The BFA July 2017 NEWSLETTER

Hope Everyone is staying cool, hydrated, dry & healthy this summer.

Please mark your calendar for the next General Membership Meeting

Wednesday, 2 August 2017

This will be an Eating Meeting with a Guest Speaker! Doors open at 5:30 PM. Dinner will be served at 6:00 PM. Dinner will be provided by the Metro Deli & BBQ and will include several vegan options for our vegan friends.

Cost $10.00*/person (*Please note the slight price increase)
1615 East LaRua Street, Pensacola

Please join us in welcoming local** and almost home grown, **Don McMahon**, owner of the **Pensacola Bay Oyster Company**. Don moved to Pensacola from Key West at age 5** and proceeded to set down roots in our area. He studied business and marine biology at Florida State University. His dream began as a kid, but aspired further as he noticed the natural oyster beds declining. **Magnolia Bluff Farm** occupies roughly five acres of Pensacola Bay and is easily viewable from the bluffs atop Scenic Highway in Pensacola, Florida. The Escambia River watershed system flows north of this site and provides good salinity currents which create excellent growing conditions. The **East Bay Farm** is roughly five acres as well. It receives its waters from the Blackwater River and Yellow River. East Bay historically has produced some of the best oysters in the world! Pensacola Bay Oysters went on the market and became locally available in March 2017. Another feather in Don's cap is his recent award as an "Innovation Coast Award for a shellfish hatchery & nursery."

Much like all our BFA Newsletters, we do our best to educate our membership and interested individuals on **issues related to water quality**. This month we connect-the-dots about how our environment and community are dependent on consistently good water quality. During the last BFA Newsletter (April 2017), we discussed the seven year observance of the BP oil spill in the Gulf of Mexico. www.BreamFishermen.org Very soon our area will start seeing more restoration projects on the ground as a result of penalties and fines received by the

federal government from BP. Through this catastrophe, we have learned many things about how our natural landscape provides food and shelter, and other **Ecosystem Services** for our community.

The Marine Fisheries Hatchery and Enhancement Center should be breaking ground soon just west of the Maritime Park, adjacent to the Baskerville Donovan Pensacola Bay waterfront parcel. The wet spring, road construction and flooding have created many delays. This hatchery will be releasing commercially important species of fish, including – but not limited to redfish, maybe speckled trout and flounder. http://www.ci.pensacola.fl.us/752/Marine-Fisheries-Hatchery-Enhancement-Ce

Ecologically speaking, we love the natural fishery and understand the concept of replacement and restocking – but, we believe a different approach; a holistic approach might have more sustainable results. This holistic approach focuses efforts on water quality improvement, which would provide a long term, sustainable return on investment (ROI) all the while supporting natural species growth and recruitment. Insuring stormwater runoff is properly treated and meets regulatory criteria serves to improve all coastal waters and stimulates habitat restoration. Natural shorelines have the unique ability to self-heal themselves. Once water quality and habitat conditions improve, become reestablished and balanced, natural recruitment of species (fish, shrimp, crabs, etc.) can and will occur. We are documenting these little pockets of recovery in our area.

Research illustrates bulkheads, rip rap, and un-naturally hardened shorelines tend to cause more harm through scouring and interruption of sediment transport. To learn more about **Living Shorelines** (LSL) please visit the BFA website. 'One size or design does not fit each shoreline; see what works best for your waterfront.' Vegetated buffers along waterways help to stabilize the shoreline and attract a variety of species. Bayview Park has a nice example of a successful LSL project designed to stabilize an eroding shoreline. This project also includes educational signage near the boat launch portion of the park along Bayou Texar to explain the concept to the public. Project GreenShores along Bayfront Parkway is another example and soon parts of Navy Point along the shore of Bayou Grande will have more examples of LSLs.

One of the most valuable indicators of healthy water quality are seagrasses; submerged aquatic vegetation. Our bays (Perdido and Pensacola including Escambia, East, and Blackwater Bay and Santa Rosa Sound and Big Lagoon) were once covered in a living mosaic of seagrass meadows on sandy bottoms, today we have less than 40% of these important species left in these waters. Our own Ernie Rivers, lifelong resident and bay steward, talks about looking out over 'his' bay (Escambia Bay) in the 1930's and 40's from the Scenic Highway Bluffs and being able to see to the bay bottom in 20-30 feet of water. Today, it's hard to see the bottom in 3-5 feet of water. That's part of the problem. **Seagrasses need clear water so sunlight can penetrate down to the sea floor.**

Early economic reports (1980's and 90's) valued these seagrasses as worth between $12,000 - 20,500/acre; today we understand their importance and role in our ecosystem and have assigned them a higher value of **$36K/acre** (Lewis, et.al 2016). Seagrasses are often found in areas with natural emergent coastlines associated with sloughs and bayous. The emergent vegetation grows along the water-land interface and becomes a buffer to slow nutrient rich water or sediment laden water from entering the surface waters. One can say that there is a symbiotic relationship between these vegetation types; together they stabilize the sediments and soils, take up nutrients, catch sediments, and provide many other important ecosystem services.

Seagrasses are sometimes labeled **ecosystem engineers**, because they partly create their own habitat: the underwater leaves slow down water-currents increasing sedimentation, and the seagrass roots and rhizomes stabilize the seabed. Their importance for associated species is mainly due to provision of shelter (through their three-dimensional structure in the water column), and for their extraordinarily high rate of primary production. As a result, seagrasses provide coastal zones with a number of ecosystem goods and ecosystem services, for instance fishing grounds, wave protection, oxygen production and protection against coastal erosion. Seagrass meadows account for 15% of the ocean's total carbon storage. The open ocean currently absorbs 25% of global carbon emissions.

As seagrass habitat recovers, more diverse recruitment of species can occur. At which point **Natural Selection** is at work. Knowing and accepting this approach, the first step towards a sustainable approach to increasing our seagrass habitat is improving our current water quality and clarity before it enters our surface waters. Treat the problem at the source.

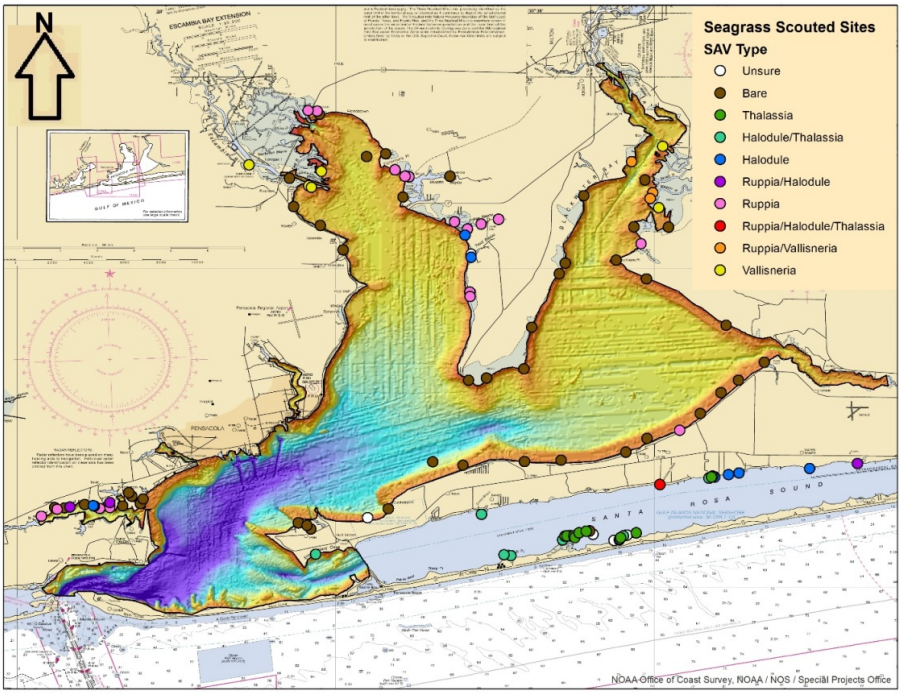
A major source of sediment is stormwater. Stormwater is a highly complex issue and directly correlated to where we choose to develop our communities. In case you haven't been paying attention, we are in a land development boom at the moment. The problem is we are running out of suitable high and dry land. The young families in Pace, and those in Florida Town and other nearby areas are at the receiving end of these issues; that is the intersection of groundwater being recharged (filling up) and more rain flowing into low areas. **The more imperious surfaces we build (roads, houses, driveways, etc.) the more runoff we generate.** This is the stormwater runoff that must be treated before it enters the creeks, bayous and bays.

Previous development has occurred on the high and dry parcels and we are now developing the remaining low lying lands. Isolated swamps and low wet areas are being filled-in and developed. While the military is worried about encroachment to their training fields, we should be equally wary about encroachment on our valuable wetlands and low lying areas. Santa Rosa County has received many complaints from residents who have purchased newly built homes (2017), only to experience flooding from the shallow groundwater (not stormwater runoff) coming into their homes from the baseboards and seeping through the walls.

Population density studies in 2010 identified that 52% of the US population lived in coastal watershed counties. The population density of coastal watershed counties is five times greater than the corresponding inland counties. **Population growth in these coastal watershed counties are impacting water quality through run-off** (the BFA data set corroborates this). This is why we must tackle the 'quality and quantity' of stormwater discharge before it enters the surface water. We can begin the healing process of restoring coastal habitats by increasing buffers. Natural buffers serve to trap sedimentation at the source and reduce nutrients (fertilizers) and pathogens (infiltration from leaking sewer or outdated septic systems). Water borne diseases increase with poor water quality. A recent study found that **seagrass ecosystems reduce exposure to bacterial pathogens** of humans, fishes, and invertebrates (Lamb, et.al, Science, 355, pgs 731-733 (2017).

Hence, the focus on seagrass and fisheries; Seagrass recovery is very important to our coastal health and way of life. During 2015-2017, the FL Marine Research Institute (FMRI) the research arm of the FL Fish & Wildlife Conservation Commission (FWC) conducted an in-depth study on the quality, quantity, and health of seagrass beds in several large northwest FL estuaries. Researchers from FMRI, numerous universities, colleges and citizen monitoring groups collected information and conducted studies to present an overview of the current and local seagrass conditions in these coastal systems and important waterways. The Perdido and Pensacola Bay research will be presented in the future as analyses are finalized. Stay tuned. Suffice it to say, UWF and Dauphin Island Sea Lab were very active in Pensacola and Perdido Bays as a part of the study entitled, *Roadblocks to Seagrass Recovery*. To learn more please visit: http://myfwc.com/research/habitat/seagrasses/projects/roadblocks/

One of the aspects of this seagrass research included scouting out small bayous and sloughs in the Pensacola and greater Escambia, East Bay & Garcon Bayous to determine if seagrasses were present or absent. Much like terrestrial plants, seagrasses come in different varieties and have many different salinity and water quality requirements. During this study, many of the smaller creeks and sloughs that drain the Gulf Breeze Peninsula were found to contain areas dominated by **Widgeon Grass** (*Ruppia maritima*). Creeks and sloughs emptying into the bigger bays (Blackwater, East, and Escambia & Pensacola) tend to discharge onto sandy shelves which line much of the shoreline. An example of this is the shoreline adjacent to Sanders Beach (close to the mouth of Bayou Chico) which has a natural shallow sandy shoal which extends seaward for several hundred feet before dropping off into deeper water. Areas near the river mouths were sediments tend to accumulate were found to have nice stands of **Tape Grass** (*Vallisneria americana*). Overall, the creeks and sloughs have lower salinities, deeper waters, often very dark and tannic (low pH), cooler temperatures, consistent groundwater influence, and low turbidity.



A map of the findings in the Pensacola Bay System indicates that there are small pockets of seagrasses along many coastal areas. Note no seagrasses were located in the larger portions of the various bays. *Map courtesy of the amazing Rachel Capps, 2017.*

Sloughs and creeks discharging into Santa Rosa Sound also contained Widgeon Grass and drained into a mixture of **Shoal Grass** (*Halodule wrightii*) in shallow waters that eventually blended in with the desirable **Turtle Grass** (*Thallasia testudinum*) found in deeper waters. Turtle Grass is slow growing and has an extensive root complex. These grasses behave similarly to terrestrial grasses as they have dormant periods in the winter, and active growing seasons during warmer conditions. The most important condition for successfully sustaining seagrass habitats, next to the obvious water quality (chemistry aspects) would be light penetration to the sea floor. **Seagrasses are plants which make their own food, through sunlight**. When water is turbid and shades out the bottom, these important sentinel species can't make their food and perish.

Switching topics for a moment, the new three-mile bridge test pilings are being installed in our bay. During the FDOT Public Meeting held at the downtown Crowne Plaza in 2016, many bridge designs, bridge approaches, renderings, scale models, etc., were on display but what caught my eye were the five little mason jars on the table. Each jar contained a sample of a sediment core from a 30' interval. The jars contained a sample from 0-30', 30-60', and 60-90' were dark and clayey (think super thick brownie batter); the jar containing 90-120' had some silty and clayey sediment and some large pea gravel; and the 120-150' sample was almost entirely pea to cobble sized gravel. That gravel represented the ancient

river bottom from eons ago that would have supported the channel for the Escambia and perhaps the Yellow and Blackwater Rivers.

The FDOT sediment coring samples in the mason jars were part of the missing piece of the puzzle. Sedimentation, in the form of coarse to fine sand will settle our quicker than silt and clay, which can be carried in surface water currents for days and weeks depending on winds and tidal influence. This surface water also carries organic material floating downstream from the upper creeks and swamps. This suspended mixture of water interferes with sunlight penetration (physically shades out light) and serves as a biological gumbo of bacteria and microbes that break down (recycle) nutrients. It is this organic matter 'ingredient' which feeds the oxygen consuming bacteria. The more organic load in the system (trees, leaves, plant material) the greater bacterial activity & oxygen consumption. The greatest majority of our bay bottoms are covered with thick silty-clay or clayey-silt, containing organic material which has been deposited and laid down over many decades. This blanket of silty-clay material is oxygen starved and makes living conditions difficult (impossible) for shrimp, crabs and fish. In the Gulf of Mexico, we call this the Dead Zone; in our bayous and bays this is a mini-dead zone, i.e., hypoxia, which behaves in much the same way. During the study, no seagrasses were observed in the center of the larger water bodies. To sum it up, **our waters are too turbid and too nutrient rich thus obstructing light penetration to the bay bottom (substrate) and stripping oxygen out of our lower water column**. The recipe to support healthy seagrass beds includes good water quality and a suitable substrate to colonize. Once established, these important grasses send oxygen down through their roots into the substrate and rework the benthos for more organisms that also have a role in supporting the fishery.

By the way, what's happening in our bays also happens on a smaller scale in our bayous. Pensacola News Journal Historian John Appleyard wrote a nice article about the history of Bayou Chico, and how it became so **smothered by a blanket of loose mud**.

Speaking of 'Water Quality', our collective NW FL watersheds are in a fierce 'competition' with our neighboring counties to the east to 'win' an estuary program for our area. The US Environmental Protection Agency (USEPA) has identified the need for one Estuary Program (EP) in one of the large northwest Florida Bays impacted by the BP oil spill. Funding for this EP comes from the BP fines and totals $2M. The EP will be modeled after the highly successful National Estuary Programs (NEP) of which there are 28 in the US. Communities and watersheds which are fortunate enough to have an NEP have seen their regions unite to improve water quality and habitat, which has served to stimulate and educate the economy and improve community resilience.

The **Bay Area Resource Council** (BARC) and the supporting **Technical Advisory Council** (TAC) has a 30 year history of working within the community to improve local and regional water quality. The BARC is made up of elected officials who represent Escambia and Santa Rosa Counties, as well as the Cities of Milton, Gulf Breeze and Pensacola. The BARC has directed the TAC to develop a proposal to bring an EP to our region (Perdido & Pensacola Bays) to address many of the legacy contaminants which are impacting our area waters. The outcome (deliverable) for these monies will be a Comprehensive Conservation Management Plan, a tailor made bible for our watershed. After this plan is developed, it will be up to the community and agencies to support and implement the plan. Having a plan is just the first step to improving water quality, we, the citizens, elected officials and visitors need to commit to implementation of the plan without regard to other agendas.

Two million dollars to 'stand up' an Estuary Program sounds like a lot of money, until you put it into perspective of just how GIGANTIC the sum of the fines received from the oil spill really are. For instance, **Triumph Gulf Coast** just received their first round of funding ($300M) from the $1.2B award. Not one dime of this money will go towards environmental projects. $2M each to stand up an Estuary Program in Perdido Bay, Pensacola Bay, Choctawhatchee Bay, and St. Andrew Bay would be pocket change from this kind of budget. And since a healthy estuary supports a healthy economy and community, maybe Triumph can spare some pocket change.

So far, 2017 has been a wet year! Since the year began, we have received over 50 inches of rain, most occurred during the months of May and June, where we topped over 30". Every time it rains, stormwater enters our surface waters. This stormwater carries everything to the same areas we like to fish and swim in. An **Estuary Program** will identify specific issues, but our citizenry and natural resource managers will need to 'up their game' as well. We didn't know then what we know now…but now that we know what we know – we should know better!

View of Maggie's Ditch, eastern tributary of Bayou Chico, after a rain event, July 2017. *Photo courtesy of Sierra Hobbs.*

Every time it rains, water enters our creeks and streams which flow into our bayous and bays. Sedimentation as observed in the previous & next photos (taken this month) occur all too often now that we know what we know. If we want a thriving bay and estuary with healthy seagrass beds to support crabs, shrimp, oysters and fish in our area waters we desperately need to start addressing these turbidity issues. We don't need a plan to know that clay entering a waterway is not right.

View upstream of the Yellow River, 9 July 2017. Note the river is in flood stage and is dark and turbid.

Last weekend during our monthly sampling run, our **BFA Crew** noted how turbid the Yellow - and Shoal Rivers were when compared to the Blackwater River and its main tributaries, Coldwater Creek and Juniper. The Blackwater River State Forest (BWRSF) manages the forest and has closed many roads which were found to washout, erode, or contribute to turbidity. To address these sources many roads were closed, water bars were developed to redirect water off roads and native vegetation plantings were installed to stabilize the area. The BWRSF lands are well managed; this could be observed by the relatively clear waters even during flood stages of the river; In contrast, the Yellow- and its tributary the Shoal River were carrying debris, tree limbs, and a lot of organic material, plastics, and trash. Upstream where all this water originated, the river(s) suffer from too much clear cutting or development in the riparian zones. Many young people, often with children, were observed getting into the water to recreate and cool down on a hot Sunday afternoon. Water borne diseases increase with poor water quality. **Informing citizens about water quality will allow citizens to make informed decisions.**

The wait is almost over for Escambia County to submit their Restore Proposals to the US Treasury. This long and tedious process is the culmination of several years of meetings to see how best to implement funding to make our community whole again. The Carpenter Creek-Bayou Texar Revitalization Proposal applies the holistic approach to an urban system by reconnecting the riparian zone to the mainstem of the creek. This concept and proposal were drafted in 2014 and floated by many in our community to insure stakeholder input. Stay tuned as this exciting project receives funding and our community has a front row seat and a voice in restoring this important waterway. To see the entire Carpenter Creek Concept, please visit the BFA website. To see all the projects selected for the EsCo Restore funding, please visit https://myescambia.com/our-services/natural-resources-management/restore/multi-year-implementation-plan.

A special thank you to Laurie Murphy, the current Emerald Coastkeeper and her many supporters! Many of whom have been busy cleaning up trash from the creek. Stay tuned for a presentation tailored to residents living along the creek, and what they can do to better protect this system. Details will be forthcoming from Councilwoman Myers and the City of Pensacola for sometime in middle to late August. The presentation is entitled 'Watershed Wellness: Time for a Check-up for Carpenter Creek.'

Fundy Bayou, Escribano Point, East Bay, FL. July 2017
Healthy Uplands = Healthy Waters = Healthy Communities = Healthy Economies.

The Bream Fishermen Association is a not-for-profit organization dedicated to the promotion of the conservation responsibilities as well as the recreational enjoyment of fishermen, hunters, campers and related outdoorsmen.
It is the objective of the BFA to support, develop, and implement programs that will:

1) Improve the quality of our environment;

2) Protect and maintain our present wilderness type lakes, rivers, swamps, marshes, bays, forests, and beaches in their natural undeveloped state; and

3) Advance the causes of plant, marine, and wildlife preservation.

Membership is open to all individuals who support these objectives. Please join the BFA by sending us your contact information (name, mailing address, phone, and email) be sure to notify us if you prefer to receive notices and announcements by mail or email, and $10 annual dues to our mailing address:

Bream Fishermen Association

1203 N. 16th Ave, Pensacola, FL 32503