

SAB Meeting, 12/14/22 9-11 AM

Attendees:

SAB-

Laura Geselbracht

Megan La Peyre

Roger Mann

Elizabeth North

ABSI Team-

Sandra Brooke

Joel Trexler

Josh Breithaupt

Tara Stewart Merrill

Andy Schantz

W. Ross Ellington

Fabio Prior Caltabellotta

Betsy Mansfield

Agenda:

Time	Item	Presenter
9:00	Introduction to the meeting (Committee Charge, Proposed timeline for work products)	Joel Trexler
9:10	Welcome to the meeting and project overview	Sandra Brooke
9:30	New information network tool and role of parasites and disease in Apalachicola Bay	Tara Stewart Merrill
9:40	Status of Oyster Reefs – FSU tonging project	Andy Shantz
9:50	Status of Bay -biogeochemical study and ecosystem function (carbon cycle, etc)	Josh Breithaupt
10:00	Status of Oyster Stock Enhancement project (hatchery)	Sandra Brooke
10:10	Questions and discussion from Board members	All present
11:00	Adjourn	

Notes:

Joel Trexler- Welcome Remarks

1. Introduced participants and gave an overview of agenda
2. Mission, description and four point charge to the SAB
3. Suggestion of \$200/meeting honorarium for SAB members; details to be worked out

Sandra Brooke- Project Overview

1. Project funded in April, 2019
2. Reviewed broader ABSI goals with research component focused on restoration and management
3. Described cadre of ABSI personnel including faculty, students, postdocs, technicians, other staff and interns
4. ABSI has six unique thrusts
5. Tara Stewart Merrill and others are developing a public interface, interactive tool which links the elements of the ABSI scientific effort together. Sandra showed how the tool is intended to work. Tool development is being facilitated by IT staff at the FSU-sited National High Magnetic Field Laboratory.

Tara Stewart Merrill- Dermo (and Bucephalus)-

1. Has been analyzing the 4 years of FWC data for AB to guide field and lab experiments; described some of the features and limits of the FWC dataset
2. Insights from this analysis
 - As size increases, probability of infection increases; 50% on average of adults infected; intensity of infection does not appear to be related to size
 - In contrast to Chesapeake Bay where dermo infections show seasonality (peak in fall), AB infections are relatively constant over the year
 - AB infection seems to be continuous and, hence, mortality is continuous
 - Condition inversely correlates with infection while mortality correlates with infection BUT causality in both cases has not been established
 - More detailed observations are needed which will start in January
3. Design for an upcoming spectrum severity experiment was described which will monitor impact of dermo on feeding rate, growth, condition and survival
4. *Bucephalus* parasitism in AB oysters
 - FWC data show that 10% of AB oysters infected
 - FWC data show that *Bucephalus* infection positivity rate is directly proportional the number of oysters that could not be sexed
 - Infections impacted 2022 spawning effort in ABSI hatchery and could be a problem for the future
 - More detailed field studies will be undertaken

Andy Schantz- Status of Oyster Reefs

1. ABSI annual tonging surveys
 - Showed fishery-dependent data from FWC over time
 - Fishery-independent data via SCUBA surveys is limited in terms of number of sites and constrained by time to analyze samples
 - ABSI tonging surveys fill in the gap; increase number of sites and have faster turnover of sample analysis
 - Sampling protocol was described
 - TONGING SURVEY RESULTS FOR WEST TO EAST LONGITUDINAL ARRAY OF SITES SHOWED THAT WEST SITES RELATIVELY DEPLETED OF LIVE OYSTERS WHILE A NUMBER OF EAST SITES CONTAINED MARKET-SIZED OYSTERS
 - Bay was characterized in terms of six benthic substrate types; roughly of 1/3 of the sites are soft sediments totally devoid of oysters
 - Areas containing lime rock seemed to have the highest number of oysters
2. Role of oysters in maintenance of bay health as evidenced by impact on other species such as finfish
 - Fishery landing data seem to correlate with oyster abundance
 - Landings inversely proportional to water chlorophyll content which potentially reflects impact of decrease in oyster biomass on water quality

Josh Breithaupt

Impact of oysters on sediment organic carbon (SOM) and use of SOM as a proxy for oyster abundance

1. Oysters filter organic matter from water column and transfer it into sediments
2. Effort focuses on understanding the history of SOM in the bay and what happens when oysters are gone
3. ABSI sampling efforts have primarily focused on intertidal sites due to facility in obtaining core samples for assessment of SOM history
4. SOM as an indicator of stress in marine benthos- amount of SOM positively correlates with indicators of stress
5. Recent subtidal results using grab samples (5 cm depth) have shown that there are “hot spots” of increased SOM in the Bay as compared to baseline data taken in 1963
6. There are regions of the Bay where current/recent sedimentation rates are ~1-1.5 cm/yr which are comparatively high. Future efforts will attempt to do subtidal core sampling (50 cm) to obtain longitudinal data for SOM and other sediment properties; will provide historical context

Sandra Brooke

Spat on shell, 2021 restoration experiments and hatchery operations

1. Spat on shell as a restoration method is being tested in field experiments
 - Considering using larger juveniles to bypass predation bottleneck
 - Goal is to develop methods for large scale restoration
2. 2021 spring/summer restoration experiments

- Prior multi-million-dollar efforts at Bay restoration have been problematic for a variety of reasons and largely unsuccessful; reef height and material type seem to be critical variables as well as location of restoration sites
 - ABSI experiments were designed to test material type (shell, 5 cm lime rock and 15-20 cm lime rock) in two Bay locations deployed in the spring of 2021
 - Monitoring was done by hand tonging (protocol described) and subsequently by SCUBA in August 2022 14 months after deployment; the latter provided density data
 - Reviewed results showed that large limestone produced higher survivorship at both sites
 - QUESTION/COMMENT- It would be useful to develop from these data age specific survivability (survivorship?) curves
 - CONCERNS ABOUT VALIDITY OF TONGING SAMPLING; RESPONSE- Tonging yielded similar results to SCUBA sampling. We like tonging because it is much quicker, an attribute that will be needed when the Bay is adaptively managed during and after restoration
3. Hatchery operations
- Pilot hatchery became operational in early 2021 with two successful spawns
 - Spat on shell was deployed in cages at two sites (Dry Bar, Peanut Ridge)
 - Dry Bar results were promising showing good survival of spat over time while results for Peanut Ridge were poor (for a number of reasons)
 - Permanent hatchery became operational in early 2022 and currently, in oyster off-season, is being used for scallop “seed” production
 - 2022 operation was disappointing primarily due to water quality issues which since have been resolved
 - Ambitious spawning effort planned for 2023
 - A shell recycling effort has been initiated
 - Continuing funding for the hatchery is needed after the conclusion of the Triumph ABSI award in April 2024; thoughts about potential sources would be highly appreciated

QUESTIONS/COMMENTS (I have not attributed these to individuals) and DISCUSSION
 [disclaimer- questions/comments/discussion heavily paraphrased in my words]

1. COMMENT- A number of these presentations lack historical context at least in the detail that is needed to fully appreciate the scope of the ABSI effort. We need to know what it “was” before the collapse and present.
2. COMMENT- Size frequency/abundance distributions? How quickly do shells disappear? Desperately need a mortality estimator. How do you explain the mortality curve?
3. COMMENT- Sedimentation seems to be critical in this system. You need to confidently say that what you deploy will not disappear.
4. COMMENTS- Context is important in conveying the message
 - Mortality- mortality curves and factors causing mortality

- Energy budgets
 - Water quality and impact of dermo
 - Sedimentation is high in the Bay but it is higher in other Gulf regions with good oyster populations (could be related to water flow); impact of sedimentation on Bay oysters should be studied more thoroughly
 - Reef characteristics in relation to oyster abundance?
5. QUESTION- Oyster drills?
- ANSWER- very abundant in western sites where salinity is higher (potentially related to Sikes Cut)
 - ANSWER- a grad student is working on drills; work shows enhanced abundance in west sites and there is evidence of drill activity on shells
 - COMMENT- chemical signals from predators may stimulate increased shell thickness in developing oysters
6. COMMENTS- Apparent gaps in information
- Fisheries science gaps including assessment of stock, recruitment rates and mortality rates
 - Uncertainty about sampling techniques including tonging procedures, personnel and reproducibility.
 - RESPONSE to above reproducibility issue comment- only one person is doing the tonging at the present time
 - COMMENT on reproducibility issue- The accuracy of hand tonging may be questioned by the broader community. Patent tongs would improve reproducibility but use may be constrained by the size of the boats deployed by the ABSI team
 - More detailed information needed about how populations are changing over time
 - It seems that restoration has been done in areas where oysters have been or are present. Simply deploying cultch may not produce the desired result unless the site is amended

Annual Report

1. ABSI Annual Report due at the end of March 2023; input from SAB critical
2. SAB would prefer providing oral input on the report draft via zoom; it is important to send out a draft to members as early as possible.
3. Potential zoom meeting to discuss draft report could be towards the end of February, 2023

Adjourned at 11:00 AM