

30 July 2021

City of Pensacola Councilwoman Hill,
Pensacola City Administrator Wilkins, and
Pensacola Asst City Administrator Fiddler

Dear Councilwoman and City Administrators:

Thank you for the opportunity to submit this proposal to identify sources of water borne pathogens detected in surface waters around Bruce Beach (Figure 1). Downtown Pensacola is currently experiencing a rebounding economy, including the waterfront. The interest and attention of the Community Park at Bruce Beach has developed a large, dedicated community of visitors all with the goal of stewardship, including several schools, researchers, paddlers, birders, fishermen, and many others. This loosely organized stewardship consortium is attracted to this waterfront parcel in part because of the easy access, as well as the seasonal flora, migratory fauna, and the reestablishment of a maritime coastal forest.

The city and stakeholder partners have committed resources towards tourism which promote walkable, bikeable, access to clean water, and various outdoor recreational opportunities to both the community and visitors. Examples of water sports include the designated Blue Ways Trail (Figure 2), coastal rowing, sailing, regattas, Dragon Boat Racing, and the famous beaches which invite the public to recreate in area waters.

Encouraging the public to use and enjoy the water brings a responsibility to the city to know and understand local water quality, especially at access points. Should water quality be degraded to the point where human health may be affected, the city would be accountable to post signage warning of concerns and possible shut down access until concentrations of contaminants are no longer a threat to human health. The public trusts the city to implement measures to keep them safe while recreating.

In February 2021, students and staff from the University of West Florida began sampling water quality and monitoring concentrations of Enterococcus using USEPA Method (Enterolert (QT)) in a NELAC certified Lab. This study was supported by City of Pensacola Councilwoman Hill who provided seed money to the Bream Fishermen Association (BFA).

Over fifty percent (50%) of the time, samples collected at the three sampling locations were found to be above acceptable threshold levels for human health exposure between Feb 8 and June 24 (Figure 3). Monitoring of water quality has shown the waters along Bruce Beach would be unacceptable for recreational activities much of the time. If not investigated and addressed, the city may be forced to post “No Swimming” signs along the shoreline. This may obstruct the efforts proposed to revitalize this area of the downtown shoreline.



Fig. 1. Aerial view of Bruce Beach with pins marking the locations of sampling points. Washerwoman Creek (WWC), Sandy Shoreline (SSL), and the Mitigated Wetland (MWL).



Fig. 2 Proposed Pensacola Paddling Trail as part of the Blue Ways Trail.

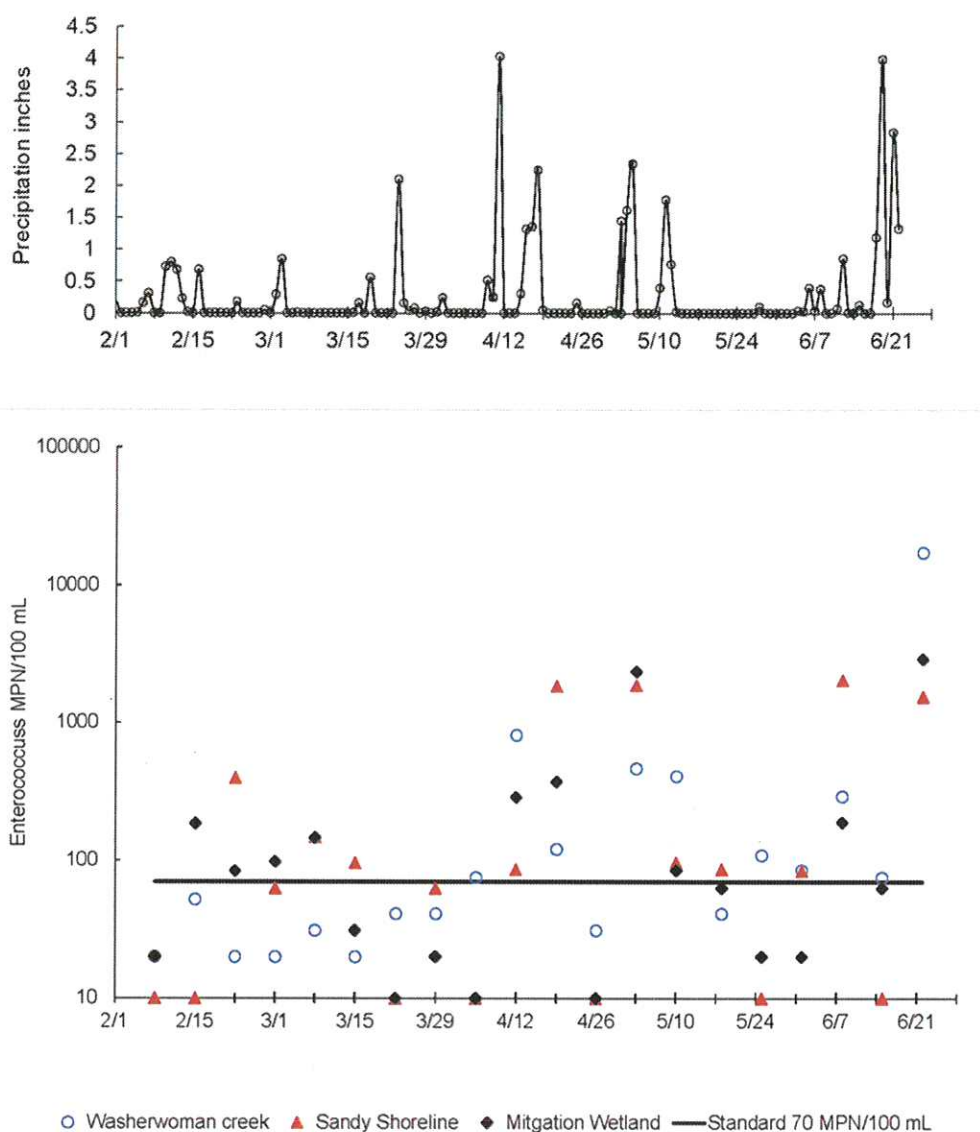


Fig. 3. Rainfall in the Pensacola metro area and Enterococcus loads. Enterococcus were measured at three locations in the study area (Fig. 1). Rainfall was as recorded at Pensacola Airport (top panel). Surface water enterococcus loads were measured at Bruce Beach (Sandy Shoreline), Washerwoman Creek, and the nearby Mitigation Wetland, collected weekly-02/03/21 through 06/24/21. Enterococcus loads were determined by the EPA “Most Probable Number” (MPN) method as described in section 3.1.1 of EPA [Recreational Water Quality Criteria](#) guidelines. The black line marks 70 cfu / 100 mL, which is the EPA cutoff for “Beach Action Values” as per Table 5 in the recreational water quality guidelines for both marine and freshwaters.

The possible sources of these impacts, whether inland (Washerwoman Creek) or adjoining and contiguous properties needs to be understood. Source tracking and additional monitoring is required to identify the source(s) creating this potentially dangerous situation. Given the conditions cited earlier, and the

investments made or being considered for the waterfront and community, we recommend a two-pronged approach.

The contribution of aged infrastructure to the high pathogen loads is unknown. ECUA still maintains a lift station just north of the site of the previous wastewater treatment plant, which sends untreated sewage to the new facility along the Escambia River. Given the age of the community and the infrastructure, it would not be surprising to discover that leaking pipes may be the source of these waterborne pathogens.

During the 26 July 2021 conference call with the city administrators, engineers, UWF researchers and yourself, we discussed possible scenarios based on samples collected inland last week (wet week) and this week (a dry week).

Bruce Beach	6 July 2021	13 July 2021	20 July 2021	27 July 2021
WWC	3873	313	299	213
SSL	738	41	464	10
MWL	638	109	670	10
Stormwater grate near De Villiers & Intendencia	Not sampled	Not sampled	>24,196	203
Corinne Jones	Not sampled	Not sampled	749	30

Fig. 4. Enterococcus loads at three set stations near Bruce Beach and two inland stations during July. Samples were collected at two inland sites which were suspected as contributing to the area.

Given the discussions we had on Monday and while awaiting confirmation and coordination of the city (stormwater) and ECUA personnel (potential sewage infiltration) and procurement officers, we have a general idea where the stormwater collects and is diverted to Washerwoman Creek.

We propose a two-pronged approach 1) identify the source of human pathogens detected at three locations along Bruce Beach, and 2) develop and characterize baseline of the water quality conditions (through the remainder of summer) at city owned properties along the new paddling trail.

Item 1. Bruce Beach Stormwater Source Tracking. We propose to conduct a 13-week study to examine the distribution and identify sources of the high enterococcus counts we have been detecting. Based on discussion with city and ECUA, we will identify and sample an additional 12 locations plus the original 3 locations at Bruce Beach. The city of Pensacola will provide personnel to assist with removing stormwater lids to collect samples.

Item 2. Weekly Monitoring of publicly accessible areas (Paddling Trails) where the public might encounter human pathogens. Fourteen sites, readily accessible to the community have been identified for weekly sampling (overlap with the Blueways/Paddling Trail) and the October 2021 Dragon Boat Race Event. Significant rain events (defined as >3.5 inches in 48 hours) will trigger additional sampling. This should allow us to narrow down point sources for the bacteria detected. Once identified, these locations can be examined more closely during future studies using both dye studies and source tracking to identify, for instance, whether the bacteria detected are of human or some other animal origin. The sample sites selected overlap with the city owned parcels identified in the Pensacola Bay Paddling Trail, and expand to the Visitor's Center, a dominant outfall at 14th Ave and Project GreenShores (Figure 5), a sandy beach adjacent to Bartram Park, Palafox Marina, Bruce Beach Marina, 'A' Street outfall, Sanders Beach (eastern shoreline), Pensacola Yacht Club Shoreline, and Mahogany Mill Boat Launch (Figure 6).

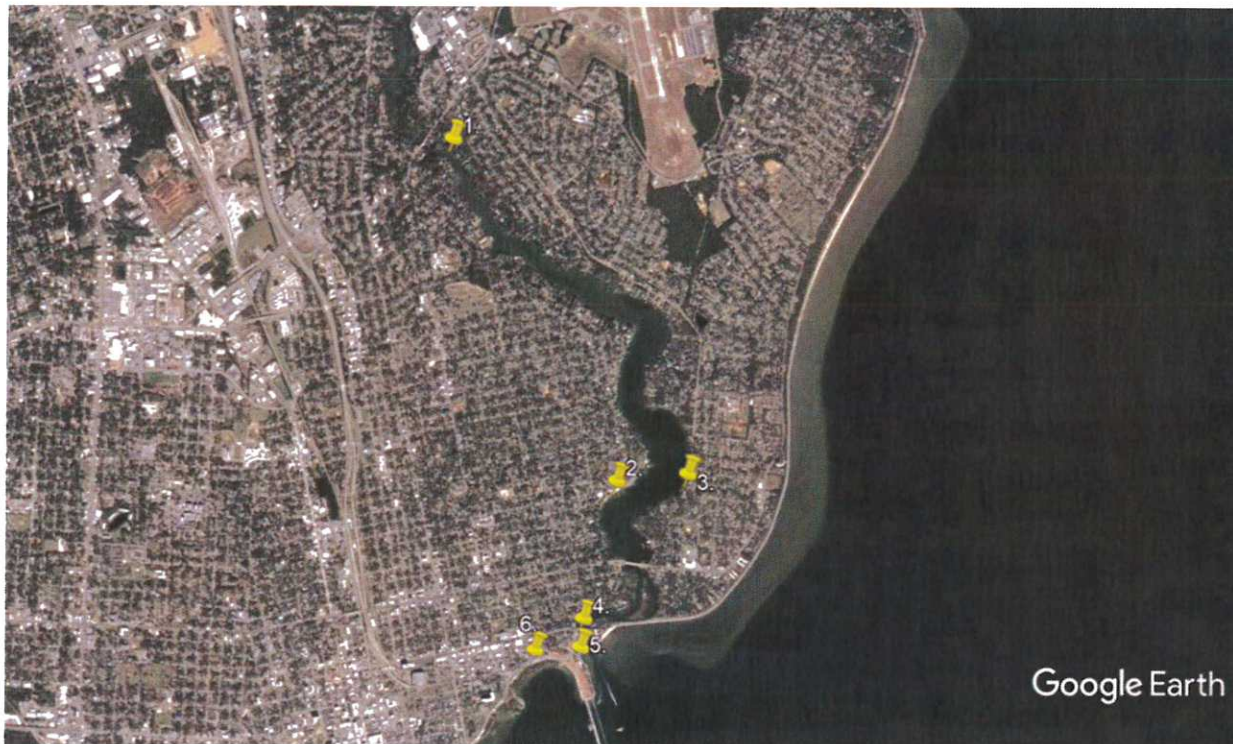


Fig. 5. Proposed sampling locations in Bayou Texar and the adjacent publicly accessible areas (Paddling trail samples).



Fig. 6. Proposed sampling locations in publicly accessible areas along the city waterfront. Paddling trail samples in yellow. Washerwoman creek samples in red

Budget

Item 1. Bruce Beach Stormwater Source Tracking – pending review of reports and access points.

Popping stormwater lids (12 locations) to track “hot” spots + 3 existing Bruce Beach locations

Item	Cost
Salary + Fringe	\$25,719
Consumables	\$ 6,000
Travel (\$0.445/mi * 13 weeks * 40 miles RT)	\$ 231
Laboratory Analysis for Enterococcus (\$27/sample * 15 locations * 13 weeks)	\$5,265
Subtotal	\$38,379
F&A (20%)	\$ 7,676
Total	\$46,055

Item 2. Weekly Monitoring of publicly accessible areas (Paddling Trails) where the public might encounter human pathogens.

13 weeks X 11 locations

Item	Cost
Salary + Fringe	\$25,719
Consumables	\$ 4,400
Travel (\$0.445/mi * 13 weeks * 40 miles RT)	\$ 231
Laboratory Analysis for Enterococcus (\$27/sample * 11 locations * 13 weeks)	\$ 3,861
Subtotal	\$35,375
F&A (20%)	\$7,075
Total	\$42,450

Sincerely,

Jane M. Caffrey, PhD