



Please mark your calendar for the next General Membership Meeting

**Wednesday, 2 August 2023**

This will be a Dinner Meeting with a Guest Speaker! Doors open at 5:30 PM.

Join us for vegan inspired seasonal meal.

Dinner will be served at 6:00 PM.

Cost \$10.00/person.

1615 East LaRua Street, Pensacola

Please join us in welcoming Ronell S.H. Bridgemohan, who is currently pursuing his PhD at the University of Florida's (UF) Institute of Food and Agricultural Sciences (IFAS) Water and Soil Science Department at the WFREC in Milton, Florida.

The title of his presentation is: 'Assessing the Flus: A time-space journey into aquatic fecal microbe and nutrient dynamics in subtropical mixed-use coastal watersheds'.

His research integrates a B.Sc. in Biology with a minor in Communications and Extensions in Agriculture and a M.Sc. in Biology. Today, Bridgemohan's interests lean more towards Environmental Microbiology. Prior to embarking on his PhD journey, he acquired substantial experience working as a Water Ecologist for the New York City Department of Environmental Protection (NYCDEP). His role there involved regular monitoring, testing, research, and analysis of the drinking water quality of reservoirs, streams, dams, and other critical points that contribute to New York's water supply. These skill sets comprise a comprehensive portfolio extending from aquatic ecology and environmental microbiology to environmental risk assessments and regular water quality monitoring.

With a firm belief in the power of research and a profound dedication to public health and the environment, Bridgemohan is committed to making a difference in less developed areas, with a focus on the Caribbean region. His experience in research and laboratory work at University of Trinidad and Tobago, Waterloo Research Campus overlapped with several research projects in areas like agriculture, food biotechnology, water quality, environmental biology, and crop sciences. Under the mentorship of Dr. Mathew J. Deitch, his research delves into the innovative realm of microbial water quality of coastal vulnerable subtropical systems in the Gulf of Mexico.

The BFA is particularly interested in Bridgemohan's research and findings as many of his sampling sites overlap with established BFA water quality monitoring stations and swimming areas located in rural communities.

This summer is shaping up to be another brutally hot year. And while July and August are always hot, the current land conversion practices of tree clear cutting and the loss of their subsequent canopies are intensifying the problem. On a recent drive from Pensacola to the Blackwater Forest, the outside temperature registered 95°F/35°C; as we entered the forest under the canopy, the temps registered 85°F/29.4°C. By the time we parked, near one of our favorite creeks, the car thermometer was registering 83°F/28.3°C, a noticeable and appreciated difference - and this was in early July!

In the last BFA newsletter we discussed the problems associated with stormwater and the many pollutants which are picked up non-discriminately by rainwater when it strikes non-pervious surfaces and flows downhill – most likely towards a waterway. Compounding this problem, especially where clear cutting occurs, is that the trees and understory vegetation which would normally intercept rainwater and pump water up its trunk to branches and out to its leaves to release tiny aerosol size droplets (i.e., the process of transpiration, an ecosystem service) which then cools and moistens the area, are removed from the equation.

The land use changes which are currently underway in the region are changing natural lands (rural) to high density development (urban) and altogether skipping over the suburban category. This unfortunate progression is glaringly apparent in south Santa Rosa County, where large natural tracts of land are being scalped and leveled between Naval Live Oaks and Navarre, while being replaced with cookie cutter homes. Similarly, towards the north, large land areas outside the forest which may have been in silviculture are now being cleared and replanted in sod (sod farms) or, as is the case in east Milton, solar farms. Escambia County is following suit in these endeavors and granting FPL permission to convert agriculture lands to these solar facilities. [These land disturbances also result in sedimentation, which serve to threaten area surface waters.]

The concept of transitioning to clean energy is long overdue, however, cutting down a forest, which should be viewed as vertical stormwater towers that produce oxygen and provide habitat to hundreds of species and replacing them with acres of solar panels to capture sunshine to convert it to electricity is plain foolish and counterintuitive. Placing solar panels on commercial and private rooftops, or in the case of several underutilized military OLFs (outlying fields with runways) is brilliant!

Of course, in today's world everything is tied to money, and in the case of electric companies like FPL (Southern Companies) the cost of maintenance and liability are economically feasible only when electric generation is co-located in concentrated areas (i.e., solar farms). So perhaps the citizens who shop at large box stores like Walmart, Target, Publix, Winn Dixie, Home Depot, Lowes, and shopping malls like Cordova or University Mall can request that a portion of the expansive parking lots integrate shade awnings with Solar Panels, similar to what City of Pensacola has installed at City Hall. Perhaps these businesses could be incentivized by FPL (to offer shade while creating power) and help offset their power bills, while offering shaded parking for their employees, customers, and clientele. Ideally all city, county, and governmental offices should install energy capturing devices, since they should be leading by example, and FPL is currently only getting 5.4% of its energy from solar power. *Seems like this is the low-hanging fruit...*

Another counter-intuitive practice occurring in the panhandle and negatively impacting water quality is the FL Dept of Transportation (FDOT) practice of widening interstates (I-10) and highways, specifically Hwy 98 in south Santa Rosa County (Gulf Breeze east towards Navarre) by removing the median swales. The vegetated swales behave much like linear stormwater ponds which capture rainwater, while the grass traps sediments

and take up nutrients. In addition, the swales hold the rainwater until it can properly percolate into the ground thus recharging groundwater.



Figure 1. City of Pensacola – City Hall, Reus Street looking east.

Of course, the widening of roads is to support and encourage growth in the region. The growth is fueled, in part, by unbridled development\* which in turn feeds the local and state economy. The developers point out that we have a home shortage, I say ‘an ‘affordable’ home shortage’. I’m observing lots of cookie cutter homes being shoe-horned into these sprawling communities, but they are hardly affordable to the young folks being tempted and attracted to the area. Where is the disconnect? The area’s natural resources (beaches, forests, and waterways) lure visitors, remote workers, and retirees (snowbirds) and are made palatable by the many festivals and activities inspired and heavily marketed through tourism industry. Does the tourism industry have an active role in protecting and preserving the natural areas, does a portion of their bed tax fund water quality monitoring? Public restrooms? If not, why not?

The nexus of widening roads to support growth and tourism are 100% counter to protecting the natural resources, and the impact of that action to water quality...which drive the changes to alter the community structure and environmental composition. Ironically, the FDOT mission statement states: ***The department will provide a safe transportation system that ensures the mobility of people and goods, enhances economic prosperity, and preserves the quality of our environment and communities.***

The last part of that statement is wishful thinking. Let us revisit the new 3-Mile Bridge as an example. The ‘General Chappie James Bridge’ cost Floridians \$440-480M to build and consists of two parallel structures, each equipped with three travel lanes, each travel lane has adjacent inside and outside shoulders and a 10-foot multi-use path for pedestrians and bicyclists. Each span is 66’ wide and 3 miles long, which translates into ~30 acres of hardened surface per span. A one-inch rain event on a single acre would generate 27,150 gallons of stormwater. A one-inch rain event on **one span** of the new bridge will generate 814,500 gallons of stormwater. To put this in perspective, an Olympic size pool holds 660,000 gallons of water. That’s roughly 2.5 Olympic sized pools worth of water entering Pensacola Bay for every 1” rain event. And then multiply by 2.

According to USDA, NOAA, and NRCS, the average annual rainfall for the area between 1960-1990 was 61.8". For the last three decades the amount has crept up to 68" annually. So far this year we have received 48.14' ([www.cocorah.org](http://www.cocorah.org)). Amazingly, during a 30-day period between June and July 2023, this region of the FL Panhandle received 25" of rain. That's a lot of water! And that's a lot of stormwater entering the surface waters where we enjoy recreating, fishing, and swimming.

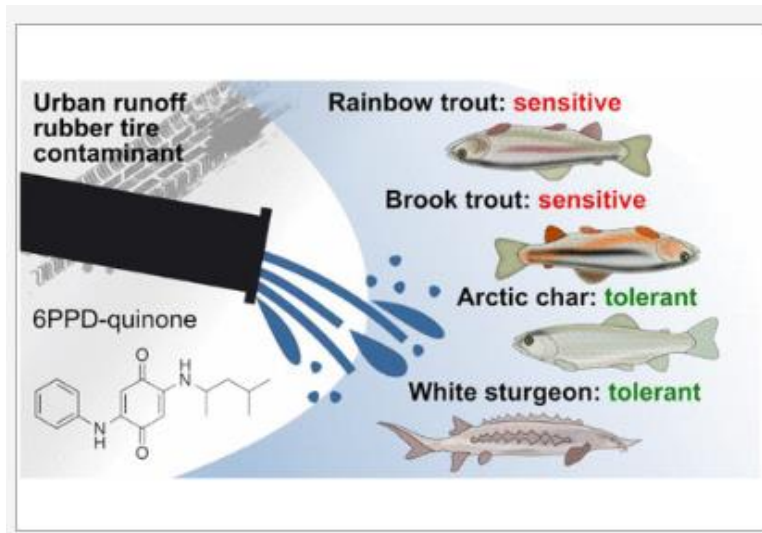
The FDOT estimates that 55,000 cars travel across the bridge daily. And each of those vehicles have tires (some two, four, six, or eight and maybe more) which wear down on roadways. The tire industry is of course upgrading materials and designing newer, longer lasting tires to accommodate their clientele. Only, it appears that a new chemical compound connected to dissipated rubber tire residues has been linked to acute mortality of several important fisheries. In the Pacific Northwest coho salmon migrating into urban creeks to spawn began dying in unusually high numbers. <https://www.science.org/doi/10.1126/science.abd6951> In France, the eel fishery population dropped to record low numbers and caused concern about the future of this important species. Independent research identified the chemical constituent as 6PPD-quinone, a globally ubiquitous tire rubber antioxidant (<https://www.researchgate.net/profile/Victoria-Deycard>).

That is such bad news for the area, for regulators, for the community, and especially our waterways which we share with so many charismatic creatures (dolphins, manatees, otters...) and the often overlooked and crucial tiny food chain that supports the fishery and the many priceless habitats that they call home. Societal management of inadvertent, yet widespread, chemical pollution is costly, extremely challenging, and often ineffective. Sadly, humans inadvertently discharge tens of thousands of chemical compounds annually (pharmaceuticals, fertilizers, pesticides, oil & grease, to name a few) which make their way into surface water when it rains. Most of these compounds and transformational compounds (temperature and sunlight can alter the chemical constituents) remain unidentified and lack any rigorous toxicity information.

Revisiting the earlier 3-mile bridge discussion, in August of 2019, several BFA Members and I drove to Chipley, FL, to meet with the FDOT Engineering Dept, Stormwater Dept, attorneys, and consultants to discuss how stormwater would be treated, given that there is a state statute (which the legislature passed, and the Governor signed) that requires the collection and treatment of stormwater. Somehow FDOT, a state agency (that **could and should** be leading by example) gets a free pass to violate a state law to treat stormwater. Sister agencies FDEP and NFWMD also looked away. Rules only work when they apply to everyone!

That is tremendously disappointing because in 2000, the citizens living in the City of Pensacola made a commitment to add a stormwater utility fee to their annual property taxes. This fee has generated roughly \$2M annually and is dedicated solely to stormwater treatment in the city. One can say that the improvements observed over the past two decades in Bayou Texar are a direct result of this utility fee.

At that same Aug 2019 meeting, we learned that the City of Gulf Breeze received ~\$1M and the City of Pensacola received ~\$1.5M from FDOT because these two cities are the **governmental entities** directly adjacent to the bridge. During the meeting, we inquired whether those funds would be earmarked for a street sweeper, or some form of stormwater retrofit to capture and treat water coming off the bridge. Sadly, stormwater treatment for that project wasn't a priority.



Source: Brinkman, M., et al., <https://pubs.acs.org/doi/abs/10.1021/acs.estlett.2c00050>

What does seem to be a big FDOT priority for the new bridge, and the two governmental entities directly adjacent to the bridge, are the elaborate lights. Evidently leaving the lights on seven nights a week would cost FDOT \$30,000 a month. Maybe they could use some solar panels to help offset their electric costs. And of course, the cost of regular maintenance for the elaborate light show isn't cheap either, especially given the harsh and salty environment.

In early 2020, prior to one of the many new Estuary Program meetings, I attended a regional FDOT Meeting to plead with the state, regional, and county representatives to offer a competition (~\$100K) to technical schools and college/university engineering departments whereby new and innovative ideas could be vetted. What a disappointment that this new structure will have a 50–65-year life span, and the very state agencies we are expected to trust; which we financially support through taxes; and claim that they preserve the quality of our environment and communities can have such misplaced priorities.

Another misplaced priority includes asking the public and stakeholders to help shape the future of the area through civic participation, and then **blatantly ignore** the same communities' input. This part of the Panhandle never fails to disappoint its constituents!

In Santa Rosa County, the county is trying once again (last attempt was 2019) to update their Land Development Code, only to disappoint the citizenry (again!) except the developers, homebuilders, and the elected officials who receive financial support from the development base. Similarly, in Escambia County, Beulah and Molino residents who have participated in their community's future are once again disappointed that their county 'which selected, vetted, and hired community planners and design firms to design and layout future growth in these rural communities are ignoring their self-selected consultants and choosing more sprawl, traffic, congestion, and eventual blight. Fingers crossed they've addressed the aged infrastructure!

The tiny community of Florida town, on upper Escambia Bay, is slowly eroding into the bay. Once a vibrant community of ~5,000 (circa 1914), which supported a fancy resort complete with dance hall, restaurant, and a community dependent on natural resources. Florida town is slowly fading away into the bay.



The public boat launch was most recently damaged by Hurricane Sally in 2020 and has not been repaired. Why not? And why exactly is there a 3-year delay to gain a permit request to build and design a living shoreline\* (think Project Greenshores, Phase III in downtown Pensacola) which would serve to mitigate wave action causing said erosion. Evidently the permit has stalled because the agencies in charge of issuing permits can't seem to get on the same page. *Say it ain't so!* Classic situation in that the right hand isn't communicating with the left hand! Ironically, Santa Rosa County could have requested a permit for a bulkhead or sea wall, in which case the permit would have been rubber stamped within 3-10 days of applying. So glad these agencies are leading by example...Not! *\*Research supports that Living Shorelines provide an environmentally beneficial approach to mitigate erosion, stabilize shorelines, and provide conditions to support emergent and aquatic vegetation habitat. [Think Project GreenShores Phase I]*

The City of Pensacola is building a stormwater pond/park under I-110 from Lee north to Avery Streets. They received a nice grant which is being peddled to the public as an attempt to restore a 'Lost Neighborhood' from 50 years ago. Back then the path chosen for the I-110 span dissected a vibrant African American community in the late 1970s. Paradoxically, over in the cute historic town of Milton on the Blackwater River, the FDOT are moving full steam ahead to fragment their historic little walkable downtown by widening Hwy 90. Hindsight is always 20/20. Another City of Pensacola Bruce Beach is being converted into a hardened park. There is an interesting climbing structure which will appeal to little people, but it'll be hot without any shade. Too bad they cut down many of the mature trees (including the one with an elaborate tree fort that was loved by many little and big people) which were remnants of the maritime forest that once ringed and buffered the shore. I've fielded many calls about this park and its water quality (visit the BFA website for the findings and full reports). Recently a concerned citizen called wanting to know if the city was building a **Buc-ee's** gas station on the Main Street site. Smile.

The BFA has a new logo and tag line, in part to appeal to younger people who may not know or remember the important role that the bream, a little panfish, which sustained many communities near water during hard economic times...became the name and mascot for our organization. At many county and city meetings, I've had to remind newly elected officials that a portion of their constituents may be poor, subsistence fishermen. Their only source of protein might be a locally caught fish. These elected officials have a lot on their plate including the responsibility to help protect our natural resources, which includes water quality, for the community they represent.



Figures 2 & 3. These folks were out early one Sunday morning while we were passing through Milton collecting our water quality samples. They were fishing at Locklin Creek, a station we hope to add to our regular water quality monitoring roster.

Apropos monitoring...we have not set a date for the Water Quality Sampling Class yet, as a result, we have not been monitoring. BUT we have been getting our new lab road worthy. As to be expected, everything seems to take longer than anticipated. Shout out again to Danielle Pierce and BFA Board Member Jay Massey for the beautiful logo, tagline, and design. Thanks also go out to Marcus at Creative Instincts for the gorgeous wrap job, and of course, none of this would have been possible without our partners at the Satori Foundation, and the impact of the Pensacola Area - Impact 100 Ladies! Look for us on the road!



Figure 4. The new logo and look of our water quality monitoring laboratory.

This fall we be working towards completing the remainder of our grant with Impact 100. Satori and BFA plan to visit all the elementary schools, bringing the coast to the kids, in Escambia and Santa Rosa Counties. We hope to meet all the students in 3<sup>rd</sup> and 5<sup>th</sup> grades and teach them about why it is important to understand the need to protect our area's waters and natural lands. Not only for the people who live in the vicinity, but all the various plants and animals that make this area their home. The choices we make today shape the future of the watershed for the following generations.

The East Hill Neighborhood Association's subcommittee, Bands on the Bayou has awarded the BFA funding to help with a demonstration project which will help to bring awareness to homeowners living on the waterfront, while answering some important scientific questions about oysters. The Satori Foundation will assist BFA in cage deployment and collecting oyster data, water quality parameters, and site conditions throughout the study. We hope to begin this project just as soon as the oysters reach 5 cm (2" in size). These activities will be completed by the Tritoon boat purchased by the Satori Foundation through the Impact 100 grant. We hope to include many students from our summer outreach program, which has been a big success thus far.

Thanks to our wonderful members, sponsors, and especially our BFA Board for supporting our efforts and thereby protecting the natural resources which have shaped our region. Remember to tread lightly on and in the natural landscape. After all, we are far more dependent on nature than we may realize.

[BFAwater.org](http://BFAwater.org) also known as the [Bream Fishermen Association](http://BreamFishermen.org) is a not-for-profit organization dedicated to promoting environmental conservation and recreational opportunities for anglers, hunters, campers, and people invested in related outdoor activities. 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.

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

4) Provide environmental education and outreach.

The vision for the Bream Fishermen Association is the re-connection of communities to their watersheds through a thriving regional watershed monitoring approach. The activities of citizen volunteers through this organization foster the appreciation, conservation, restoration, and appropriate management of our area waters. The desired outcomes for the resources are increased biological diversity and productivity from head-water streams to our panhandle bays. The BFA has a long legacy of assisting county, state, and federal partners in area-wide water quality monitoring. Through these monthly efforts, citizens have become aware and engaged in their area's waters and are becoming better stewards for the environment.

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 \$20 annual dues to 1203 North 16<sup>th</sup> Ave, Pensacola, 32503.

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