MEETING AGENDA AND INFORMATION

for

Florida Association of Aquatic Biologists 33rd Annual Meeting

Apalachicola National Estuarine Research Reserve

Eastpoint, Florida

May 28 – 30, 2019

MEETING AGENDA

Tuesday, May 28, 2019

9:30 FAB Executive Committee Meeting
1:00 Welcome and Announcements
1:15 Talks:

"Research at the Apalachicola National Estuarine Research Reserve"
Jason Garwood, Apalachicola National Estuarine Research Reserve, Eastpoint, FL

"Potential Applications of a Stream Classification System"
Joy Jackson, Florida Department of Environmental Protection, Tallahassee, FL

"Aquatic Insect Assemblages of Ponds in the Munson Sandhills Region of the Apalachicola National Forest, Florida."
Andrew K. Rasmussen, PhD, Florida A&M University, Tallahassee, FL

2:30 Break
2:45 Talks:

"Updates on the Taxonomy and Distribution of Florida Chironomid Midges, Water Beetles, and Water Bugs"
John H. Epler, PhD, Aquatic Entomologist, Crawfordville, FL

"Systematics of the Eastern North American Polycentropus sensu stricto (Trichoptera: Polycentropodidae): A Proposal "
Alex Orfinger (Student), Florida A&M University/University of Florida, Tallahassee, FL

"Impact of Salinity on the Diversity of Epifauna on the Seawhip *Leptogorgia virgulata* in Tampa Bay, FL"
Samantha Stewart (Student), University of Tampa, Tampa, FL

4:15 Announcements and Logistics for Social

6:00 FAB Social at The Tap Room (75 Commerce Street, Apalachicola)

Wednesday, May 29, 2019

8:00 Taxonomy Fair

9:00 Announcements and Photo Contest

9:15 Talks:

“Stream Condition Index in Pinellas County: Urban Stream Syndrome”
Peggy Morgan, Pinellas County Environmental Management, Clearwater, FL
“Designing and Assessing Streams to Ultimately Ensure Biological Success”
Russ Frydenborg, Frydenborg EcoLogics, Tallahassee, FL

“Seagrass and Submerged Aquatic Vegetation Monitoring: Methodologies, Struggles, and Lessons Learned”
Shannon McMorrow, Wood Environment & Infrastructure Solutions, Inc.

10:30 Poster Session:

"Trophic Resource Partitioning of Weakly Electric Fishes (Teleostei: Gymnotiformes) of the Upper Amazon Basin"
Alex Orfinger, Student, Florida A&M University and University of Florida, Tallahassee, FL

"Stomach Content Analysis of *Cichlasoma urophthalmus* (Mayan Cichlid) in the Tampa Bay Watershed"
Kassandra Weeks and Ryan Tharp, Students, University of Tampa, Tampa, FL

12:00 Lunch

1:30 Annual Business Meeting and Award Presentations

3:00 Boat Tour

Thursday, May 30, 2019

8:30 Talks:

"Education Outreach: How and Why"
Scott Duncan, Reedy Creek Improvement District, Lake Buena Vista, FL

"The Lake Vegetation Index in Pinellas County"
Peggy Morgan, Pinellas County Environmental Management, Clearwater, FL

"Use of the Florida SCI for Monitoring the MFL for Blue Spring (Volusia County)"
Rob Mattson, St. Johns River Water Management District, Palatka, FL

10:00 Break; Silent Auction Ends

10:20 Talks:

"Unusual Polychaete Taxa From Puerto Rico"
Doug Strom, Water and Air Research, Gainesville, FL

"*Amercaenis cusabo* (Ephemeroptera), a New Species Record for Florida"
Todd Risk, Florida Department of Environmental Protection, Tallahassee, FL

12:00 Annual Meeting Ends

SAFE TRAVELS!

ABSTRACTS OF ORAL PRESENTATIONS

Title: ***NERRs 101: An Intro to the National Estuarine Research Reserves with an Overview of the System-Wide Monitoring Program at Apalachicola NERR.***

Author: Jason Garwood, Research Coordinator, Apalachicola National Estuarine Research Reserve, Eastpoint, FL

The establishment of the Coastal Zone Management act in 1972 opened the way for the National Estuarine Reserve (NERR) system, with Research and Monitoring serving as a core function of all NERRs. The resulting initiatives to prioritize research in estuarine systems has allowed staff and visiting researchers to utilize estuaries as a platform for understanding the structure and function of coastal wetlands. Having been designated in 1979, Apalachicola NERR is second largest and the fourth oldest NERR. By 1995, when the ANERR System-Wide Monitoring program was established, there was a total of 21 of the 29 NERRs we have existing today. This presentation will discuss the National Estuarine Research Reserve System and the Research Program at the Apalachicola National Estuarine Research Reserve.

Notes:

Title: ***Current and Potential Applications of a Stream Classification System***

Author: Joy Jackson, Florida Department of Environmental Protection, Tallahassee, FL

Many types of streams occur in Florida and vary widely in factors known to affect their biological communities and trophic status. Recent work in Florida streams has provided a new tool for classifying streams and establishing appropriate expectations. This hydrobiogeomorphic (HBG) system embodies key elements that greatly affect the structure and ecological function of natural streams. During the development of numeric nutrient criteria (NNC), streams in the FDEP biological database were assigned an HBG category and the classes were used to describe how streams differ in nutrient expression and assimilative capacity. It was also used to develop a quantitative definition of perennial and intermittent flow to determine flow-regime suitability for Stream Condition Index sampling. Since the adoption of NNC, DEP has been exploring ways to incorporate the classification system into existing programs. In this presentation, we will introduce the classification system and highlight a few applications DEP is currently considering.

Notes:

Title: ***Aquatic Insect Assemblages of Ponds in the Munson Sand Hills Region of the Apalachicola National Forest, Florida***

Authors: Andrew K. Rasmussen*, Barton A. Richard, Manuel L. Pescador, Center for Water Resources, Florida A&M University, Tallahassee, FL

The ecology of temporary ponds is poorly known as compared to permanent ponds and lakes. Gaining a basic understanding of what organisms occur in these ecosystems and how they interact with each other and their environment is complicated by the fact that temporary ponds, even within a small area, have highly variable hydroregimes due to local-scale hydrological differences and unpredictable climate patterns. As part of a multidisciplinary study of the hydrology, vegetation, soils, and aquatic fauna of ponds in the Munson Sand Hills region of the Apalachicola National Forest, we investigated aquatic insect assemblages of four temporary ponds. Aquatic insects were surveyed by collecting dip net samples from the four ponds seasonally for two years. Specimens were identified to lowest practical taxonomic level. Taxonomic richness and abundance data were used to characterize aquatic insect diversity through space and time. Spatio-temporal variations in richness and abundance were investigated in relation to water chemistry, hydrology, and habitat variables. Results from this study will be discussed in the presentation. These research findings provide baseline data useful for effective bioassessment of these unique ecosystems.

Notes:

Title: ***Updates on the Taxonomy and Distribution of Florida Chironomid Midges, Water Beetles, and Water Bugs***

Author: John H. Epler, PhD, Aquatic Entomologist, Crawfordville, FL

Updates will be given on the taxonomy and distribution of chironomid midges, aquatic beetles, and aquatic bugs in the State of Florida.

Notes:

Title: *Systematics of the Eastern North American* Polycentropus sensu stricto *(Trichoptera: Polycentropodidae): A Proposal*

Author: Alexander B. Orfinger, Florida A&M University and University of Florida, Tallahassee, FL

(STUDENT PRESENTATION)

The Eastern North American fauna of *Polycentropus sensu stricto* (Trichoptera: Polycentropodidae) is represented solely by the monophyletic *Polycentropus confusus* Species Group. To date, females of only 10 species and larvae of only one species are described, out of the 18 known members. This paucity of data hampers not only caddisfly research, but also freshwater bioassessment efforts and addressing broader freshwater ecological questions. Using a combination of DNA barcoding and morphological analysis, the proposed study aims to describe and diagnose larvae and females of *Polycentropus* species from the eastern United States. These data will then be used to construct a species key and investigate phylogenetic relationships within the *Polycentropus confusus* Species Group. Outcomes will include: (1) association of larvae and adult males and females, (2) descriptions, diagnoses, and a species key for the 18 species, (3) support of the Trichoptera Barcode of Life (TBOL) campaign, (4) inference of the phylogeny of the *Polycentropus confusus* Species Group, and (5) digitization of specimen data and images.

Notes:

Title: *Impact of Salinity on the Diversity of Epifauna on the Seawhip Leptogorgia virgulata in Tampa Bay, FL*

Authors: Samantha Stewart*, Haley Lasco, Sarah Noonan, Michael Middlebrooks, John Ambrosio, and Wayne Price, University of Tampa, Tampa, FL

(STUDENT PRESENTATION)

Leptogorgia virgulata is a gorgonian sea whip and is the only soft coral found within Tampa Bay due to its wide range of salinity tolerance. This sea whip is frequently host to a large variety of epifauna. However, the production of antifouling compounds makes it difficult for sessile organisms to settle on the sea whip. Motile organisms are typically not impacted by these compounds but are impacted by the salinity of the water where the sea whip is found. Each epifaunal organism has its own salinity tolerance and the varying salinities found throughout Tampa Bay may influence the distribution of these organisms. In order to examine this relationship between salinity and a sea whips epifauna whole specimens of *L. virgulata* and their associated epifaunal communities were collected from multiple sites within Tampa Bay across a range of salinities. Specimens were preserved and then identified and sorted into taxonomic groups. The sea whips had a large epifaunal community including bivalves, caridean shrimp, anomuran crabs, polychaetes, gastropods, and many small crustaceans such as copepods and amphipods. Salinity and the length of a sea whip each had a significant impact on the number of organisms found, however neither variable showed a significant effect on the number of taxa. This may be due to the lack of specificity which should improve as the species are further identified into lower taxonomic levels. This study also demonstrates the importance of *L. virgulata* as a habitat for epifaunal organisms within Tampa Bay.

Notes:

Title: ***Stream Condition Index in Pinellas County: Urban Stream Syndrome***

Author: Peggy Morgan, Pinellas County Environmental Management, Clearwater, FL

Results for the first three and a half years is presented. Pinellas County has 2 TMDL Basins: Springs Coast and Tampa Bay. Stream Condition Index (SCI), Linear Vegetation Survey (LVS), Rapid Periphyton Survey (RPS) and Habitat Assessment (HA) are collected for sites in each basin in alternate years, providing at least 4 assessments for a 5 year period. Many of the streams have an HA score in the marginal category (≤ 80), but they have adequate in-stream habitat and the low HA scores result from human impacts in the riparian corridor. The majority of the streams do not consistently exceed the threshold for of 40 for SCI, and exhibit a seasonal trend for LVS and RPS. . The main stressor for Pinellas County streams is the disruption to the natural hydrology. The streams have been utilized to convey stormwater for many decades, resulting in unstable conditions for aquatic invertebrates, such as displacement by scouring, dislocation of substrates and smothering of substrates. Such frequent disruption results in a community lacking in long-lived and sensitive species. Additionally, there are geologic limitations on streams in Pinellas County. They are all first or second order streams that flow into estuaries, limiting the recruitment potential of larger freshwater systems.

Notes:

Title: ***Designing and Assessing Streams to Ultimately Ensure Biological Success***

Author: Russ Frydenborg, Frydenborg EcoLogic, Tallahassee, FL

Successful stream creation or restoration consists of properly defining desired system attributes, classifying the system type, and establishing restoration goals. One must first establish expectations via historical data or reference sites and identify physical, chemical, and/or biological stressors affecting the stream. Next, one must mitigate the stressors and re-establish key ecosystem attributes to provide for a functioning ecosystem. Finally, one must show that the efforts were successful by conducting effective habitat and biological assessments. This presentation provides overviews of the Stream Continuum Concept, stream community types and attributes, restoration building blocks, Kiefer's stream morphology, water quality stressor identification methods, aquatic habitat assessment methods, and post-project biological monitoring using Stream Condition Index and BioRecon methods. Recommendations are provided, such as conducting annual biological monitoring until success criteria area achieved, as well as examples involving Florida stream creation associated with mining activities.

Notes:

Title: ***Seagrass and Submerged Aquatic Vegetation Monitoring: Methodologies, Struggles, and Lessons Learned***

Author: Shannon McMorrow, Wood Environment & Infrastructure Solutions, Inc.

Seagrass and Submerged aquatic vegetation (SAV) play an important role as shelter and nursery habitats for fish and other aquatic life and has been documented as a food source for the West Indian manatee and sea turtles. These important habitats are threatened by in-water construction (bridges and docks), sea level rise, and prop scaring. They are protected aquatic resources, and therefore, permitting of construction in, on, or over water bodies that contain seagrasses requires an in-water benthic survey. Wood has performed seagrass and SAV surveys in a variety of water bodies for both permitting and research purposes. The protocols for how to conduct a seagrass or SAV surveys are not final and are often conflicting. Additionally, site conditions often determine the appropriate survey methodology. Surveys can also be impacted by complications including poor visibility, fast flow, depth, and technical mal-functions. A summary of benthic survey experiences, struggles and successes, and lessons learned will be presented.

Notes:

Title: ***Education Outreach; How and Why?***

Author: Scott A. Duncan, Reedy Creek Improvement District, Environmental Sciences, Lake Buena Vista, FL

There is a need for education that should come from beyond the four walls of schools. It is up to working professionals and experts in those fields to share that knowledge concerning Aquatic Biology and the studies that define them. I will be talking about my experience with education outreach ranging from elementary age students as young as 5 years old to people who are just months away from retirement in several types of settings and scenarios. Opportunities and different ideas will be shared about how and when to educate others and strategies to keep the audience engaged no matter the demographic.

Notes:

Title: ***The Lake Vegetation Index (LVI) in Pinellas County***

Author: Peggy Morgan, Pinellas County Environmental Management, Clearwater, FL

Pinellas County Environmental Management (PCDEM) created an in-house biological monitoring program in 2014 to provide data to the Florida Department of Environmental Protection (FDEP) Total Maximum Daily Load (TMDL) Program. Lake Vegetation Index Surveys have been monitored in seven lakes since the inception of the program. Results for the first four years are presented. Water quality results for four of the lakes will also be presented.

Notes:

Title: ***Use of the Florida SCI for Monitoring the MFL for Blue Spring (Volusia County)***

Author: Robert A. Mattson, CEP, CSE, St. Johns River Water Management District, Palatka, FL

As part of their statutory water use regulatory responsibilities, Florida's Water Management Districts establish "Minimum Flows and Levels" (MFL) to protect surface waters from significantly harmful ecological effects due to water withdrawals. The St. Johns River Water Management District (SJRWMD) established an MFL for the discharge of Blue Spring in Volusia County in 2006. The primary goal of this was to provide adequate amounts of winter warm-water refuge habitat for the Florida manatee. To evaluate the effectiveness of the MFL in protecting other attributes of Blue Spring, the SJRWMD implemented a monitoring program. One element of this was evaluation of the benthic macroinvertebrate community using the Florida Stream Condition Index (SCI). Quarterly sampling of the benthic community was conducted using the SCI in 2007-08 and 2015-16. The Habitat Assessment component of the SCI indicated that benthic habitat was optimal to suboptimal. The overall SCI indicated an impaired condition, but this has been regularly exhibited by the invertebrate community in Blue Spring due to naturally hypoxic conditions and high dissolved solids concentrations. Despite this, the SCI exhibited a significant positive relationship to Blue Spring discharge, indicating that it is a good metric for evaluating the overall condition of the benthic community as it relates to the discharge of Blue Spring and the established MFL. Blue Spring also supports two endemic species of hydrobiid snails and quantitative monitoring data of the Blue Spring snail population will also be presented.

Notes:

Title: ***Unusual Polychaete Taxa from Puerto Rico***

Author: Doug Strom, Water & Air Research, Inc., Gainesville, FL

Water & Air Research, Inc. has supported benthic macroinvertebrate monitoring requirements for the Puerto Rico Aqueduct and Sewer Authority (PRASA) for several waste water treatment plants located around the main island of Puerto Rico for over twenty years. In the course of these projects an extensive macroinvertebrate voucher collection has been developed and documented in spreadsheet lists. Included among the diverse macroinvertebrates preserved in the reference collection are over 1500 lots of polychaete specimens. Over the course of these projects a variety of unusual worms were collected and identified. The intent of this presentation is to provide a review of the most exceptional taxa found, and to discuss their occurrence in the Caribbean region and in Florida. This talk is also intended to foster discussion of polychaete systematics and distribution.

Notes:

Title: Amercaenis cusabo ***(Ephemeroptera), a New Species Record for Florida***

Author: Todd Risk, Florida Department of Environmental Protection, Tallahassee, FL

Amercaenis cusabo (Ephemeroptera) is a mayfly that has previously been found in North and South Carolina. This is new genus record for Florida. Individuals were collected from the Chipola River in Gulf County, FL during the summer months of 2009 and 2013. In 2016 they were sent to Dr. Jacobus in Indiana who compared the FL specimens to the type specimens of *Amercaenis cusabo* at Purdue University and determined that they are *Amercaenis* and likely *A. cusabo*.

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ABSTRACTS OF POSTER PRESENTATIONS

Title: ***Trophic Resource Partitioning of Electric Knifefishes (Teleostei: Gymnotiformes) of the Upper Amazon Basin***

Alexander B. Orfinger*, Juan D. Bogota, Joseph C. Waddell, William G.R. Crampton
Department of Biology, University of Central Florida, Orlando, FL

Electric fishes of the order Gymnotiformes represent a significant component of Neotropical freshwater communities in terms of biomass, density, and species diversity. To date, however, no studies have comprehensively explored the trophic ecology of Gymnotiformes. The aim of this study was to quantify gymnotiform trophic resource partitioning within and across habitats. Specimens were collected from four major habitats of the lowland Upper Amazon Basin of Peru, including whitewater river deep channel, blackwater river deep channel, whitewater floodplain lake, and terra firme stream. Stable isotope analysis of carbon ($\delta^{13}C$) and nitrogen ($\delta^{15}N$) was performed. 346 gymnotiform muscle tissue samples representing 53 species were processed. A broad sampling of non-gymnotiform fishes, potential prey items, and carbon sources were also analyzed. Isotopic niche areas and interspecific overlap were assessed using the Stable Isotope Analysis in R (SIAR) and the Stable Isotope Bayesian Ellipses (SIBER) packages in R. Significant interspecific isotopic partitioning was found in all four habitats investigated. Differences were also noted in the degree of isotopic partitioning between habitats. In addition, isotopic niche widths of eurytopic versus stenotopic species were evaluated. Finally, isotopic niche structure of each community was characterized using Layman community metrics: nitrogen range (NR), carbon range (CR), total trophic area (TA), mean distance to centroid (CD), mean nearest neighbor distance (MNND), and the standard deviation of nearest neighbor distance (SDNND). The results suggest that gymnotiforms in each habitat may reduce interspecific competition through divergent prey selection.

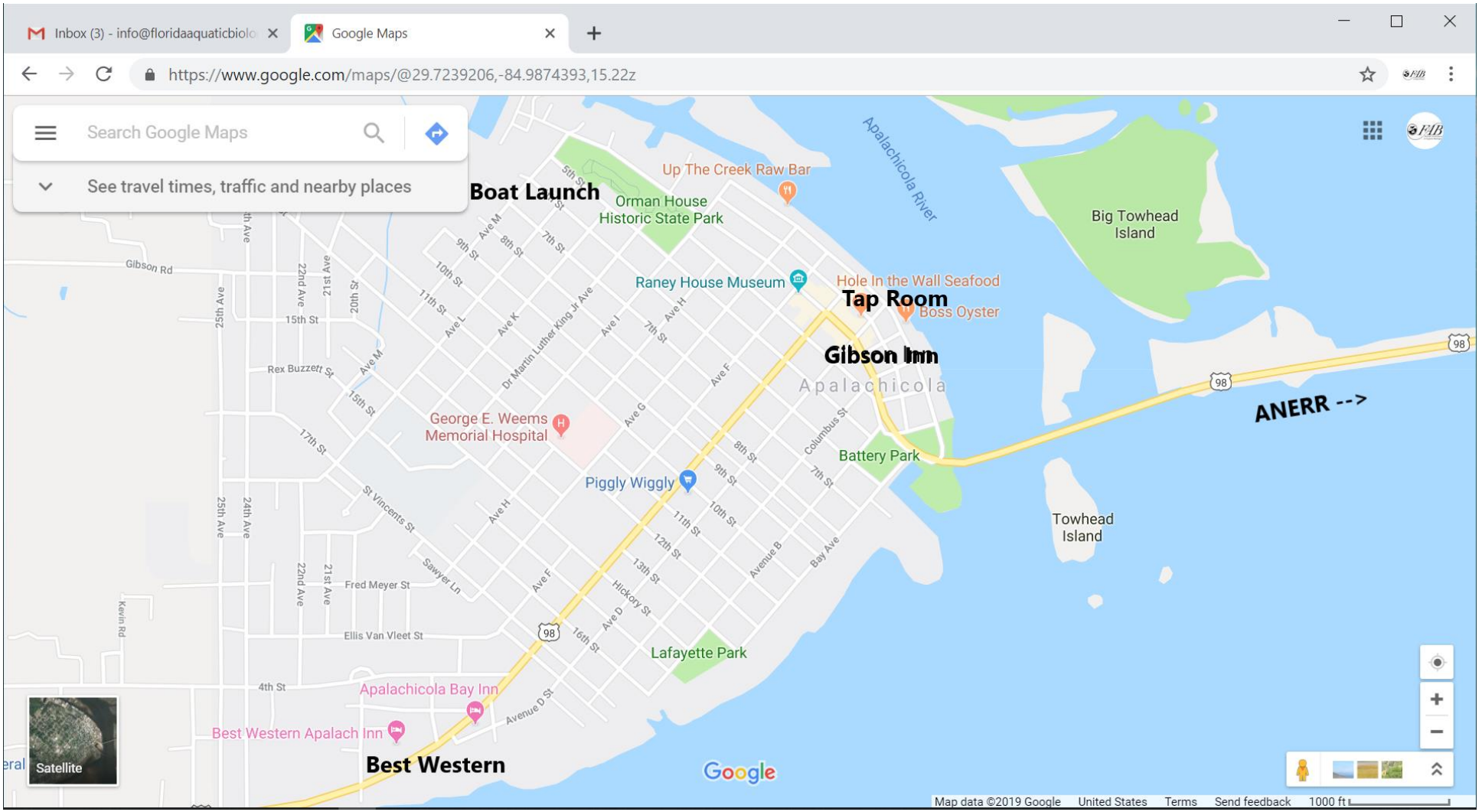
Notes:

Title: ***Stomach Content Analysis of*** **Cichlasoma urophthalmus** ***(Mayan Cichlid) in the Tampa Bay Watershed***

Authors: Kassandra Weeks and Ryan Tharp, University of Tampa, Tampa, FL
(Email: kassandra.weeks@spartans.ut.edu, ryan.tharp@spartans.ut.edu)

Throughout their native range in Central America, Mayan Cichlids (*Cichlasoma urophthalmus*) have been documented to have a generalist diet consisting of mainly fishes and invertebrates, as well as plant material. In the Everglades ecosystem, invasive populations of Mayan Cichlids also displayed an omnivorous diet. Little is known about the ecology of invasive Mayan Cichlids in the fresh and brackish water habitats in the Tampa Bay watershed. During the summer and fall of 2018, adult and juvenile Mayan Cichlids were collected via hook-and-line with artificial lures or with cast nets in the Hillsborough River and Little Manatee River. Fish were fixed in 10% formalin, dissected, and stomach contents were sorted and preserved in 70% ethanol. After sorting, stomach contents were identified to the lowest taxonomic level possible and an Index of Relative Importance (IRI) was calculated for each taxon. To date, the highest IRI values calculated for stomach contents of Mayan Cichlids collected in the Tampa Bay watershed were associated with gastropod mollusks. Future work will include additional field collections from more sites and a larger number of fish collected per site. It is hoped that sufficient samples will be collected of both juvenile and adult Mayan Cichlids that any ontogenetic shifts in their trophic ecology in the Tampa Bay watershed will be identified.

Notes: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Tap Room
Boss Oyster
Gibson Inn
Apalachicola
ANERR -->
George E. Weems Memorial Hospital
Battery Park
Piggly Wiggly
Towhead Island
Lafayette Park
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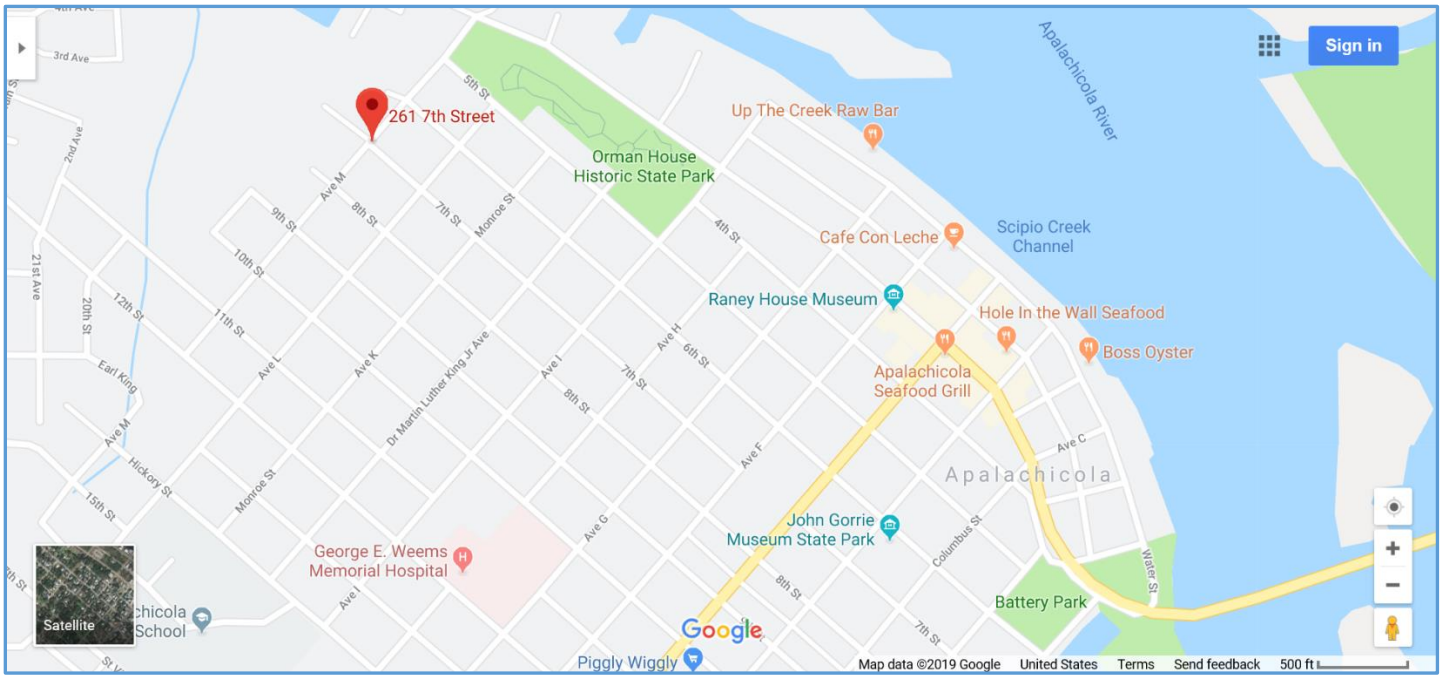
Boat tour launch location maps



Park at DACS facility and walk down to boat launch