Please mark your calendar for the next General Membership Meeting

Wednesday, 3 May 2023

This will be a Dinner Meeting with a Guest Speaker! Doors open at 5:30 PM.
Join us for fried fish, freshly roasted veggies, and a garden salad.
Dinner will be served at 6:00 PM.
Cost $10.00/person

1615 East LaRua Street, Pensacola

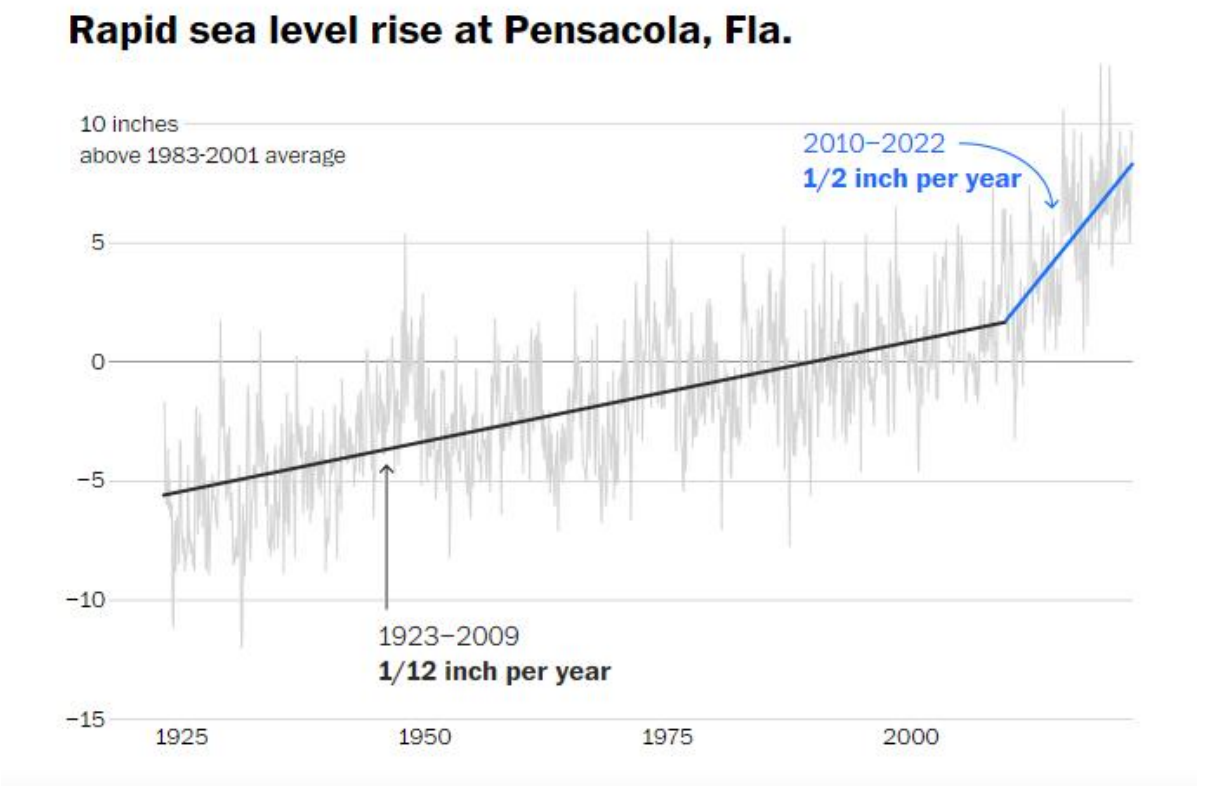
Please join us in welcoming **Amy Mixon**, who is a registered professional engineer in Alabama and Florida with over 29 years of experience specializing in the direction and performance of multi-media contamination investigations and remedial programs for hazardous material/waste and petroleum sites for private, local, and state government, and Department of Defense clients. As Senior Project Manager for large contaminant investigations and remediation projects, Amy routinely coordinates project activities for cost-effectiveness, timeliness, and compliance with applicable regulations and permits. Amy works with project scientists to evaluate and mitigate risks and with stakeholders to address concerns and minimize disruptions to home and work activities during remedial implementation. Amy has lived and worked in the Pensacola area for over 20 years. She is currently supporting Escambia County as AECOM's local liaison for the Bayou Chico contaminated sediment remedial design project. Amy earned her BS in Chemical Engineering from Auburn University in 1993.

Amy's presentation is entitled: **Sediments as a Resource?**

Happy Spring Everyone! We had a cold winter and a hard freeze (many folks lost fruiting trees and various plants, even along the coast) but that was followed by a beautiful spring. It won't be long before summer and the rainy season (and humidity!) are upon us.

Newbies to the area may not be aware of all the recent (development) changes to the community. Land use changes do impact our waters. That is in part to the average annual rainfall the region regularly receives. Previously the Pensacola area received ~66" of rain annually (NOAA) but for the past decade+ (2012-2022) the average annual rainfall for the area has been closer to 83" (that translates into 6'9"). That's a significant difference, which will negatively impact our region, alter the quality of life for some, increase flooding issues especially in low-lying areas, and contribute to the impairment of our waterways and bays.

With each rain event, stormwater carries sediments, trash, yard debris, pesticides, herbicides, fertilizers, and road runoff into our area waters. Many of the chemical constituents can adhere to organic material which can settle out and become embedded in the sediments, others become soluble in water. Some of these chemicals can affect the smallest organisms which make up the basis of the food chain. When these critical ecological webs are broken, problems can occur – much like the domino-effect. As you'll see, it's all connected.



https://www.washingtonpost.com/climate-environment/2023/04/10/sea-level-rise-southern-us/

The finer particles that are often carried along with stormwater can serve to shade out sunlight to one of the most important aquatic keystone species in the area, namely seagrasses. Seagrasses, like their relatives the terrestrial plants, depend on sunlight to make their food. When cloudy water sheds out sunlight, the seagrasses can't make oxygen. Seagrasses (also known as submerged aquatic vegetation, SAV) are vascular plants that oxygenate sediments through their root systems. These root networks in turn support a host of organisms which can only survive because of the oxygen by-product of the plants, a relationship known as commensalism.

Declines in water quality and clarity began in the mid-1960s, and resulted in habitat loss including seagrasses, oyster reefs, and salt marshes. Today, vast research, new technology, and awareness have resulted in more ordinances to protect these important systems. Santa Rosa County, whose southern landscape borders Santa Rosa Sound which has some of the healthiest SAVs in the area, has installed signage reminding boaters to be mindful and considerate of seagrasses. Seagrasses are particularly susceptible to prop scars from boats, and because of their ability to trap sediments, seagrass beds can be shallower than surrounding bare sand areas.

Dr. Jane Caffrey, UWF Center for Environmental Diagnostics and Bioremediation (CEDB), has been studying seagrasses, and their role in nitrogen fixation for decades. In 2017, she began a citizen science program in partnership with SeaGrant's Rick O'Conner and an army of students to monitor seagrass beds monthly during the growing season. She recently authored a summary report of 2022 findings in which she describes the dominant species in different areas, the water quality including salinity, total suspended solids, dissolved oxygen and inorganic nutrients, light penetration, and depth of water. Her report will be posted on the BFA website. Folks interested in participating in the monitoring program will be trained up, provided with the necessary equipment, and asked to collect data and water quality samples monthly from the same location – over the summer. Interested in participating? Please contact Rick at roc1@ufl.edu.

Figure 1 - Location of Citizen Science Seagrass Monitoring Program sampling sites in Pensacola Bay from 2017 to 2022. Image created in NOAA ERMA.

Another keystone species gaining a lot of attention these days is the oyster. Unlike seagrasses that physically trap sediments, the oyster can filter seawater including microbes, phyto- and zooplankton, turbid water, and sand particles. This little bivalve then utilizes what it needs to sustain itself and repackages the rest to discard as pseudo-feces. These pseudo-feces become important food sources for other organisms which make their living in and around oyster beds and reefs.

The Nature Conservancy (TNC) just completed the installation of 33 oyster reefs along 6.5 miles of Santa Rosa County shoreline along Escribano Point in East Bay. This monumental effort has already attracted many fish and invertebrate species, and in time will become great fishing grounds for recreational fishermen. https://www.nature.org/en-us/newsroom/florida-pensacola-east-bay-oyster-habitat-restoration/

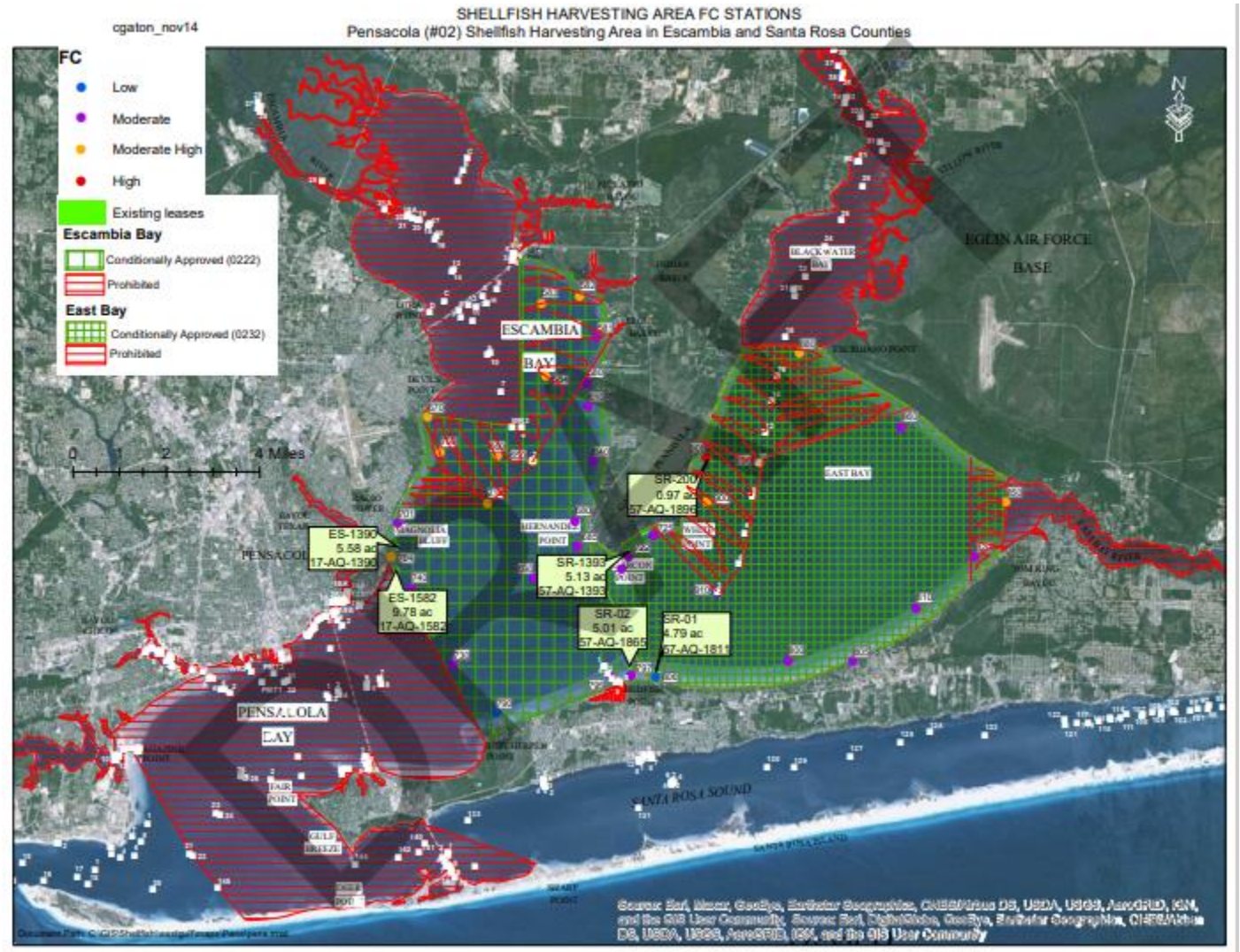
The Pensacola and Perdido Bay Estuary Program (PPBEP) in partnership with TNC hosted an oyster working group series of meetings over a 2-year period. The product of these meetings is an Oyster Management Plan which will serve as a road map for future oyster restoration projects including optimum locations based on water quality conditions. A subset of this meeting series is the PPBEP Oyster Subcommittee which meets quarterly and has been well attended. One member, Shana Alford, of Avalon Aquaculture, will be featured in a documentary entitled 'The Humble Oyster', 23 May 2023 at the Jean & Paul Amos Theater (https://www.wsre.org/events/the-humble-oyster/).

The $24M Nature Conservancy Oyster Reef Project along Escribano Point, East Bay.
Photo by Russell C. Mick

These projects and efforts are wonderful and exciting, and another announcement just in time to celebrate Earth Day, was circulated last week announcing **National Oceanic and Atmospheric Administration awards $24 million for three projects in the Pensacola and Perdido Bay Watersheds.** With all this money being invested in the area, it appears that things are getting better…. or are they?

Last July (2022), the FL Dept of Agricultural Services (FDACS) which has oversight of shellfisheries and water quality as it pertains to shellfish and fish consumption (bacteria), circulated a draft of shellfish closures in the Escambia Bay System which includes East Bay, Blackwater Bay, and Pensacola Bay. The draft map is a bit messy, but one thing that stands out is that all discharge points (rivers, creeks, and bayous) are 'closed to shellfish harvesting' and impaired for bacteria. That's super bad news for coastal communities located in this area. What's more, these problem areas are a direct result of stormwater runoff. The common denominator, or the nexus, is how we are developing our landscape. As it turns out, there appears to be a lag-effect in grasping the concept of sea-level rise, climate change, and increased rain events and the local ordinances that regulate development.

And to add another level of complexity to the equation, each county has slightly different rules and regulations. For instance, Escambia County currently uses 2007 FEMA Flood Maps, whereas Santa Rosa County uses 2017 FEMA Flood Insurance Rate Maps to determine whether properties are in flood high hazard zones. How can this happen? FEMA provides flood maps through the Water Management District (WMD) which has the responsibility to inform the public (by way of special hearings) via counties to develop the Special Flood Hazard Zones. Ironically, these Flood Zone Maps do not include Storm Surge. That's frightening, considering we are virtually surrounded by water.



Shellfish Harvesting Closures (DRAFT Version) in Escambia and Santa Rosa Counties.

Another problem resulting from inconsistent and antiquated rainfall data sources comes from the FL Dept of Transportation, which regulates State Roadway Drainage Designs, upon which municipalities rely as a design reference. Historically FDOT District 3 (Panhandle of FL) and local municipalities have used 1979 rainfall data to determine the size of stormwater ponds and drainage infrastructure, published in FDOT's 2023 drainage design manual, when more current NOAA Atlas 14 rainfall data is available. Both rainfall data sources are referenced in FDOT's drainage design manual. So, what's the problem? That translates into an additional 2.76" of rain for a 100-year, 24-hour storm event in the Pensacola region. So which rainfall data sources do Engineer's use? FDOT now says we use NOAA Atlas 14. Escambia County & Santa Rosa County are just now getting around to requiring this more current NOAA rainfall data source as a requirement. This is a move in the right direction, because until recently we have had drainage infrastructure designed for yesterday's storm rain events with obsolete rainfall data.

But that won't help the many new developments popping up like mushrooms. To be fair, the engineering firms which are designing these large-scale developments are using the resources which each county and the state mandate, which brings me to the Sector Plans which have been brought forth in the past and dismantled by many who suffer from short-term thinking.

A quick stormwater reminder for the reader of this newsletter, the more natural (permeable) surfaces which are converted into non-permeable surfaces (roads, driveways, roof-tops, etc.) the more stormwater runoff. Add to that, the removal of trees (which are vertical stormwater towers) for development adds to the proclivity of flooding. And all that flooding carries all that stormwater into waterways, and when the wind and the rains slow down, the sediments carried along with the stormwater begin to settle out. The removal of sediments, contaminated or not, is extremely costly, which is why 'lessons learned' include retreating from coastal areas, allowing native emergent grasses to buffer (wider is always better) waterways, and designing high density housing in upland areas and keeping lowland areas as natural areas, after all they were most likely wetlands.

Prior to Hurricane Ivan, Community Planners, working with the state, the insurance agencies, and FEMA, came up with large scale community minded developments that would concentrate housing, shopping, and business developments on elevated topographic areas, and keep lower-lying (flood prone areas) undeveloped as open spaces (parks, etc.) to capture rain during wet weather events. These planned communities would ensure that infrastructure was in place and could handle future growth. These developments were referred to as Sector Plans and had a lot of potential, except in this part of the state.

This approach appealed to many community members, environmental advocates, and would serve to curb the developmental car dependent sprawl that is too common in the state. The first proposed Sector Plan in the western panhandle was Jubilee in Santa Rosa County in 2007 (https://www.pensapedia.com/wiki/Contrada_Hills). Jubilee had tremendous appeal, especially to the golfing community, as Jerry Pate, PGA champion would design an 18-hole golf

course in the planned community. That effort began to fall apart about the same time as the economic bubble was beginning to burst.

Over to the west, Escambia County spent a cool $1M developing a Sector Plan north of I-10 and west of Hwy 29 (Perdido Watershed) which included many public meetings, charettes, and potential developmental growth scenarios. Once again, the community participated in shaping how the future would look if intensive growth and development were better planned versus continuing the sprawl. Escambia County had some talented planners who saw the many benefits of these Sector Planned Communities and were instrumental in selecting qualified consultants to develop the road map to achieving these goals.

Some of the amenities presented included underground utilities, designing bridges to span floodplains and waterways so as not to create pinch-points at bridges during wet-weather events and leaving riparian zones intact (so wildlife could use these areas as corridors). Concentrated development would include multimodal (walkable and bikeable) shaded (mature tree canopy) paths with access to community centers which catered to the community needs, including schools and stores without needing to drive an automobile. The environmental benefits to such a planned region would increase both air and water quality and create a safer active outdoor community and perhaps increase the quality of life for the community.

Like many good ideas, timing in life is everything. In the EsCo Sector Plan Scenario, described above, the ink on the plan wasn't dry before the first 'opt out' was requested. Coincidentally, that opt out was requested from a sitting county commissioner, who evidently 'forgot' that they owned property within the Sector Plan area. Since then, many other landowners have requested to opt out, and bit by bit, and piece by piece, a good idea has been dismantled.

A highly successful Sector Plan that made the news last year (2022) for withstanding Hurricane Ian's pummeling is Babcock Ranch (https://babcockranch.com/), located near the headwaters of the Caloosahatchee River Watershed in Lee County (Fort Myers) FL. Ian, a Category 4 hurricane, came ashore and destroyed the Captiva, Sanibel, Estero, and Marco barrier island complex (natural and human landscapes) and impacted the southwest FL coastline to Key West. Hurricane Ian caused $112B in damages, and 150 people lost their lives.

For the remainder of the hurricane and the next few weeks, while SW FL communities assessed the damage, including destroyed bridges, cleaned up the aftermath, and waited for the power company to restore electricity, the community living in Babcock Ranch never lost power, never flooded, and frankly never skipped a beat. Lee County is ahead of the curve for promoting and collaborating with private developers to create a sustainable and resilient community that can meet the future weather challenges.

The Panhandle of FL has been offered the opportunity to partner and provide a quality development project, at a large scale, several times, but has chosen to throw the baby out with the bathwater. The next opportunity to do a quality project on a large, well-thought-out planned community basis will be with OLF 8. The urban planning group DPZ Co-design won the contract to design the OLF 8 Master Plan (~550 acres) just south of I-10 and west of Hwy 90. Like the previous Sector Plan, which was also well thought out, and vetted by the Beulah Community, the OLF 8 Master Plan has been completed, and it is now up to the county to implement the quality, and design put forth by the DPZ Firm. And perhaps, after the next tropical event comes ashore, we can gain some helpful hints as to what worked, and what didn't…. That way, we can learn from our mistakes and improve the development design.

Other BFA Highlights

- BFA has a new LOGO thanks to the hard work of graphic designer, Danielle Pierce, and shepherding by BFA Board Member Jay Massey! The logo will be unveiled at the meeting.
- A BFA subcommittee was organized to assist in developing the Standard Operating Procedures (SOPs) for the scientific equipment which will be used in water quality testing. The SOPs are completed, major thanks to Greg Schiefer and Bruce Vigon, and the next step will be a series of trial runs, to make sure we have all the equipment needed for success.
- The Impact 100 Grant received by Satori and the BFA partnership is already experiencing the 'impact of Impact' in our area. BFA Members Elizabeth Eubanks and Mike Aymond have helped Satori take kids out on the water with Satori's new triton boat to Deadman's Island to learn about the history and ecology of the area. Barbara Albrecht had the pleasure of joining another group of interested little people on Earth Day of this year.
- The East Hill Neighborhood Association's Bands on the Bayou has selected the BFA to receive funding to help with water quality conditions in Bayou Texar. The bayou has been returning to a healthy system, as is evidenced by more SAVs and the occasional otter, manatee, and dolphin sightings. Unfortunately, the bayou still suffers from high nutrients and bacteria loads. To address this concern, the BFA is interested in a small biological experiment which involves putting 'oysters in cages' at various depths on private docks and piers.
- In preparation for the Bayou Texar Project, Trinitas Christian School has selected the BFA again for their Day of Giving Program. In Nov 2019, Trinitas students, parents, and volunteers helped to plant native plants in a small area of Bruce Beach, then in April 2022, another Trinitas group helped build oyster cages, a prepare floating mats which were deployed in Nov 2022 in partnership with Save Our Soundside (SOS). Oysters were purchased from Shana Alford, and students counted out 75 baby oysters, measured and weighed them before deploying them in three small bayous along Santa Rosa Sound. Besides oysters, 20 emergent marsh grasses were secured in specialized floating mats (donated by Escambia County). The plants were arranged and coordinated by then SeaGrant specialist Chris Verlinde, who has since joined Santa Rosa County's Environmental Program.

- Lastly, Santa Rosa County I currently accepting input and feedback from the public as they update the Land Development Code. This is an important process as it determines how the County will grow in the future. Several years ago, the county underwent the same process but favored developers – perhaps because of the ensuing property taxes they would bring to the county coffers. The citizens cried foul and began many social media and letter writing campaigns. What's more, they voted the elected officials who had received large donations from these developers out of their positions.
- Similarly, the City of Milton, also located in Santa Rosa County, has two very large projects in front of them - that if passed - will serve to alter the community in very negative ways.
    - The first is the newly chosen location for the new Wastewater Treatment Plant. The old plant, located down river (Blackwater River) from the City of Milton is outdated, can no longer serve the community's rapid growth, and is currently in a vulnerable location, given sea level rise. The city knew that the plant would need to be replaced, but the City kicked the can down the road until now – and now it's become an emergency. Sadly, because they waited so long, the City has run out of quality land, the previously identified property was made available to FL Power & Light which has installed a large sub-station. So, the city in partnership with the County (SRC) identified a parcel along the Blackwater River that is on a steep slope. Thankfully, citizens circled the wagon and have created a group called Save the Blackwater River. It is disheartening when elected officials discount their constituents and forget whom they serve.
    - The second issue that the City of Milton is facing is the road expansion of Hwy 90 through the heart of the city, across the Blackwater River. This antiquated idea of expanding a road through the heart of a historic city should not even be considered but given that the FDOT uses antiquated rainfall data and flood maps to build stormwater ponds – it's not hard to understand the antiquated rationale that is being applied here. There is so much irony in this area, with residents in Beulah trying to get OLF 8 developed into a thriving community by having quality development that is walkable and bikeable, and in the City of Milton which has a nice walkable downtown, the city is about to become eviscerated by additional lanes for cars and increased traffic. Clearly there is little rhyme or reason, and despite being debated and a hot topic for years, it appears that the decision makers have made up their minds. Boo!
- Lastly, the WATER QUALITY MONITORING PROGRAM and WQM Class will be scheduled for mid to late May. The dialogue with FDEP is moving forward and we are currently negotiating adding several new stations to the mix. As always, it appears that since Covid things take longer to come together.

On behalf of the BFA Board and myself, thank you for your support and patience as we gear up for continuing our very important work. Hope to see you next Wednesday, 3 May at 6:00 pm to learn about sediments and what new innovative ideas and technology that can be applied to their removal from waterways, and how they can be used as a resource elsewhere.