadways, and the conversion from rural to urban lands – why aren't the state agencies (FDEP, NFWFMD, FDOT) mandating stronger stormwater treatment?
- Carpenter Creek and Bayou Texar Revitalization Plan – visit BreamFishermen.org to review the proposal.
- Bruce Beach, Pensacola – Bacterial Source Tracking and the aged-infrastructure and associated stormwater issues.
- Indian Bayou Sedimentation Issues.

Antiquated Infrastructure

Older cities located within the Pensacola and Perdido Bay Watersheds have documented antiquated infrastructure including leaking septic systems. Sewage contamination of water bodies poses a definite risk to human health via waterborne pathogens. Monitoring for all waterborne pathogens in environmental waters is currently unrealistic due to the great diversity of pathogens in sewage, the lack of funding and the disparate methods required for concentrating and analyzing them (Harwood 2013).

Complex Issues facing the Region

- We have the technology to address our environmental issues and improve water quality and human health at the same time.
- What we lack are elected officials with Political Will.
- Politics shouldn't drive environmental protection, but it often does.
- The new Estuary Program has the Comprehensive Conservation Management Plan ready for public review. www.PPBEP.org

The Gulf of Mexico is vulnerable these days...

- Stormwater runoff;
 - Landscape changes;
 - Increased tropical events;
 - Sedimentation;
 - Fragmentation;
 - Non-native materials (clay), flora (loss of native trees) and fauna;
-
- It will take all of us to make a difference for our future generations.

Restore and Reconnect Healthy Functioning Ecosystems

