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Project #69: Apalachicola Bay System Initiative (ABSI)
Awardee: Florida State University
Reporting Period: March 16, 2025-October 30, 2026



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EXECUTIVE SUMMARY

The Apalachicola Bay System Initiative (ABSI) was originally a 5-year project that was due to terminate in June 2024. In March 2024, the Triumph Board approved a no-cost extension until December 31, 2025, and re-budgeted the remaining funds to accommodate the work planned during the extension. The amendment included a performance metric (8.3c) that stipulated provision of assistance and support to local business that were affected by the oyster population decline. To address this requirement the Florida State University Jim Moran College (JMC) of Entrepreneurship initiated an effort entitled Economic Revitalization programs for Franklin County**.** Prior to the end of this extension, the ABSI leadership requested an additional extension (Amendment 3) until June 30, 2027, to continue addressing project objectives with remaining funds.

The ABSI science components during the reporting period included monitoring of oyster populations across Apalachicola Bay, assessment of ABSI experimental restoration reefs, effect of reef height on oyster demographics, invertebrate community development on new restoration reefs, oyster survival, growth condition and reproduction across the Bay, reef use by commercially important crabs and oyster larval dispersal modeling. In addition, a social science element investigated stakeholder perspectives on impacts of the fishery closure and reef restoration. Outreach and education have always been an important component of ABSI and details of these activities are reported.

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1. Introduction

The Apalachicola Bay System Initiative was awarded in March 2019 and was scheduled to be completed in June 2024. In March 2024, the ABSI leadership requested a project amendment to extend the end date to December 31, 2025, and re-budget the remaining funds to accommodate the work planned during the extension. The amendment was approved by the Triumph Gulf Coast Board on April 10, 2024. The requested time extension of 18 months allowed completion of the remaining deliverables, added new objectives and includes a strategy to address the award performance metric. In December 2025, another Amendment was approved to extend the project to June 2027, to continue specific project activities that addressed remaining deliverables.

Studies over the past year have investigated physiological responses of oysters to environmental stressors and predation, and whether hatchery raised bay scallop juveniles can help restore depleted populations. The ABSI Research and Restoration Hatchery is providing support for these and other ABSI projects. Throughout the life of the project, ABSI has generated multiple models that help us understand the hydrodynamics, environmental conditions and oyster larval dispersal in the Bay. The models are being integrated into an oyster larval dispersal and habitat suitability model that will provide insight into the abiotic and biotic conditions in the ABS and how they affect oyster populations.

Community outreach and stakeholder engagement are critical components of ABSI and the team has been active throughout the past year and will continue for the life of the project.

Since the oyster fishery collapse, Franklin County has shifted more towards tourism and away from its traditional fisheries-dependent economy, and oyster aquaculture has expanded to help fill market demand for Apalachicola oysters. ABSI leadership has engaged the Florida State University Jim Moran College of Entrepreneurship to address ABSI performance metric (8.3c), and work with Franklin County to re-invigorate the working waterfront culture and economy.

This report will cover activities conducted under ABSI during the reporting period and includes new initiatives as well as updates to existing projects. Previous versions of projects and experiments can be found in earlier reports.

2. Research projects

2.1 Assessing Intertidal Oyster Reef Condition (Dr. Josh Breithaupt, Faculty, FSUCML)

Introduction

The decline, collapse, and recent closure of the subtidal oyster fishery in Apalachicola Bay is well documented. Much less is known about the condition of the region's intertidal reefs, including whether they are in decline compared to historical conditions and whether restoration efforts are needed. The objective of this study is to collect data about aboveground oyster reef characteristics and belowground sediment composition of intertidal reefs in Franklin County to understand their variability and make comparisons with other regions where intertidal reef monitoring and restoration has occurred.

Five intertidal reef locations were sampled across Franklin County (Fig 1) for comparison of aboveground and belowground reef characteristics. Most of the project results have been provided in the previous report (ABSI Annual Reports 2024 and 2025). In the past year sediment samples were analyzed for the nutrient and stable isotopic composition of the coarse sediment and all statistical analyses were completed. The following are new results that were not included in previous reports.

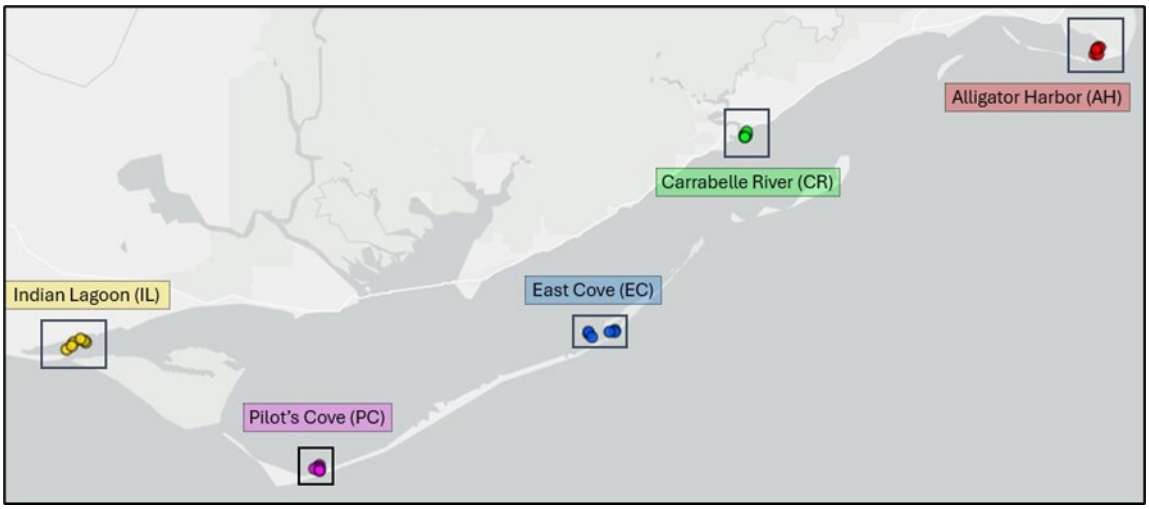


Figure 1. Location of five intertidal reef complexes (colored squares) and six reefs (circles within squares) across Franklin County that were sampled for this study.

OM, $CaCO_3$, OC, TN, & TP Content by Sediment Size Fraction

For the coarse sediment fraction, organic matter (OM) ranged from a low of 1.79% at PC to highs of 10.32 and 11.01% at IL and AH, respectively, whereas for the fine sediment, OM was much higher and ranged from a low of 17.14% at AH to highs of 21.76 - 23.92% at PC, CR, and EC (Fig 2A).

The concentration of $CaCO_3$ in the fine sediment fraction varied from lows of 14.56 and 16.82% at AH and CR, respectively, to highs of 21.00 and 27.56% at EC and PC. The $CaCO_3$ concentration of the coarse sediment fraction was much lower and varied from 5.01 and 6.26% at CR and EC, respectively, to 9.75% at PC (Fig. 2B).

Median organic carbon % (OC) values were low for all sites, ranging from 0.18 and 0.26% at PC and EC to 0.87% at AH (Fig 2C). Site median OC concentrations for the coarse sediment fraction ranged from 0.21% at PC to 1.46% at AH, whereas median concentrations for the fine sediment fraction ranged from 1.63% at IL to 3.59% at CR. Median concentrations for total nitrogen (TN) followed a similar site pattern as OC. Median total TN% ranged from 0.03 and 0.04% at PC and EC to 0.06 to 0.10% at CR and AH (Fig. 2D). Site median TN concentrations for the coarse sediment fraction ranged from 0.03% at PC to 0.16% at AH, and median concentrations in the fine sediment ranged from 0.24% at IL to 0.43 at CR. Median sedimentary total phosphorus (TP) concentrations ranged from lows of 0.16 g kg^{-1} at AH up to 0.32 and 0.34 g kg^{-1} at EC and CR (Fig. 2E). Median TP concentrations for the coarse sediment ranged from 0.35 g kg^{-1} at AH to 0.74 g kg^{-1} at EC, and median concentrations for the fine sediment fraction ranged from 0.06% at PC to 0.45 at IL.

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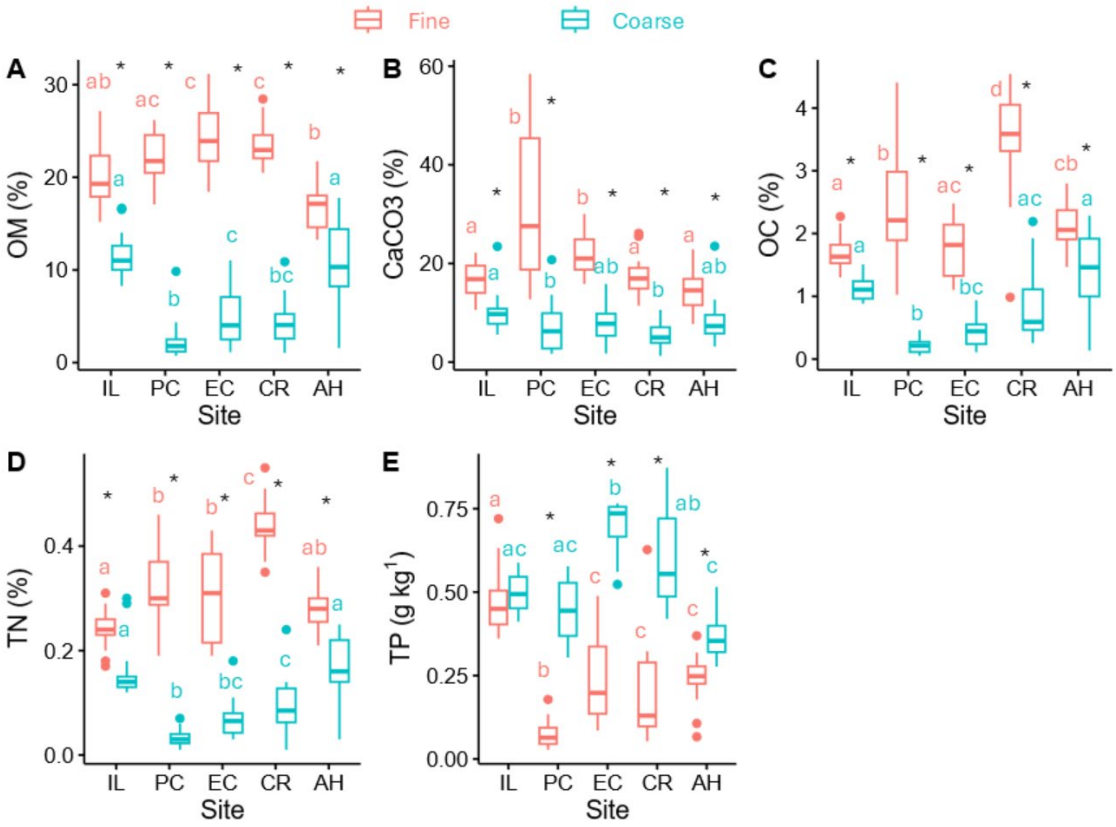


Figure 2. Comparisons of fine and coarse sediment fraction characteristics for **A)** organic matter **B)** calcium carbonate, **C)** organic carbon, **D)** total nitrogen, and **E)** total phosphorus. Bold horizontal lines indicate the median, blue dots represent means, lower and upper hinges indicate first and third quartiles, upper and lower whiskers indicate values within 1.5 times the interquartile range, and black dots are outliers

Molar OC:TN, TN:TP, $\delta^{13}C$, and $\delta^{15}N$ of Coarse and Fine Sediment

Median molar OC:TN of the coarse sediment ranged from lows of 7.12 and 7.54 at PC and EC to 9.72, 9.97 and 10.16 at IL, CR and AH (Fig. 3A). For the fine sediment, the lowest median OC:TN was 6.98 at EC, and the highest values of 8.94 and 9.80 were found at AH and CR, respectively. Overall, there was not a difference between OC:TN of the fine and coarse sediments at EC, CR, and AH; but there was a significant difference at IL and PC. Median molar TN:TP of the coarse sediment varied substantially between sites, from lows of 1.61 - 4.43 at PC, EC, and CR to highs of 6.58 and 11.52 at IL and AH (Fig 3B). For the fine sediment, lowest median N:P values of 11.49 were found at IL, and highest median values of 102.85 were seen at PC. Across all sites, the TN:TP ratio was significantly different between coarse and fine sediments.

The $\delta^{13}C_{OC}$ of both sediment size fractions showed minor, but significant differences between sites. For coarse sediment, the most depleted median $\delta^{13}C_{OC}$ values of –21.28 and –21.89‰ were seen at CR and IL, respectively, and the most enriched values of –20.32 to –19.10 occurred at EC, AH, and PC (Fig. 3C). For fine sediment, the most depleted median $\delta^{13}C_{OC}$ value of –22.27 was observed at IL, and the most enriched values of –20.64 to –19.37 occurred at EC, AH, and PC. Coarse and fine sediment $\delta^{13}C_{OC}$ were not different at IL and AH, but were different at PC, EC, and CR. The greatest within-site variability between reefs was seen in the fine sediment at PC, where the range was -21.02 to -18.69 ‰, likely due to greater variability in the material inputs from the Apalachicola River.

There were substantial differences in $\delta^{15}N$ of both sediment size fractions between sites. For coarse

sediment, the lowest median $\delta^{15}N$ values of 2.69 and 3.51‰ were observed at AH and CR, respectively, and the most enriched median of 6.38 was at EC (Fig. 3D). For fine sediment, the lowest median $\delta^{15}N$ values of 3.28 and 3.81‰ were observed at AH and CR, respectively, and the most enriched median of 6.83‰ was observed at EC. $\delta^{15}N$ of coarse and fine sediments were significantly different at EC and AH, but not at IL, PC, and CR.

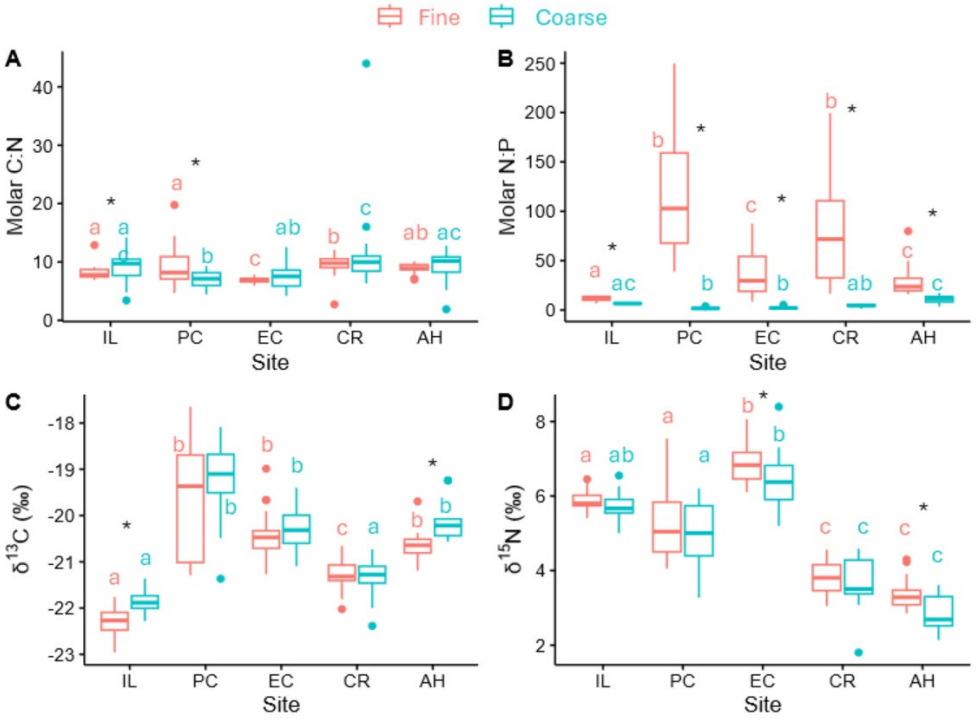


Figure 3. Boxplots comparing **A)** molar C:N, **B)** molar N:P, **C)** $\delta^{13}C$, and **D)** $\delta^{15}N$ of the coarse and fine sediment fractions. Bold horizontal lines indicate the median, lower and upper hinges indicate first and third quartiles, upper and lower whiskers indicate values within 1.5 times the interquartile range

Correlations between above and below-ground reef characteristics

The number of live adult oysters was positively correlated with median cluster volume and median cluster burial depth on reefs across the region. Additionally, cluster volume was positively correlated with burial depth. The number of clusters found on reefs was not correlated with any measures of reef features, nor with any measured water quality parameters. Spat abundance was not correlated with any other measured aboveground reef features but was negatively correlated with turbidity.

When comparing above and belowground reef characteristics, the only correlation with the number of adult oysters was a negative relationship with sediment $CaCO_3$ content. The number of clusters present at the reef surface was not correlated with any below-ground characteristics, but cluster volume was positively correlated with large shell and fine sediment abundance, as well as OC, TN, and OM content of the fine sediment class, and the C:N of the coarse sediment. Conversely, cluster volume was negatively correlated with reef sediment dry bulk density. Cluster burial depth was positively correlated with OC content of the fine sediment and the C:N of the coarse sediment.

Project Timeline: This project is being led by a former FSU undergraduate student Erin Tilly who is now a Masters student at University of Central Florida. The discussion of this manuscript is the only section remaining to be written; an outline has been completed, and we anticipate submission in 2026.

2.2 Monitoring sub-tidal oyster habitats (Dr. Sandra Brooke FSUCML faculty and the ABSI team)

Introduction

Subtidal oyster monitoring in Apalachicola Bay is commonly conducted using SCUBA diving (FWC, FDEP); however this approach is more time-consuming and weather limited than the ABSI approach, which is to collect samples using oyster tongs. The first bay-wide sampling was conducted in 2020-2021 and has been repeated annually until the spring of 2025, which was the last sampling event. The results of previous surveys have been reported in the ABSI Annual reports for 2021 through 2025.

Methods

The fifth round of tonging surveys were conducted between January and April 2025, with ~185 sites throughout the bay being sampled (Fig. 4). Sample selection followed a similar process as previously, with a power analysis determining effort distribution across habitat types and geographic areas. Sample processing followed procedures from round four tonging surveys, with all oysters >10mm measured, oysters <10mm counted, and boxes classified as spat, sub-legal, or market.

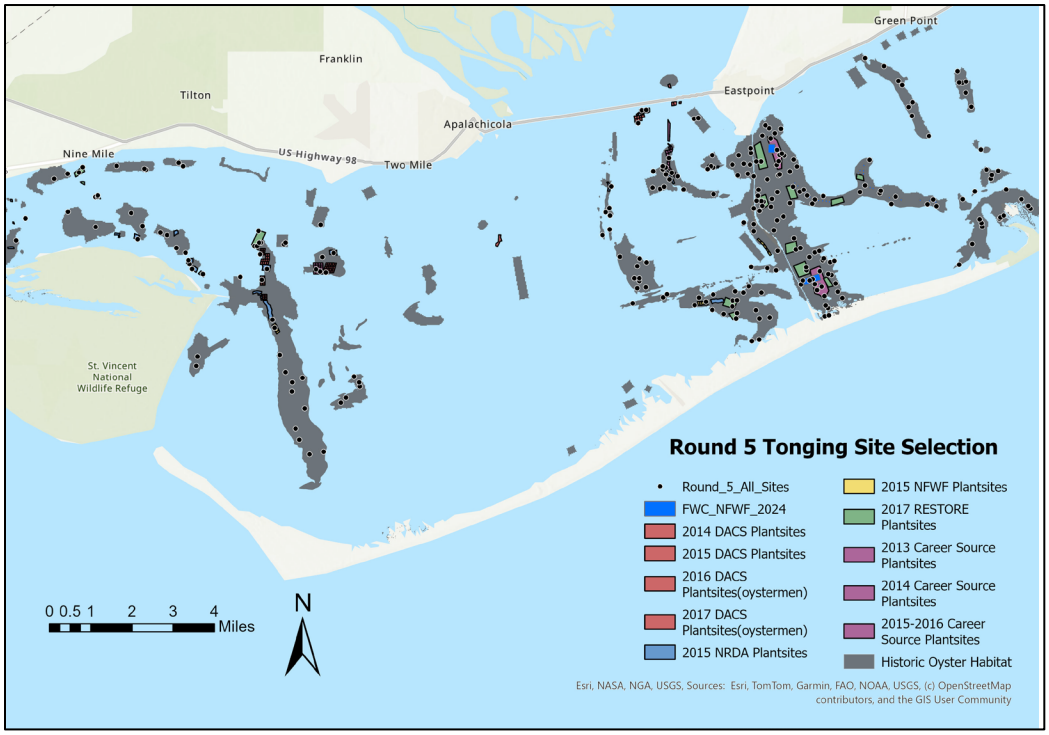


Figure 4. Subtidal tonging locations for round five tonging efforts, distributed across historical habitat and restored/planted areas.

Results and discussion

The 2025 tonging data show that the distribution of oyster populations in Apalachicola Bay is spatially heterogeneous and as for previous surveys, the data show much higher recruitment (spat), more sub-legal, and marginally more market sized oysters in the eastern versus western sections of the Bay. However, this round found that only two areas supported market sized oysters (Fig. 5), a significant decline from previous years when the number of market sized oysters had been steadily increasing. These data are in contrast to the FWC monitoring data from spring/summer 2025, which showed that five sites had reached the 400 bags/acre threshold for supporting a wild harvest. These contrasting results primarily reflect differences in sampling design between ABSI and FWC, and the high spatial heterogeneity of viable oyster habitat in Apalachicola Bay. The ABSI sampling for 2025 was a bay-wide survey using a nested randomized approach to sample all habitat types (limestone, shell/fossil shell, natural habitat, restoration reefs); these

sample sites included many areas with sub-optimal habitat that does not support significant oyster populations. Although good habitat (limestone) was included in the survey, the randomized approach missed some of the most productive Restore Act sites, and some samples were taken from the 2024 restoration reefs deployed by FWC. These sites showed high numbers of young oysters, which was promising for the restoration effort, but the oysters had not yet reached market size. Because of the broad approach that sampled all habitat types, the small limestone planted areas were under-sampled, given the high habitat heterogeneity. The FWC monitoring specifically targeted areas planted with limestone that they were surveying areas to open for harvest. Their surveys intensively sampled those target areas, and their data showed four areas that met the threshold for harvest (400 bags/acre or 25 market oysters/m^2). The different results from these two approaches highlight the need to understand the underlying sampling approach as these two monitoring events generated very different results.

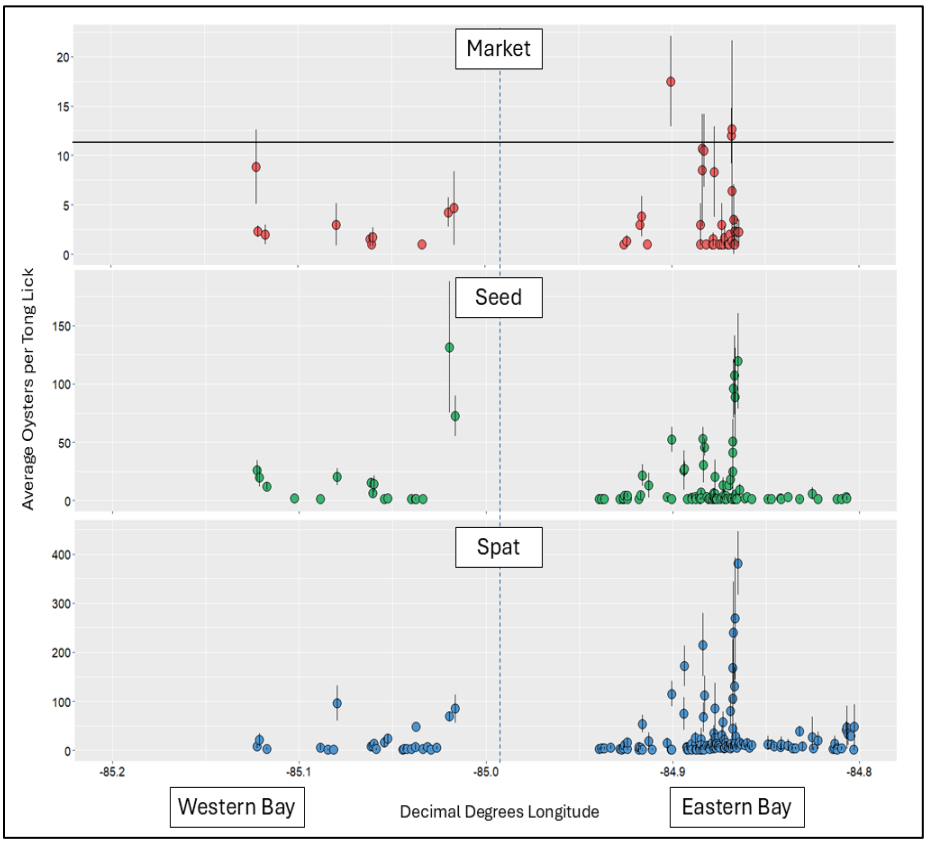


Figure 5. Average number of spat, sub-legal (seed) and market sized oysters per tong sample at 185 survey sites across Apalachicola Bay.

Now that this monitoring program has concluded, the ABSI team is working on a peer-reviewed manuscript to highlight the Apalachicola Bay oyster population response to the five-year fishery closure and the additional restoration deployments by FWC in 2024 and 2026.

2.3 Oyster restoration experiments (Sandra Brooke FSUCML faculty and the ABSI technician team)

Introduction

The first restoration experiment was terminated in fall 2024 and the results were documented in the 2025 ABSI annual report. The second restoration experiment was developed from results of the first experiment, specifically the better performance of the large limestone at Peanut Ridge in the eastern Bay. The large limestone provided superior stability and habitat for spat to settle and grow. When deployed as a reef, the stacked rock creates a complex structure with spaces for reef associates to colonize and predator refuge for small oysters. This experiment compared the performance of limestone versus concrete of a similar size. Concrete is less expensive, readily available, and avoids the environmental impact of mining. The addition of shell will test the cost-benefit and efficiency of enhancing the stable rock foundation with a layer of natural recruitment substrate.

Methods

Sixteen experimental reefs comprised of four treatments (four replicates each) were created in the Cat Point region of Apalachicola Bay in April-May 2023 (Fig. 6). Reef areas were spaced evenly (approximately 55m of N-S buffer space between each) to allow for flow dynamics, and each reef (128m^2) was constructed to a height of approximately 0.4m. Reef construction treatments included: Large limerock (5-8" diameter) to a height of 38cm, concrete (4-6" diameter) to a height of 38cm, large limerock to a height of 30cm with 8cm of cured oyster shell on top, and concrete to a height of 30cm with 8cm of cured oyster shell on top. Reefs were monitored via tonging, performed by one oysterman using tongs with a consistent gape (0.5m^2). Reefs will be monitored bi-annually (Spring and Fall) to assess their performance.

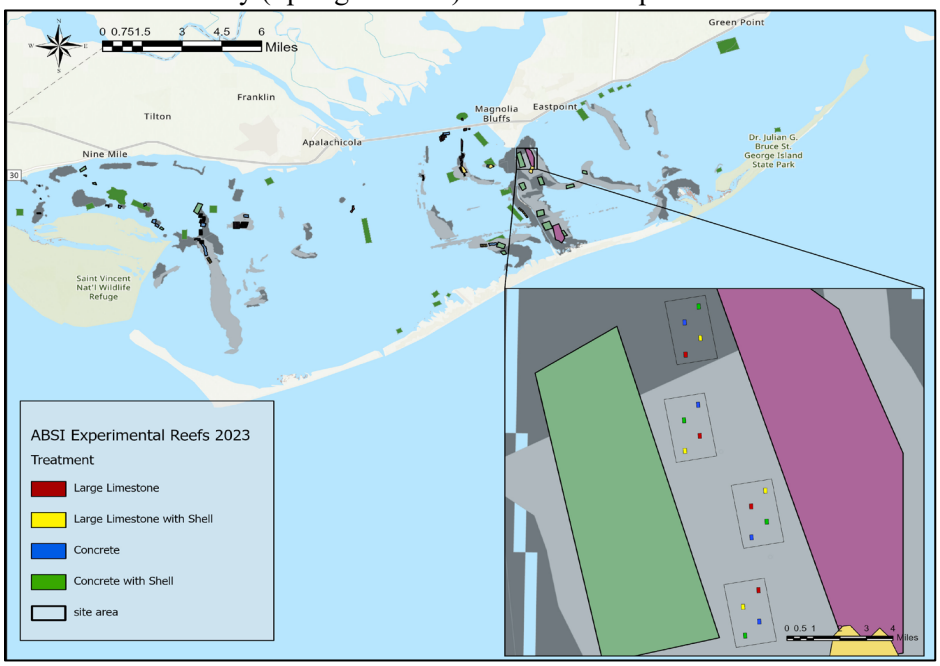


Figure 6. Deployment locations and substrate materials of sixteen ABSI restoration reefs deployed near Cat Point, Apalachicola Bay, Fl.

Results and discussion

The first monitoring was conducted in the fall of 2023 using the same sampling approach as in the first experiment. Samples were collected using modified tongs (smaller than harvest size) with a sampling footprint of ~0.5 m^2. Six samples were collected per site (bow, mid and stern from port and starboard sides of the vessel), the mass and volume of each sample was documented and all live oysters and dead articulated shells (boxes) were measured. Observations on predators were recorded, and water quality parameters were

measured to provide context for oyster habitat conditions. The second and third rounds of monitoring were completed in April and November of 2024, respectively. The fourth and fifth (final) monitoring was completed in April and November of 2025. The oyster size-frequency distributions for each sampling round are shown in figure 7.

While there are some significant differences in oyster density ($p = 0.03$) and proportion of live oysters ($p < 0.001$) by treatment, there was no consistent trend that identified the optimal treatment. The time series analysis also identified significant differences in proportion of live oysters ($p < 0.001$) that indicated a significant drop in the last sampling year. Oyster size also changed significantly with time (p ,0.01), which was driven by the larger sizes observed in spring each year. This may be due to the timing of the sampling relative to recruitment events as the fall samples show higher abundance of smaller spat than in the spring sampling (Fig. 7). In summary, all treatments performed very similarly with no clear benefit to the addition of a shell layer. Further studies should examine whether the addition of higher quantities of shell improves the outcome.

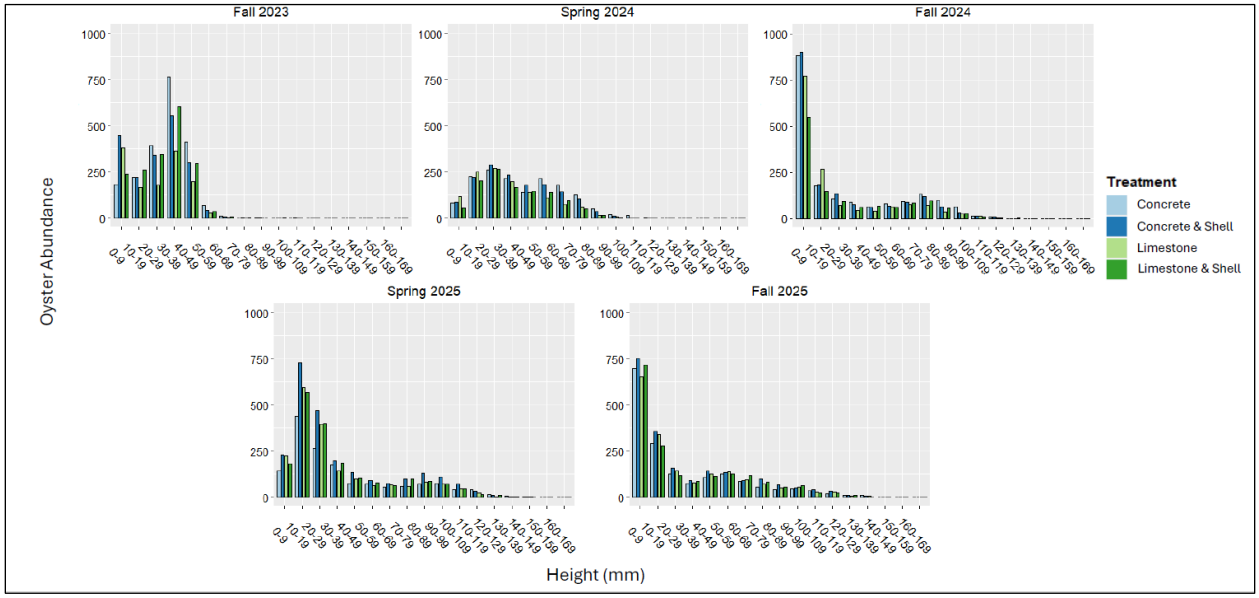


Figure 7. Oyster shell height distribution in 10mm increments by treatment at Cat Point for five seasons. Treatments are concrete (C), concrete with shell (CS), limestone (LR), and limestone with shell (LS).

2.4 Communities associated with restored oyster reefs (Dr. Sandra Brooke, Natalie Horn and ABSI technicians)

Introduction

Oysters are ecological engineers, creating their own unique reef as well as community within. Oysters provide habitat and refuge to a variety of marine fishes and invertebrates, while also serving as a food source or host to other organisms. Planted limestone in Apalachicola Bay provides a solid substrate for oysters to settle and grow on. The solid elevated surface provides protection from sedimentation and high currents, providing refuge for oyster growth. Our goal is to monitor the growth and mortality of oysters within each planted reef as well as identify and track the community of associate benthic fauna throughout the reef as reefs through time post material deployment. Obtaining a thorough inventory of the reef community will assist in understanding oyster reef health and their dynamic relationship with these associated organisms.

Methods

Detailed methods were included in the 2025 ABSI Annual report

Results

Oyster demographics were tracked over five sampling periods between December 2024 and July 20254. Size frequency distributions (Fig. 8) show increasing oyster size with time at both sites, with Cat Point having a higher initial recruitment event.

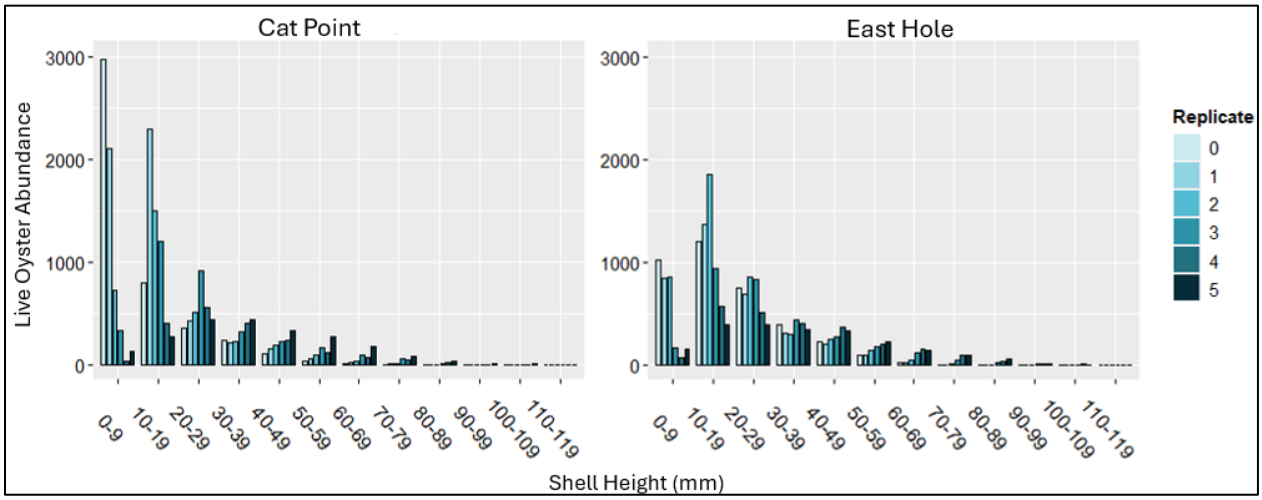


Figure 8: Size-frequency distribution of oysters on newly-deployed restoration reefs at two sites (Cat Point and East Hole) in Apalachicola Bay. Replicates represent individual sampling events thought the project.

A total of 50 species (primarily invertebrates) were identified from the community trays; these include members of 18 families that are commensal with oysters, two that are parasites, 10 that are competitors, five predators and one general scavenger (Table 1).

Table 1. Invertebrate and fish families associated with newly-deployed restoration reefs and their ecological relationship with oysters

Commensals	**Commensals**	**Competitors**	**Predators**
Porcellandidae	Cerithiopsidae	Arcidae	Actiniara
Aphididae	Penaeidae	Corbulidae	Menippidae
Palaemonidae	Phyllodocidae	Epitoniidae	Nereididae
Columbellidae	Gobiidae	Lyonsiidae	Panopeidae
Mytilidae	Gobiesocidae	Mactricidae	Stylochidae
Veneridae	Batrachoididae	Mogulidae	
Triphoridae	Blennidae	Mytilidae	**Scavengers**
Caprellidae		Polyclinidae	Nassariidae
Cerithiidae	**Parasites**	Semelidae	
Modiolidae	Pyramidellidae	Styelidae	
Tellinidae	Pholadidae		

The total abundance of the different ecological groups was counted for each sampling period (Fig. 9), and while most groups did not change significantly over time, the abundance of commensal associates increased steadily with time, indicating the development of important potentially beneficial ecological relationships. There was also a significant different between the overall abundance of associated species between the two study sites, indicating some location specific differences in community development on restoration reefs.

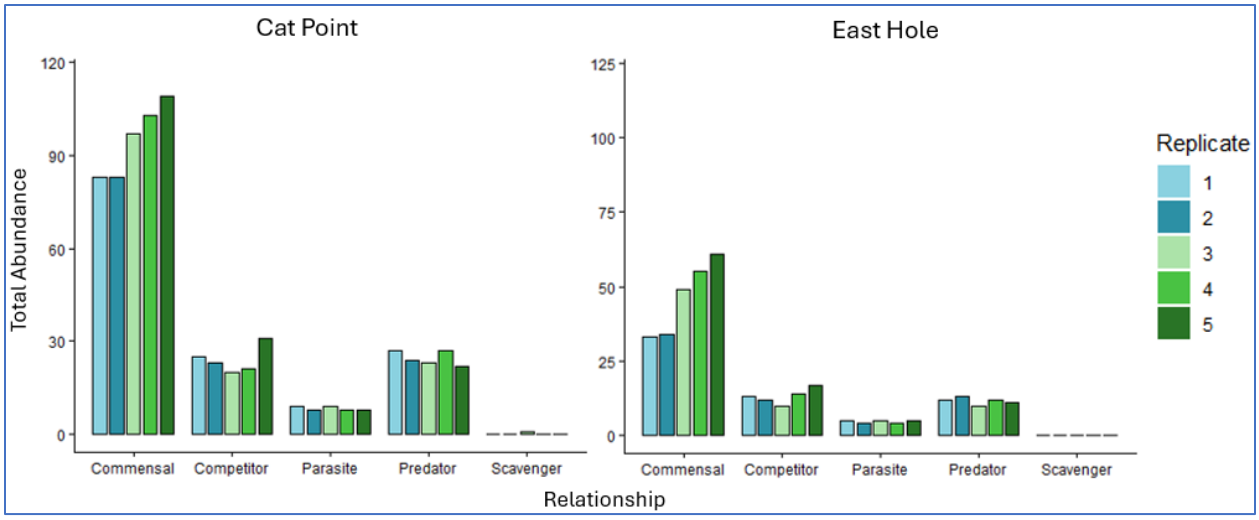


Figure 9. Communities associated with newly deployed restoration reefs, showing changes in abundance over time of different ecological groups, and location-specific differences in overall species abundance.

2.5 Habitat use by commercial crab species in Apalachicola Bay (Adin Domen, MS Student, FSU)

Introduction

This research project is focused on measuring the success of introduced and restored oyster reefs in the Apalachicola Bay. This is measured by the systems' ability to support and maintain economically important crustacean species. Due to the fisheries collapse in 2012, and the close of wild oyster harvest in 2020, the local community's economy has suffered as a result. Many former oystermen have turned to harvesting crustacean and fish species as a supplement to the income they would receive from the wild oyster harvest. A study asked Apalachicola resource managers how they viewed a successful restoration of Apalachicola Bay, with nearly all of them emphasizing the importance of re-establishing a sustainable fishery (Brown et al. 2021). Without the successful restoration of habitat for these economically important species to utilize, the stability of these marine communities will be compromised. The objective of this study was to assess the effect of different restoration efforts on the abundance and size of *Callinectes sapidus* (Blue Crabs) and *Menippe mercenaria* (Stone Crabs).

Methods

Detailed methods were included in the 2025 ABSI Annual report. The second round of sampling for each species was conducted between summer 2025 and winter 2026

Results and discussion

The number of crabs caught per trap at each sampling event is presented as catch per unit effort (CPUE). For stone crabs, the height of the substrate/reef had a significant positive relationship with CPUE ($p = 0.005$; Fig. 10), and there was also a significant effect of substrate type ($p = 0.004$; Fig. 11) but this was not consistent and was potentially confounded by reef age. These crabs create burrows for shelter and prefer higher relief habitats. Stone crabs are opportunistic carnivores and use their large claws to break open mollusk shells; oyster reefs therefore provide abundant food and habitat. The sex ratios of captured crabs did not differ amongst substrates and were not consistently skewed towards either sex (Fig. 12).

For the blue crabs there was no significant relationship between reef height and CPUE ($p = 0.5$; Fig. 13), but a significant overall effect of substrate type ($p < 0.001$; Fig. 14); however, these were not consistent relative to material and were potentially confounded by reef age. Blue crabs appear to prefer low relief habitat; they are omnivorous scavengers that feed opportunistically on varied food items from dead organic detritus, invertebrates including bivalves and smaller conspecifics. Larger males occupy lower salinity areas than females, which is reflected in the female-skewed sex data for this species (Fig. 15).

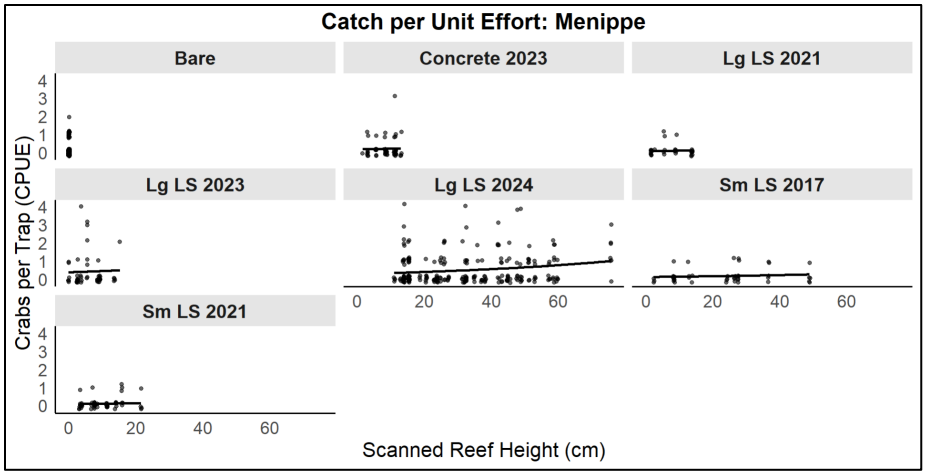


Figure 10. Stone crab CPUE relative to height of different restoration areas.

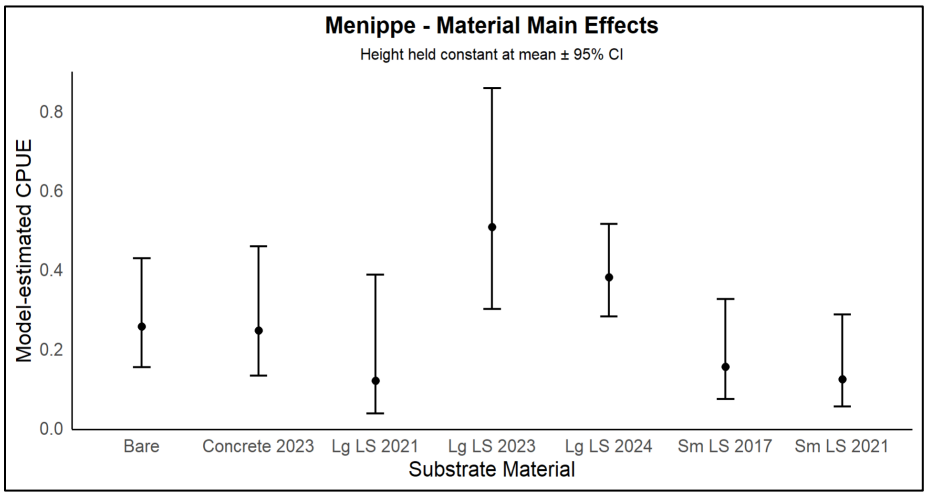


Figure 11. Stone crab CPUE relative to different substrate materials

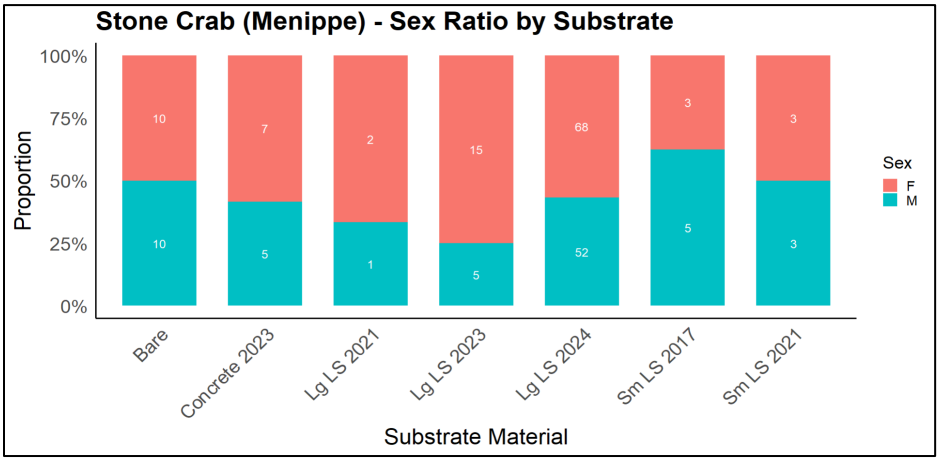


Figure 12. Sex ratios of captured stone crabs showing no consistent difference among substrates and no consistent deviation from equal representation of males and females.

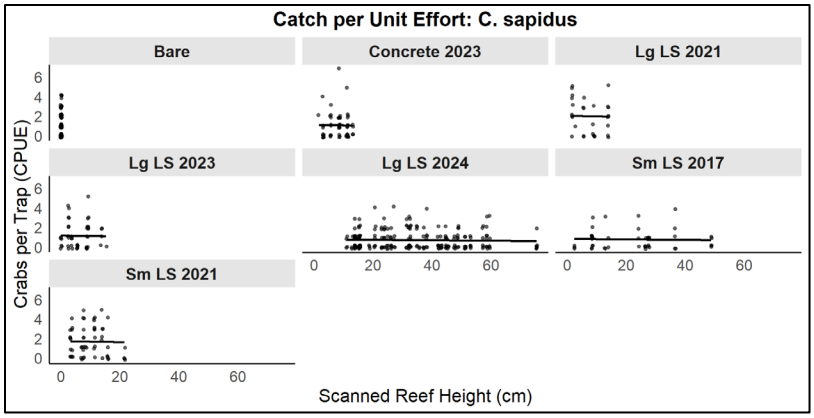


Figure 13. Blue crab CPUE relative to height of different restoration areas.

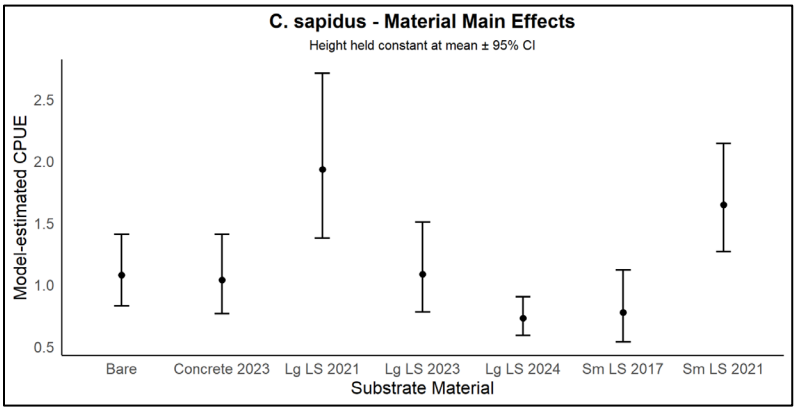


Figure 14. Blue crab CPUE relative to different substrate materials

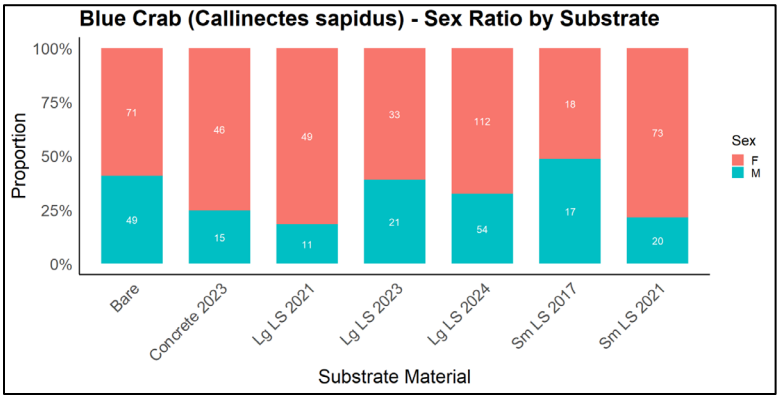


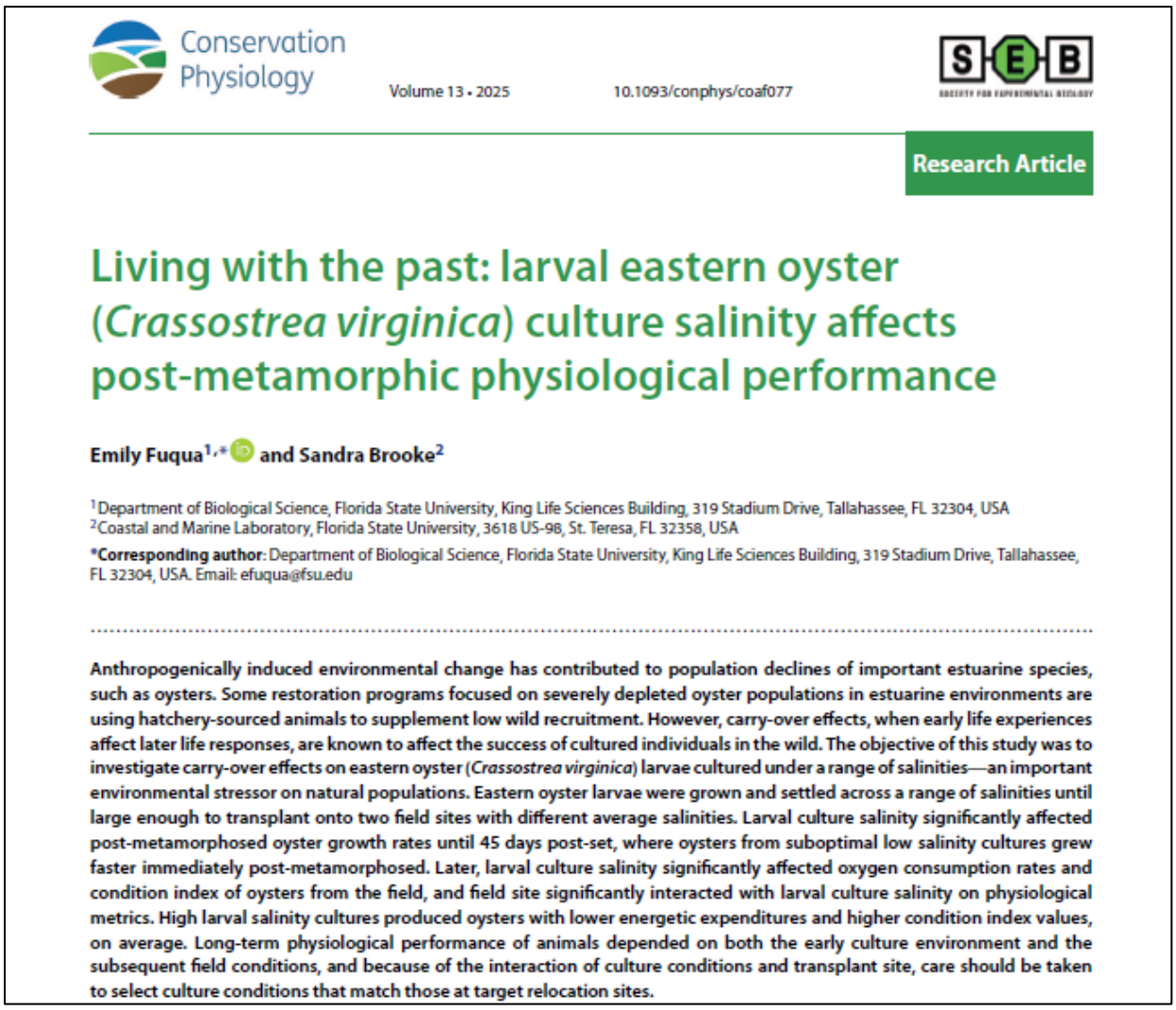
Figure 15. Sex ratios of captured stone crabs showing no consistent difference among substrates and no consistent deviation from equal representation of males and females.

These data were the basis of a Masters Thesis by Adin Domen, FSU Biology Department graduate student. He successfully defended his research in Spring 2026 and graduated. The thesis citation is '*Domen A.N. (2026) The effects of oyster restoration on economically important crab species in Apalachicola Bay, Florida.* Masters Thesis, Dept. Biological Sciences. The Florida State University' The document is available through the Florida State University Library System.

2.6 Carry-over effects of larval culture salinity (Emily Fuqua, Ph. D., FSU)

This section was included in the 2025 ABSI annual report and has since been published in a peer-reviewed journal: ***Fuqua E, S Brooke (2025) Living in the past: larval eastern oyster (Crassostrea virginica) culture salinity affects post-metamorphic physiological performance. Conservation Physiology 13(1): coaf077***

Funding by Triumph Gulf Coast Inc. was included in the acknowledgements. Emily Fuqua graduated with her Ph.D in December 2025



Conservation Physiology

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Research Article

Living with the past: larval eastern oyster (*Crassostrea virginica*) culture salinity affects post-metamorphic physiological performance

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Anthropogenically induced environmental change has contributed to population declines of important estuarine species, such as oysters. Some restoration programs focused on severely depleted oyster populations in estuarine environments are using hatchery-sourced animals to supplement low wild recruitment. However, carry-over effects, when early life experiences affect later life responses, are known to affect the success of cultured individuals in the wild. The objective of this study was to investigate carry-over effects on eastern oyster (*Crassostrea virginica*) larvae cultured under a range of salinities—an important environmental stressor on natural populations. Eastern oyster larvae were grown and settled across a range of salinities until large enough to transplant onto two field sites with different average salinities. Larval culture salinity significantly affected post-metamorphosed oyster growth rates until 45 days post-set, where oysters from suboptimal low salinity cultures grew faster immediately post-metamorphosed. Later, larval culture salinity significantly affected oxygen consumption rates and condition index of oysters from the field, and field site significantly interacted with larval culture salinity on physiological metrics. High larval salinity cultures produced oysters with lower energetic expenditures and higher condition index values, on average. Long-term physiological performance of animals depended on both the early culture environment and the subsequent field conditions, and because of the interaction of culture conditions and transplant site, care should be taken to select culture conditions that match those at target relocation sites.

2.7 Oyster stress response and physiological tolerances (Emily Fuqua, Ph.D., FSU)

This section was included in the 2025 ABSI annual report and has since been published in a peer-reviewed journal: Fuqua E, S Brooke (2025) Salinity and temperature tolerance of the eastern oyster (*Crassostrea virginica*) larvae from the northwest coastal region of Florida. Journal of Shellfish Research 44(2): 261-269 Funding by Triumph Gulf Coast Inc. was included in the acknowledgements.

Journal of Shellfish Research, Vol. 44, No. 2, 261–269, 2025.

SALINITY AND TEMPERATURE TOLERANCE OF EASTERN OYSTER (*CRASSOSTREA VIRGINICA*) LARVAE FROM THE NORTHWEST COASTAL REGION OF FLORIDA

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[2]*Florida State University, Coastal and Marine Laboratory, 3618 US-98, St. Teresa, FL 32358*

ABSTRACT Florida eastern oyster (*Crassostrea virginica*) populations have historically supported valuable wild fisheries; however, populations have collapsed across this region, including the previously highly productive Apalachicola Bay, FL. Estuaries are being affected by development, water management, and climatic changes, all of which can impact the sensitive early life history stages of this foundation species. This study provides information on physiological tolerances to the environmental conditions of larval eastern oysters from the Florida panhandle. Wild oysters from this area were used to produce larvae, which were cultured at a range of salinities (5, 8, 11, 14, 17, 20, 23, 26, 29, and 32) in 2023 and temperatures (14°C, 16°C, 18°C, 20°C, 22°C, 24°C, 26°C, 28°C, 30°C, and 32°C) in 2024. Survival and growth were measured throughout both culture periods. Salinity and temperature significantly affected larval survival and growth rates. Optimal survival and optimal growth occurred at different salinity and temperature values, indicating there may be tradeoffs between larval growth and survival in this region. This study provides key physiological information needed to understand eastern oyster biology and population dynamics in the Florida Panhandle region. Additionally, this study demonstrates potential physiological tradeoffs for larval eastern oysters across gradients in salinity and temperature, which are known to be highly variable across estuaries where eastern oysters reside.

KEY WORDS: *Crassostrea virginica*, eastern oyster, larval tolerance, salinity, temperature

2.8 Comparisons of oyster performance across Apalachicola Bay (Dr. Lauren Rice, Post-doctoral scholar)

Introduction

Environmental conditions across Apalachicola Bay are highly variable temporally and spatially. Oyster populations also vary among locations in the Bay, particularly the west versus the eastern areas of the system. The environment, which includes abiotic elements such as temperature and salinity, and biotic features such as food and disease, all influence the health of oyster populations. Metrics used to assess the health status of an individual include (but are not limited to) survival, growth, condition index (a measure of tissue mass or organic content relative to shell height) and reproductive capacity. This project uses a combination of sampling of wild populations, and manipulation of hatchery juveniles produced from Apalachicola Bay broodstock.

a. Analysis of oyster survival, growth and condition

Oysters collected from Apalachicola Bay in spring 2025 were spawned in the FSUCML hatchery and the resulting juveniles were placed on a lease site in Oyster Bay until they reached approximately 20mm. The oysters were then brought to the FSUCML and used to assess their performance at three different locations in Apalachicola Bay: Cat Point, East Hole and North Spur. At each location, four aquaculture cages were deployed as shown in figure 16. Each cage contained 120 juvenile oysters; 60 marked with individual tags to track their survival and growth and 60 unmarked that were subsampled for condition index analysis. The oysters were deployed for 21 weeks and were serviced (cleaned, oysters measured and subsampled) every three weeks.

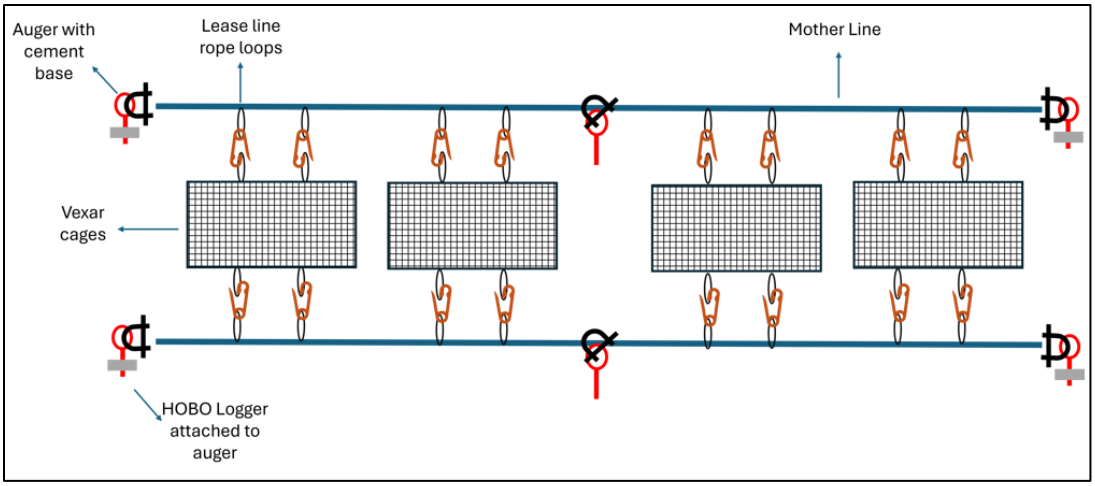


Figure 16: Schematic of aquaculture cages used to house juvenile oysters in three locations in Apalachicola Bay, for assessment of performance under different environmental conditions.

Results

Growth rates showed no significant differences across sites (ANOVA p = 0.35; Fig 17); however, mortality (Fig. 18) and condition (Fig. 19) showed differences across sites. Cat Point showed the highest mortality consistently over time, whereas East Hole and North Spur were similar until late fall when East Hole mortality increased. North Spur had the lowest overall. However, the highest cumulative mortality rate over the entire deployment period was approximately 10%, which is relatively low. The condition indices also showed differences between sites, with North Spur again performing better than the other sites, with East Hole showing the lowest condition overall. Temperature and salinity were measured at each site using in situ dataloggers. These revealed no differences in temperature across sites, but significant differences in salinity ($p < 0.001$). East Hole had overall the highest salinities of all the sites, followed by Cat Point with North Spur consistently lower than the other two sites. North Spur is closer to the river outflow and potentially has more food in addition to more favorable salinities than the other two sites.

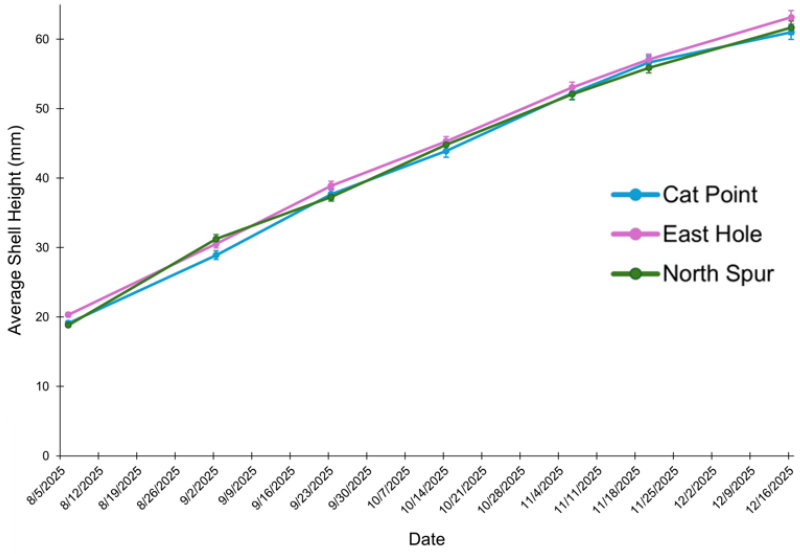


Figure 17. Average growth rates (shell height) of caged marked oysters over time at different sites

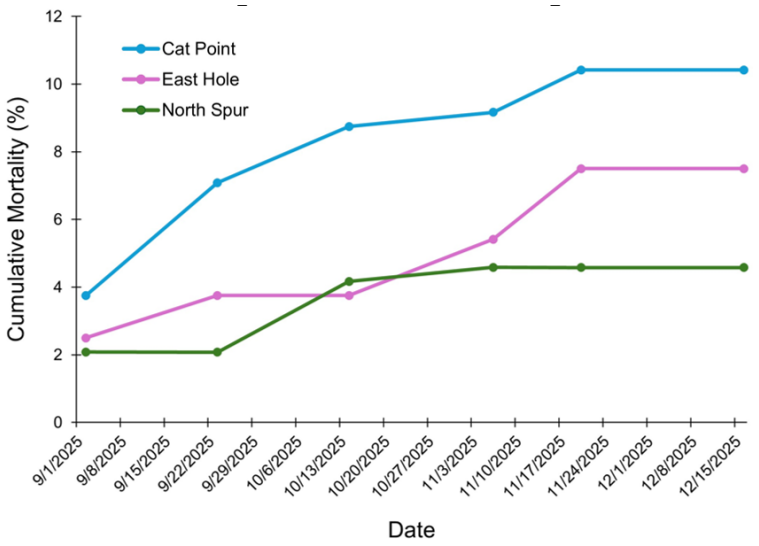


Figure 18. Cumulative % mortality of caged marked oysters over time at different sites

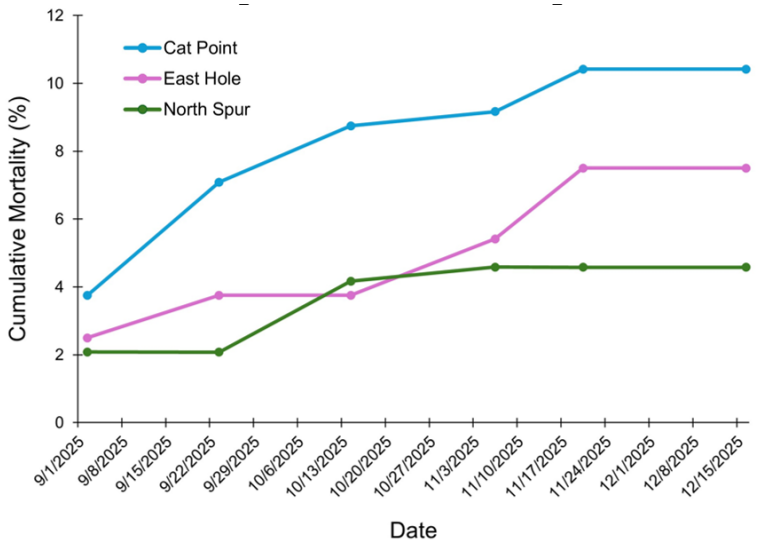


Figure 19. Average condition index of caged unmarked oysters over time at different sites

These results indicate that environmental conditions were favorable during the experimental period in the western Bay (North Spur) and are not the direct cause of the smaller oyster populations in this region.

The experiment was repeated in the spring of 2026 to determine whether season has an impact on region specific oyster performance. The FSUCML hatchery produced seed from wild Apalachicola Bay adults and the experiment was deployed (using the methods described above) in April 2026. The experiment was subsampled every 3 weeks and scored for survival, growth and condition index.

For both experiments, data on oyster epifauna, shell condition and endoparasites were collected. These data are still being compiled and analyzed, and results will be documented in the next ABSI annual report.

Preliminary results from 2026 experiments

Towards the end of 2025, ABSI researchers noticed increased mortality in adult and juvenile oysters in their East Hole experiments and nearby reefs. There was no obvious reason for this mortality; environmental conditions were not significantly different from the other study sites (Fig. 20), which showed high survival in the experimental animals and adjacent reefs. Since juveniles were also affected, the cause was unlikely to be caused by Dermo, which generally affects older animals and peaks during warm summer months. This trend continued through spring and summer 2026 and is tracked through our experiments (Fig. 21) The cause of the mortality is still unknown and the East Hole area, which was open to harvest in the fall of 2025, is now closed as oyster populations are too low. The cause has not been determined by State agencies. Growth rates (Fig. 22) and condition index (Fig. 23) were not significantly different from the other sites so whatever is causing the mortality appears to be acute rather than a chronic 'wasting' problem. ABSI will continue to monitor mortality on their East Hole study sites but are no longer permitted to tong survey in Apalachicola Bay to track the extent and dynamics of the impact.

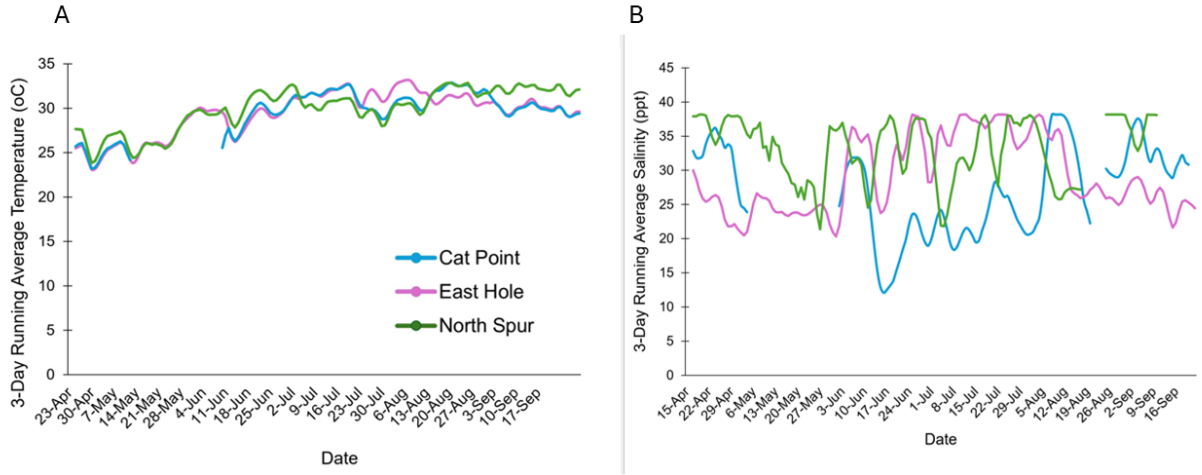


Figure 20. Environmental conditions at the experimental sites A) Temperature (°C) and B) Salinity (ppt)

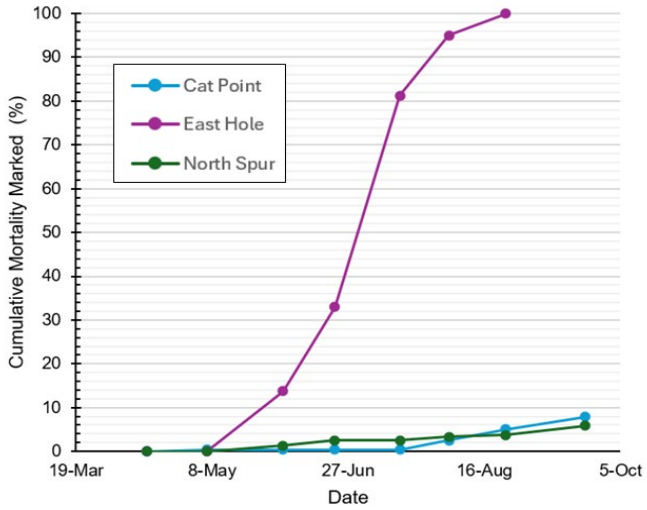
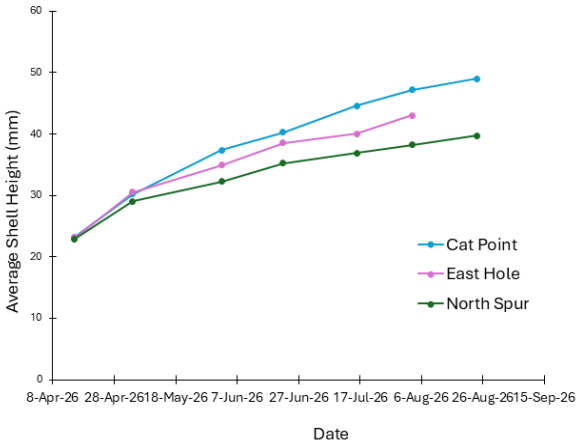


Figure 21. Cumulative mortality curves at three study sites, with significantly higher mortality at East Hole.



Average Growth Rates			
Site	Cage	Ave	stdev
Cat Point	1	0.205808	0.059779
	2	0.184453	0.046924
	3	0.183529	0.046852
	4	0.211676	0.043136
	Overall	0.194386	0.049037
East Hole	1	0.141414	0.021427
	2	0.134199	0.039051
	3	0.189394	0.010714
	4	0.141608	0.033651
	Overall	0.142962	0.032363
North Spu	1	0.149369	0.041567
	2	0.143809	0.040474
	3	0.126218	0.039385
	4	0.138976	0.040151
	Overall	0.139792	0.041053

Figure 22. Graphical and tabular presentation of growth rates for experimental oysters at three study sites

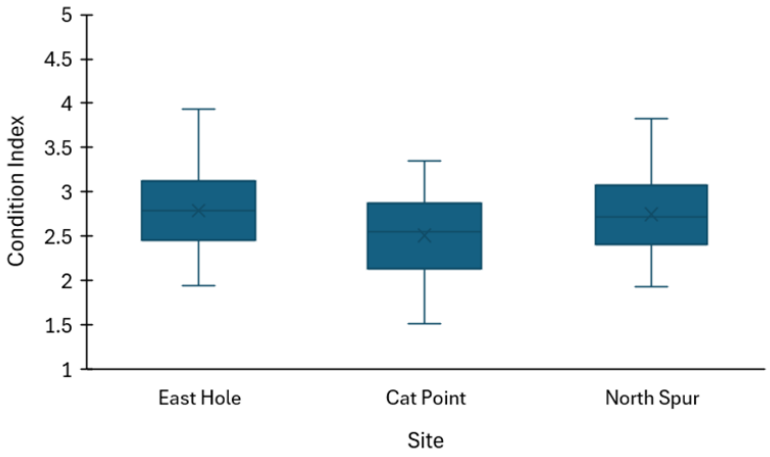


Figure 23. Average condition index of experimental oysters at three study sites.

b. <u>Analysis of oyster reproductive cycles</u>

Reproduction is an energetically expensive process, particularly for the females that produce lipid-rich eggs. When conditions are stressful, animals may allocate their energy into critical maintenance processes such as tissue repair or growth rather than reproduction. The goal of this component of the project was to determine 1) onset of reproductive maturity 2) size at male-female transition 3) timing of reproductive cycles and 4) correlation with environmental data to identify drivers for the biological observations.

Monthly samples of oysters were collected throughout 2025 at three sites in Apalachicola Bay: Cat Point (northeast), East Hole (southeast) and North Spur (northwest). These sites have differing environmental conditions, which may influence their reproductive cycles. The oysters in each sample were measured and processed for histological analysis. This processing produces sections of oyster gonad, which are mounted on microscope slides and stained to facilitate identification of eggs and sperm. The reproductive development stage was recorded for both males and females, and egg sizes were measured.

Histological processing is very time consuming and samples are still being processed so results will be reported in the next ABSI annual report. Dr. Rice is also analyzing earlier FWC histology slides to provide a longer term perspective on reproductive dynamics using different approaches from the FWC. This is a significant undertaking, but is progressing well with the assistance of FSU undergraduate researchers. Progress with different aspects of the processing and analysis are shown in figure 24. For context, once the 'measured' boxes are complete, data can be analyzed and reported.

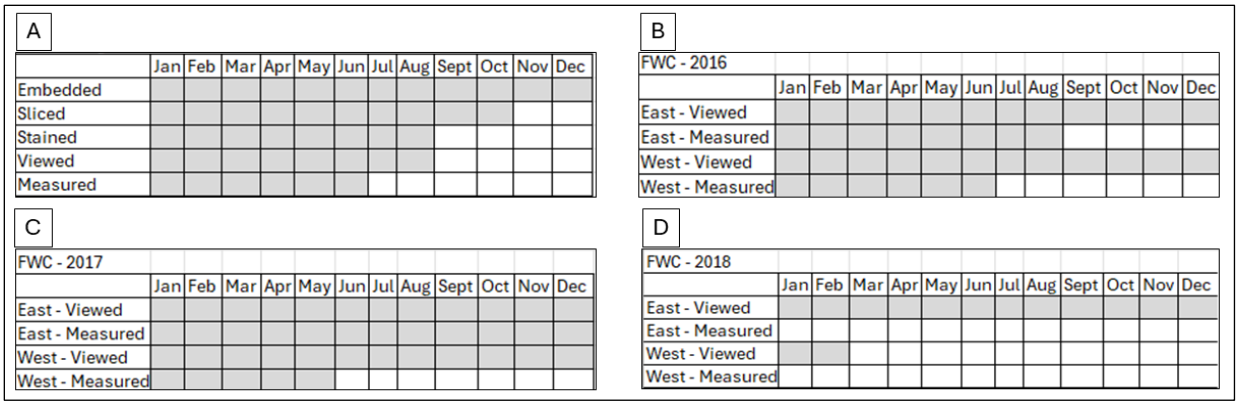


Figure 24. Status of histological analysis of: A) ABSI samples collected in 2025, B) FWC samples collected in 2016, C) FWC samples collected in 2017, D) FWC samples collected in 2018

2.9. Assessment of survival and growth of hatchery spat on shell

The use of hatchery produced spat, settled on cured oyster shell is a common practice in the northeastern US to augment the often limited wild recruitment. This approach has not been used or tested in Florida Gulf Coast oyster restoration efforts as spat did not appear to be a limitation to oyster recovery. Even if this is the case, there may be occasions where the use of hatchery set spat may be useful; for example, in areas that naturally receive limited larval supply, but can support adult oyster populations, or to 'kick-start' recovery after mortality events. The ABSI hatchery has successfully produced spat on shell in the past but testing the efficacy was challenging when there was limited stable substrate for experiments. In 2024, the FWC deployed ~ 80 acres of limestone reefs in Apalachicola Bay, providing a stable substrate to support experiments such as those described in section **2.8** above. Testing the spat on shell approach was an original ABSI objective, that we now have the opportunity to fulfil.

Methods

Adult oysters were collected from Apalachicola Bay and used by the FSUCML shellfish hatchery to create larval cultures. When competent, the larvae were introduced into a setting tank with 45 submerged mesh bags each filled with 6 liters of clean cured oyster shell. The larvae were left to settle in the dark with no flow for 48 hours, then were kept in the tank with seawater flow through for 3 weeks to allow the spat to grow and harden before being deployed in the experiment.

The field component used a similar layout as described in section 2.8. An array of 36 Vexar aquaculture cages each housed a bag of spat on shell, and a similar sized bag of bare shell. The latter was included to allow us to assess the contribution of wild spat to the counts we observed in the hatchery spat bags. At each of three study sites (Cat Point, North Spur and East Hole), 12 vexar cages were attached to secured lines (Fig. 16), which anchored them to the substrate. Prior to deployment, initial counts of live spat per shell were collected from 15 randomly selected shells from three bags (these were not deployed in the field). During four subsequent sampling events (Table 2) divers recovered three replicate cages at each site and brought them to the FSUCML for processing.

Table 2. Dates of deployment and field sampling for spat on shell experiment.

Sampling Time Period	Date(s)
0	06/12/2026
1	07/07/2026
2	08/04-05/2026
3	08/24-25/2026
4	09/22/2026

For each bag (bare and spat on shell), the number of shells in each bag was counted and 15 randomly selected shells were scored for live spat per shell. To assess size distribution (which tracked growth and identified different spat cohorts), 100 live spat per bag were measured. The experiment was terminated in September, but we plan to deploy a second experiment using spat on shell produced this fall by the FSUCML hatchery. Deployment is planned for early November once the spat are hardened.

Preliminary Results

Live counts of spat per shell for the 'seeded' hatchery spat shells versus the bare shells are shown in the graphs below for Cat Point (Fig. 25), East Hole (Fig. 26) and North Spur (Fig. 27). These graphs clearly show that the hatchery spat is surviving well and is not being overwhelmed by settlement from wild spat. It also clearly demonstrates differences in wild spat settlement between the study sites. Growth data and results of the second experiment will be provided in the next ABSI report.

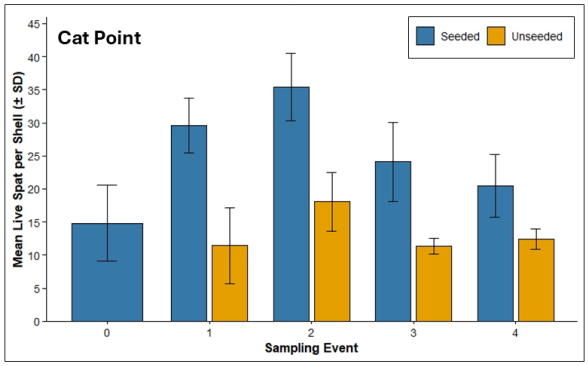


Figure 25. Live spat counts on seeded (hatchery) shells and unseeded (bare) shells at the Cat Point site

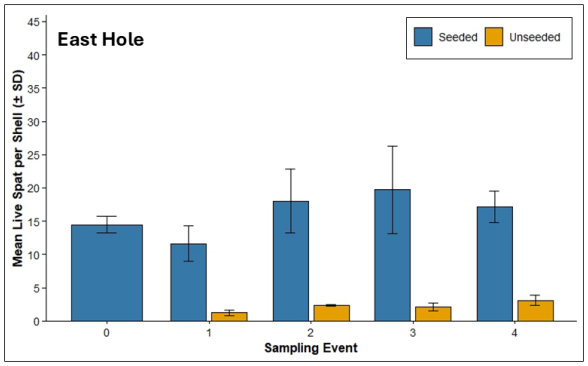


Figure 26. Live spat counts on seeded (hatchery) shells and unseeded (bare) shells at the East Hole site

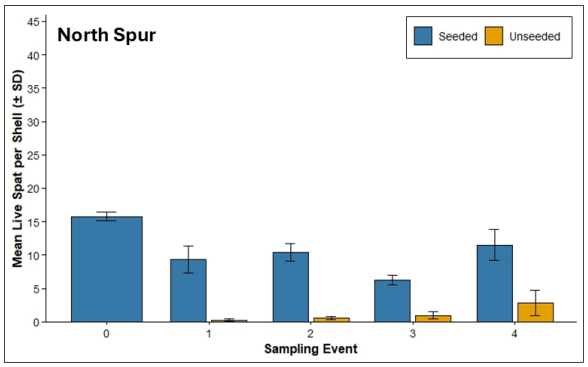


Figure 27. Live spat counts on seeded (hatchery) shells and unseeded (bare) shells at the North Spur site

2.10. Improving Bay Scallop Restoration in Franklin County (Dr. Morgan Hawkins, FSU)

Summary

The bay scallop supports a lucrative recreational fishery, particularly in the Big Bend and Florida Panhandle regions, but populations are in decline in many areas. This research will contribute significantly to our understanding of how to restore and maintain depleted bay scallop populations in Franklin County and beyond. This research has been funded under ABSI and other funding sources and culminated in a dissertation entitled '***A multidisciplinary approach to optimizing bay scallop restoration aquaculture'*** submitted and defended in April 2026. The full dissertation is available to the public through the FSU library system.

The dissertation comprised three research chapters:

1. Origins and outcomes: morphological comparisons of hatchery versus wild Florida bay scallops (*Argopecten irradians concentricus*) and establishing acclimation timing for restoration
2. Effect of probiotic use on larval performance and development of three shellfish species and effect on microbial communities in culture water
3. Evaluating density-dependent survival, dispersal and predation of cultured bay scallops (*Argopecten irradians concentricus*): insights from a mark-recapture study.

3. ABSI Research and Restoration Hatchery (ABSI Hatchery Team)

Broodstock conditioning

Eastern oyster out-of-season conditioning attempts succeeded in inducing conditioned broodstock to spawn by the beginning of March, approximately one month ahead of the wild populations. Maintaining post-spawn animals in cool temperatures in the broodstock room and modulating feeding with high-quality live algae resulted in early gonad building. This work will continue under ABSI and other external funding to provide a source of early spat on shell for use in restoration experiments.

Seed production for experiments

The hatchery produced a successful spawn in spring 2025 using Apalachicola Bay broodstock, that resulted in approximately 8,000 seed. These were placed on the ABSI research lease in Oyster Bay and were subsequently used for experiments by Dr. Lauren Rice on spatial and temporal assessments of oyster health. Another successful spawn in the fall of 2025 resulted in similar seed production, and these were used in 2026 to conduct a second cycle of health assessment experiments by Dr Rice. These experiments are described in section **2.8.a** of this report. In the spring of 2026, a spawn using new Apalachicola Bay (Cat Point and East Hole) broodstock were used to successfully generate spat on shell. These were deployed in an experiment to assess survival and growth of hatchery spat versus spat from wild recruitment in the Bay. This experiment is described in section **2.9** of this report. The hatchery also generated spat on shell this September, which will be deployed in early November in the same configuration as the summer experiment, to assess seasonal effects on spat survival and growth.

Future work

The hatchery plans to accomplish oyster spawns for restoration experiments in Apalachicola Bay in early spring 2027. This will be the final spawn of the ABSI grant but the hatchery will continue to optimize algal and animal culture primarily for oysters but also other species relevant to bivalve research, restoration and aquaculture needs along Florida's Gulf Coast.

4. Outreach and stakeholder engagement

4.1 Social-ecological exploration of the oyster population collapse, fishery closure and restoration efforts of Franklin County stakeholders (Dr. Betsy Mansfield, Post-doctoral Scholar, FSU)

In parallel to the research conducted by ABSI, Dr. Mansfield worked with community members within the Apalachicola Bay region to understand the social, cultural and economic impacts of oyster population decline and fishery closure, and subsequently their perspectives on efforts to restore oyster populations in the Bay. The goal of this work was two-fold, 1) record the social and cultural impacts of foundation species loss of oysters within the human dimension of the region and 2) understand community members priorities for oyster restoration and how participating community members defined restoration success.

Studies associated with the first goal has resulted in a publication in a peer-reviewed journal: ***Mansfield EJ, SE Lester, A Rassweiller, S Brooke (2025) Collapse of the oyster population in Apalachicola Bay: Cascading social impacts from an ecologically and culturally significant species. Ecology and Society 30(1):37.*** Funding by Triumph Gulf Coast Inc. was included in the acknowledgements.

Collapse of the oyster population in Apalachicola Bay: cascading social impacts from an ecologically and culturally significant species

Elizabeth J. Mansfield[1,2], Sarah E. Lester[2], Andrew Rassweiler[2] and Sandra Brooke[1]

ABSTRACT. Historically fishery-dependent communities can have significant economic, social, and cultural ties to key species, the loss of which can cause cascading impacts throughout the community, extending beyond fishers. Understanding the different ways communities depend on a species, and how the species' loss may reverberate through the community, is key for holistic ecosystem management approaches. We propose that species that possess significant importance to the economic, cultural, social, and nutritional structuring of a human community be considered "multidimensional foundation species." This study examines the multi-faceted impacts of oyster population collapse within the Apalachicola Bay region of Florida. We conducted semi-structured interviews with a variety of local community members, exploring the varying types of connections to oysters and how the oyster population collapse impacted community members individually and collectively. Individuals described economic, ecological, cultural, and nutritional impacts within their lives. Economic impacts were most common, but impacts differed substantially for individuals with different connections to oysters. We also documented broader collective changes, particularly loss of cultural ecosystem services tied to oysters, including negative shifts in community identity, individual identities of community members, and social well-being. We found a greater de-coupling between tourism and the fishery than hypothesized, with tourism reported to have increased despite the collapse in oysters, demonstrating the challenges of predicting impacts from the decline of a multidimensional foundation species. This work highlights the need to understand how harvestable foundation species may not only form the base of ecological systems, but also influence the economic, cultural, and social dimensions of human systems. In the face of continual global fishery declines, implementing management actions that consider the far-reaching ecological and social importance of fisheries species will be crucial for promoting community well-being and resilience.

Key Words: *ecosystem services; fisheries; foundation species; oysters; social-ecological systems*

Studies associated with the second goal has resulted in another manuscript that was submitted for publication: ***Mansfield E.J., H. DeMaria, S.E. Lester, A Rassweiler, S. Brooke (in review) Oyster restoration success: Approaches, targets, and priorities along the Florida Gulf Coast"*** *Submitted* to ***Restoration Ecology.*** This work explores the goals, success metrics, and target thresholds of recent oyster restoration projects along the Florida Gulf Coast, and how they align, or misalign, with stakeholder priorities of the oyster-reliant fishing community of Apalachicola Bay. Funding by Triumph Gulf Coast Inc. was included in the acknowledgements.

4.2 Economic Revitalization Programs for Franklin County. Jim Moran College of Entrepreneurship and Jim Moran Institute (Dr. M Carter, Dr. Susana Santos, Marina Lickson)

Introduction

The Florida State University Jim Moran College (JMC) of Entrepreneurship / Jim Moran Institute (JMI) is carrying out the entrepreneurship-based programming described in Appendix 2 of the ABSI Grant Amendment to Project 69. There are four entrepreneurship leadership education cohorts planned, two in the Forgotten Coast Small Business Executive Program ("SBEP") and two in the Accelerate Franklin Entrepreneurship Program ("Accelerate Franklin"). We have completed both cohorts of Accelerate Franklin (August 8, 15, and 22, and December 5, 12, and 19) and one cohort of SBEP graduated in April 2025. Entrepreneurship programming has taken place at the Apalachicola National Estuarine Research Reserve Nature Center (ANERR). The second cohort of SBEP is planned for Q1 2027.

The Franklin County entrepreneurship capacity building includes two programs, Accelerate Franklin Entrepreneurship Program ("Accelerate Franklin") and the Forgotten Coast Small Business Program (SBEP). Accelerate Franklin focuses on nascent entrepreneurs looking to take existing idea-stage, micro-, and small-ventures and build them into sustainable ventures. A cohort lasts 9 months and accomplishes these goals through a predefined set of more than 80 proven entrepreneurial action steps, bringing boot camp training, 1:1 mentorship, and small-group learning opportunities directly into the community. The SBEP is targeted at CEOs, founders, entrepreneurs, and presidents of established small businesses (typically those with 3+ years in business and 3+ employees, though we have relaxed criteria for Franklin County). It includes four 4-hour classroom sessions followed by peer-to-peer mentoring.

The project, when executed across all four cohorts (two for each program), represents up to 1,180 hours of total business-contact time. Each cohort of the two programs targets 5-15 participants. We are tailoring both programs to the Forgotten Coast audience, reflecting the contemporary makeup of the local economy and capacity-building for fishing-related businesses entering/re-entering the market.

Enrollment interest has been robust, especially since the programs took place during a period in which the local economy was preparing for the reopening of Apalachicola Bay to oyster harvesting. Thirty participants have completed entrepreneurship training across the two programs to date.

Key achievements to date:

- The first cohort of the SBEP finished its classroom work in April, graduating 9 participants, and representing approximately 144 contact hours to date.
- Both cohorts of Accelerate Franklin completed their classroom work in August (12 participants) and December (9 participants), representing approximately 772 contract hours.
- We marketed the two programs through networking with local businesses and the Apalachicola Bay and Carrabelle Chambers of Commerce, augmenting this outreach with targeted social media and advertisement buys.
- We have marketed the two programs through a combination of local radio advertising, social network posts, in-person networking, printed flyers, and the Apalachicola Bay Chamber of Commerce events calendar, of which the JMI for Global Entrepreneurship is a member.
- The Partnership for a Resilient Apalachicola Bay has also been recruiting applicants for the two programs, and the ANERR classroom has been an ideal venue for these workshops.
- Supported the unfunded extension of the ABSI grant through June 2027.

Future activities under the grant extension schedule (through June 30, 2027)

- Pursue additional marketing channels and networking to maximize enrollment of business leaders in this last cohort of SBEP.
- Focus on greater market penetration in Gulf County for program participants
- Continue to engage the Accelerate Franklin participants in post-classroom mentoring.
- Revised future cohort schedule: SBEP cohort 2: Q1 2027 at ANERR

4.3 Targeted outreach to the Community

The Partnership for a Resilient Apalachicola Bay is the public-led successor group of the ABSI Community Advisory Board. Dr. Sandra Brooke and Dr. Joel Trexler continue to participate in The Partnership monthly meetings as advisory board members and to provide research updates to the committee members. Brooke is also a member of the Technical Committee, which engages with FWC on developing restoration and management approaches to support oyster harvest and the long-term health of the Apalachicola Bay System. Partnership website: https://www.partnershipforapalachbay.org/

ABSI was represented at various events throughout the Florida panhandle region, at multiple conferences throughout the country, and showcased during visiting school programs to the FSU Coastal and Marine Lab. Additionally, the Shuck N' Release shell recycling program has continued its shell recycling efforts at local events.

Shell Recycling – Shuck 'N Release

FSUCML and ABSI staff have partnered with the Panacea waterfront community to collect oyster shells during their festivals. Baskets are set up around the events for shell collection, and informational flyers and pamphlets are distributed to attendees. The next step in this program is to partner with local businesses and distributors to collect their waste shells.



Left: 'Recycle Shells Here' sign with a collection basket full of oyster shells and



Right: Dump trailer full of oyster shells collected at the 2026 Panacea Beer and Oyster Festival

Public Outreach and Engagement

Last year, our outreach and engagement hit a record high! 2025-2026 was busy with school groups, tours, field trips, and festivals. As a result, over the last year, we have engaged with over 33,690 individuals through a variety of events, which is almost a 40% increase in engagement since 2023. In addition to these numbers, FSUCML Open House took place April 25, 2026, where we welcomed over 1,500 people to explore FSUCML's facilities, and learn about our ongoing research projects. ABSI was prominently featured with faculty, post-docs, technicians and students and hatchery team sharing their research and providing hands-on demonstrations for attendees.

Oyster South Symposium

Dr. Sandra Brooke was presented with the 2026 Oyster South Environmentalist Award for her innovative leadership in oyster restoration and her devoted support of Florida's oyster community. This award recognizes an individual, group, or organization who has taken extraordinary steps to advocate for and protect the coastal environments that sustain the southern oyster aquaculture industry.

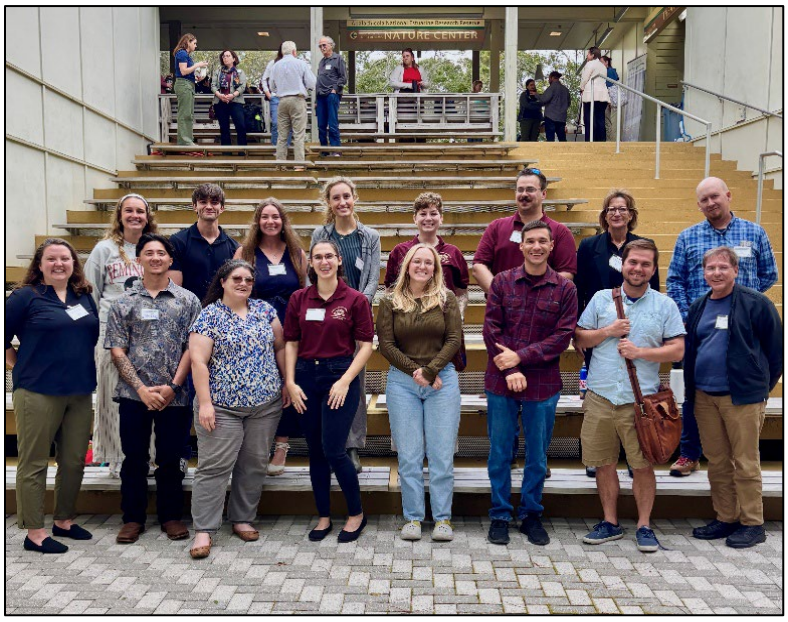


Dr. Sandra Brooke accepting the Environmentalist Award at the 2026 Oyster South Symposium.

Reserve Symposium State of the Watershed: Threats, Challenges, and Opportunities at the Apalachicola National Estuarine Research Reserve

The 2026 Apalachicola National Estuarine Research Reserve (ANERR) Symposium heavily featured members of FSUCML's ABSI team. The event was focused on regional coastal ecology and scientific studies related to the Apalachicola Bay area. Below is the list of ABSI team members who showcased ABSI research by giving either oral or poster presentations at this event.

- Dr. Sandra Brooke (ABSI PI): Apalachicola Bay oyster population response to the five-year fishery closure (oral)
- Dr. Josh Breithaupt (FSUCML Faculty): Recent acceleration in regional sea-level rise and the future of coastal wetlands in the Apalachicola Bay region (oral)
- Dr. Betsy Mansfield (Post-doctoral Scholar) A social-ecological exploration into the impact of oyster population collapse and oyster fishery closure of Apalachicola Bay (oral)
- Dr. Lauren Rice (Post-doctoral Scholar)
- Adam Alfasso (Ph.D. Candidate) Seasonal variation in larval connectivity of *Crassostrea virginica* in Apalachicola Bay, Florida (talk)
- Adin Domen (MSc Student) The effects of restoration oyster reefs on economically important crab species (poster)
- Natalie Horn (ABSI Technician) Community associates of two newly restored limestone oyster reefs in Apalachicola Bay, Florida (poster)
- Natalie Horn (ABSI Technician) Evaluating experimental materials in restoration of highly degraded oyster habitat in Apalachicola Bay, Florida (oral)
- Caitlin Turnbull (ABSI Technician) Using 3D models to assess oyster accretion rates on artificial structures across Apalachicola Bay (poster)
- Lauren Calvin (ABSI Technician) Identifying the Effects of Reef Relief on Oyster Biomass from Subtidal Restoration Sites in Apalachicola Bay (poster)



FSUCML participants at the 2026 ANERR Symposium.

School Groups

ABSI continues to participate in educational opportunity for public schools and homeschool collectives in Franklin, Wakulla, and Leon Counties, as well as out-of-state for groups from Ohio, and Georgia. This year, we were also happy to welcome the Florida Indian Youth Program, the Boys and Girls Club, 4H Club, and students from several main campus departments. These programs are tailored to best fit the age of the children participating. We have created inclusive cross-curriculum educational resources and experiences for students of all ages to help address some of the environmental issues facing Apalachicola Bay. We promote coastal science and the importance of healthy ecosystems through fun and engaging programs.

Festivals

These events are of a larger scale in which the goal is to reach as many people as possible. We brought a variety of materials (posters, lab equipment, oysters, and more) to showcase the full breadth of ABSI. The events were held throughout the Big Bend area.

- 04/01/2025: FIO Oceans Day at the Capitol (Tallahassee, FL)
- 04/11/2025: Sopchoppy Worm Gruntin' Festival (Sopchoppy, FL)
- 05/02/2025: ANERR's Estuaries Day (Eastpoint, FL)
- 05/03/2025: Autism OdysSea (Navarre Beach, FL)
- 06/28/2025: Boys Town Career Fair (Tallahassee, FL)
- 09/13/2025: FSUCML's Whatever Floats Your Boat Regatta (FSUCML)
- 09/27/2025: Panacea's Blue Crab Festival (Panacea, FL)
- 10/11/2025: Alligator Point Fire House Open House (Alligator Point, FL)
- 10/31/2025 – 11/01/2025: Florida Seafood Festival (Apalachicola, FL)
- 11/08/2025: Tallahassee Science Festival (Tallahassee, FL)
- 11/15/2025: America Recycles Day (Sopchoppy, FL)
- 01/17/2026: Arbor Day (Crawfordville, FL)
- 01/21/2026: FSU Day at the Capitol (Tallahassee, FL)
- 02/18/2026: FIO Oceans Day at the Capitol (Tallahassee, FL)
- 02/21/2026: Mag Lab Open House (Tallahassee, FL)
- 03/21/2026: Beer and Oyster Festival (Panacea, FL)

Free Friday FSUCML tours
These tours have continued to flourish at the FSUCML. Every Friday from 11 am – 4 pm, guests are welcome to attend a guided tour of the marine lab. During these tours,
individuals receive a detailed look at the current research being conducted by our staff, a large part of which is ABSI. This includes an overview of the Bay area and the issues that it faces. As part of the tour, individuals also get the chance to walk through our shellfish research hatchery and see oysters up close. These tours provide the perfect setting for individuals to get a glimpse of what the ABSI team does daily while providing them with an opportunity to ask any questions they may have about Apalachicola Bay or our role in its recovery. Since March 2025, we have had over 750 people join our tours.

ABSI Website (https://marinelab.fsu.edu/absi/)
The ABSI team continues to update the ABSI website with research and other information generated by ABSI leadership, students, post-docs and staff.

News Coverage
The ABSI project continues to be featured in local news and social media pages. Below is a small list of articles and news segments from March 2025 – March 2026, but it is not exhaustive.

- WTXL Tallahassee: FSU Marine Lab research supports sustainable oyster harvesting in Apalachicola Bay – Serena Davanzo, Oct. 13, 2025
- Garden & Gun: Apalachicola Bay Oysters are Finally Back, with an Asterisk – Jennifer Kornegay, Jan. 15, 2026.
- WSFU Public Media: Oyster harvesting is having a positive impact in Apalachicola Bay – Gina Jordan, Feb. 12, 2026.